

people place heritage

CONTEXT

MILDURA (FORMER SHIRE OF WALPEUP) HERITAGE STUDY STAGE 2

Vol 1 Mildura Rural City Thematic
Environmental History

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Mildura Rural City Council



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CONVERSIONS

Weights and measures

In this work imperial units for common measurements are used until 1970 when the present metric system was introduced.

1 inch = 2.54 centimetres

1 foot = 0.30 metre

1 yard = 0.91 metre

1 chain = 20.11 metres

1 mile = 1.61 kilometres

1 ounce = 28.3 grams

1 pound = 454 grams

1 hundredweight = 50.802 kilograms

1 ton = 1.02 tonne

1 acre = 0.405 hectare

1 square mile = 2.59 kilometres

1 horsepower = 0.746 kilowatt

1 mile per hour = 1.61 kilometre per hour

Monetary Values

Before 1966, Australian currency was expressed in Pounds, Shillings and Pence (£ s. d.). The following form is used: £2 13s. 6d.

STATEMENT OF SIGNIFICANCE

What is significant?

White settlement of the Victorian Mallee has been largely directed by efforts to access a water supply. Difficulties in sourcing useable water and its sparse distribution across the Mallee has been the focus of social, economic and political debates about settlement of the country. Two main patterns of European settlement have resulted. In simple terms, irrigation has developed along the River Murray and dryland agriculture occupies the land systems dominated by sandy-loam soils. National parks occupy the remainder of the country, generally on areas not suited to either dryland or irrigated agriculture.

The post-contact settlement of the Rural City of Mildura is marked by four overlapping key phases.

Pastoral occupation from 1847

Squatters moved into the country of the Latji Latji, Wergaia and Wotjobaluk Aboriginal peoples from 1847 to take up vast landholdings under pastoral leases along the River Murray and in the Mallee. The height of this activity occurred in 1861. Because of a semi-arid climate and resultant lack of rainfall, by 1879 many runs had been abandoned. Dams, tanks, fence remains, cypress pine homesteads and outbuildings, cypress pine lined wells, and tanks evidence this era.

Irrigated closer settlement from 1887

Irrigated closer settlement was established by Canadian brothers George and William Chaffey on the former Mildura run in 1887. Since that time, other irrigation settlements have been developed in the Rural City along the River Murray. The layout and naming of Mildura's streets reflect the Californian influence applied by the Chaffey brothers. Mildura's Art Deco architecture exhibits the wealth brought to the community by the economic boom conditions of the 1920s and 1950s. Early irrigation infrastructure includes locks and weirs on the River Murray, pumping stations, channels and stops.

Agricultural settlement from 1901

The introduction of the 1883 *Mallee Pastoral Leases Act* was the precursor to agricultural settlement of the Mallee. Subsequent Mallee Land Acts were introduced from 1889, but agricultural settlement of the study area was directed by the *Land Act* of 1901 that divided up the Mallee Pastoral Leases upon their expiration. The Mallee farm holdings of today comprise a number of 640-acre blocks - the initial farm size allocated to settlers during the era of agricultural settlement in the early 1900s. This era of settlement is exemplified too by railway infrastructure and by the architecture of individual homes, schools, community meeting places and halls of settlements and towns. Efforts to secure a water supply are typified by public tanks, dams, ironclad catchments, channels, bores and cypress pine lined wells.

Rural reconstruction from 1948

Because of farmer debt and soil erosion issues, under the *North-West Mallee Settlement Areas Act* of 1948 a committee was appointed to oversee the acquisition of land and its reallocation. An increase in the size of holdings coupled with a guaranteed price under the 1948 *Wheat Industry Stabilization Act* ushered in a new era of wheat growing in the Mallee. In the mid 1970s, the Land Conservation Council recommended the rationalisation of public land boundaries. The Council's recommendations led to the protection of public land through the declaration of national parks in the Rural City.

Why is it significant?

The cultural landscape of the Rural City of Mildura is significant as a manifestation of the official determination to settle the isolated semi-arid northwest Mallee region of Victoria.

The pastoral occupation landscape of the Rural City is of historical significance because it provides an understanding of how early grazing activities were undertaken in a semi-arid climate.

The irrigated closer settlement landscape of the Rural City is of historical and social significance because it evidences the way in which irrigation enterprises have contributed to the economy since 1887 by utilising the Mallee country and waters of the River Murray. Associated buildings exemplify post-war growth and the increasing multiculturalism of the population.

The agricultural landscape is of historical, social and technical significance because it demonstrates the way in which agricultural enterprises have contributed to the economy since the 1880s by utilising the land and water resources of the Mallee. The landscape evidences patterns of settlement directed by a number of Land Acts and the establishment of railway and water infrastructure especially designed for Mallee conditions. Settlements evidence buildings established by isolated communities to provide basic services to their residents.

The post-World War Two rural reconstruction agricultural landscape is of historical significance because it evidences further adaptation to the Mallee's unique natural environment. Land-use patterns of the 1940s incorporated larger farm holdings. The landscapes of the national parks of the Rural City are of historical significance because they contain natural environments and archaeological and historical sites of importance. Their proclamation reflects shifting social attitudes to the conservation of land.

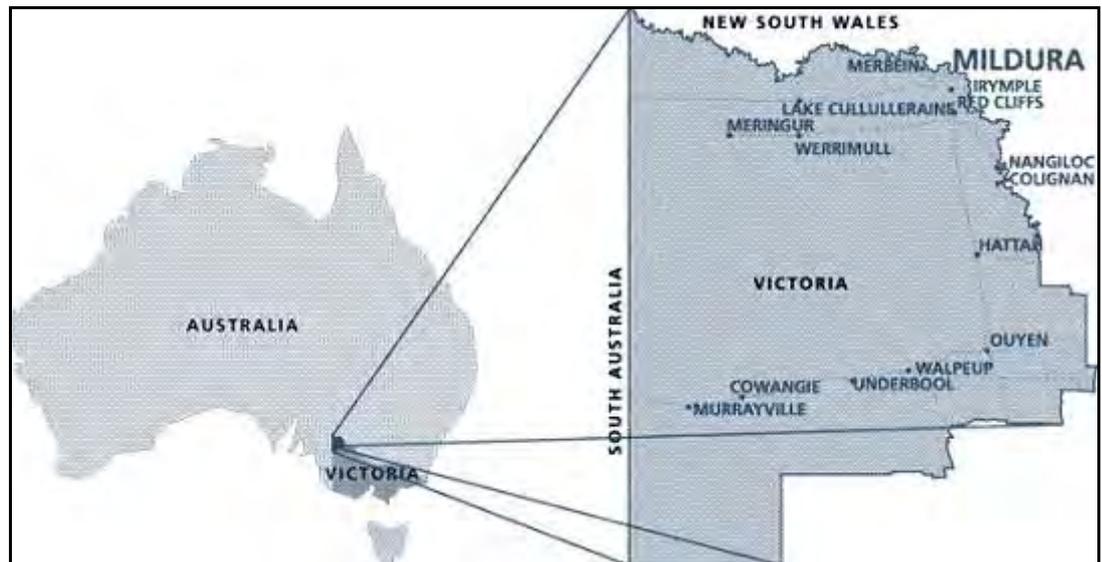
1 INTRODUCTION

The Rural City of Mildura is located in northwest Victoria. It has an area of 22,214 square kilometres stretching from Mildura in the north to Patchewollock in the south and to the South Australian border. In 2006, the Rural City supported a population of 49,815 people with 30,016 living in Mildura and adjacent areas (known as the Sunraysia district).

The study area for the purposes of preparing the thematic environmental history is the whole of the Rural City of Mildura (see Figure 1). Because the emphasis for identifying places of potential cultural significance is the former Shire of Walpeup, the history focuses on the development of settlements, townships and services in that Shire.

The thematic environmental history sets out the key themes that have influenced the historical development of the study area since first contact between Aboriginal and non-Aboriginal people (see Appendix One). Its objective is to explain how and why the study area looks like it does today. The thematic environmental history is concise (approximately 25,000 words) and analytical. It is not a comprehensive chronological history, or record of all the individuals, events, schools, sporting clubs, institutions etc. that may have left their mark on the study area. It aims instead to define the key themes that provide an historical explanation of the existing physical fabric and land use patterns of the study area. These themes are applied in the identification and evaluation of individual components of the study area's heritage (see Appendix Two).

Figure 1: Study Area - Rural City of Mildura



Source: Rural City of Mildura web page.

2 THE COUNTRY AND ITS FIRST PEOPLES

The Mallee, from 'Mali' a traditional Aboriginal name for the vegetation *Eucalyptus dumosa*, lies in Australia's semi-arid zone.¹ Skirted by the River Murray, it is the driest and hottest region of Victoria. As part of the Mallee, the Rural City of Mildura receives an average rainfall of 335 millimetres in the south at Ouyen and 240 millimetres at Ned's Corner.

The Mallee was laid down about 100 million years ago when a retreating sea left coarse sediments and a flat topography. As salt water flowed back into the ocean, a river that would eventually become the River Murray was formed. The highest point in the Mallee is just 70 metres above the lowest point, which is only 30 metres above sea level. Coarse sediments, from which the soil later developed, left little clay in the profile allowing water to flow into underlying aquifers. The flat landscape of the Victorian Mallee means that there is little head to drive the flow of water, either above or below the soil surface. Evaporation is very much greater than rainfall, not only on an annual basis but also on a monthly basis for most of the year. The consequence of a flat landscape, coarse sediments, and an excess of evaporation over rainfall is that no lateral drainage pattern has developed. Creeks that originate along the Great Divide terminate as they enter the Mallee. The Lake Hindmarsh-Outlet Creek-Pine Plains system is the major surface water system in the Mallee dune country. Most of the lakes within the Rural City of Mildura boundaries – Hattah Lakes, Pink Lakes and Rocket Lake – were formed primarily by saline groundwater discharge. The River Murray gains salt as it passes through the Mallee from groundwater systems. In addition, the salt that enters the Mallee via the movement of rainfall runoff has no surface path back to the sea. Hence, there are few local sources of permanent, fresh water across much of the region. Soaks, and clay pans provide sources of water in the Mallee dune country. Rock wells and bores that tap into artesian water are found mainly to the west of Pine Plains.²

The Latji Latji, Wergaia and Wotjobaluk were the first peoples to occupy the land of the present-day Rural City of Mildura.³ According to ethnographic evidence and Dreamtime stories from northwestern Victoria, Aboriginal people moved down the Wimmera River into the southern dune country of the Mallee. In the northern Mallee, the archaeological record suggests that the Raak Plains region was occupied by people from the Murray River.⁴

Aboriginal peoples' diet in the Mallee was heavily dependent on the seasonality of plant foods such as mirrong or daisy yam, fruits and seeds from plants like lignum, saltbush, pig weed and fringe lilies, starchy foods such as prairie grass and native millet, pigface fruit, wild currants, native cherries, kangaroo apple and a variety of tubers, bulbs, roots, sedges, rushes and grass grains. Along the Murray, animals such as possum, kangaroo, emu, fish, crustacean, and aquatic birds were available.⁵ But it was the availability of water that was the major influence in directing Aboriginal life.

The archaeological record challenges the idea that the resources of the Mallee were only accessed by Aboriginal people during periods of plentiful food and water. The Mallee was in fact widely occupied along the River Murray and its associated floodplain, the water corridors

¹ Historically the region has been known variously as Marlie, Marlee, Malley, and Mawley. Ian D. Clark and Toby Heydon, *Dictionary of Aboriginal Placenames of Victoria* (Victorian Aboriginal Coporation for Languages, 2002 [cited 12 September 2008]); available from <http://vaclang.ozhosting.com/search.asp>.

² Based on John W. Cooke, "European Settlement in the Victorian Mallee: A Brief Overview," *Proceedings of the Royal Society of Victoria* 118, no. 2 (2006): 296, *Mallee Area Review*, (Melbourne: Land Conservation Council, 1987), 20-21.

³ Names and boundaries of Aboriginal communities are based on current Victorian Native Title applications. See "Victoria Native Title Applications, Determination Areas and Indigenous Land Use Agreements." National Native Title Tribunal, 2005.

⁴ *Mallee Area Review*, 26-7.

⁵ P. F. J. Coutts, "Aboriginal Prehistory in North Western Victoria: Special Publication of the Victorian Archaeological Survey." Melbourne: Ministry for Conservation, 1977, 6.

of the dunes, and in the drier parts of the country. Archaeological evidence records that some sites were occupied during a different climate phase when the lakes and waterholes were filled with fresh water. Between 50,000 and 25,000 years ago southeast Australia experienced moist conditions and water and food was widely available in the Mallee. Families hunted megafauna, and because the rivers were then less productive, camped on the shores of lakes, catching fish and harvesting mussels. With the onset of the glacial, the previous lush lake environments cooled, dried, and became more saline. Due to an increasingly cold, windy, and arid climate, the environmental variability of prior streams diminished and their faster coursing made them more difficult to access. As a result, some 19,000-20,000 years ago the peoples of the Mallee were isolated in small groups. With the stabilising of climate conditions at the end of the last glacial age some 14,000 years ago, ancestral rivers became more productive and riverine micro-environments more diverse. Growing densities of peoples moved between the river environments and more arid areas. With rising temperatures and increasing competition for resources due to higher populations around 7,000 years ago, a new social, demographic and biological order arose. About this time regional adaptation occurred through a major expansion into the more variable Mallee country. With increased abundance of resources due to a wetter, warmer climate over the last 2,000 years, indigenous peoples travelled further and interacted more widely.⁶

Aboriginal people adapted to the semi-arid nature of the country by following the water corridors that provided the major habitat zones for Mallee fauna. Where camps were made away from the River Murray, water was carried in bags made of possum skins and found in roots of the mallee, and natural soaks and rock pools. Wells were excavated in clay pans and soaks and covered with branches to prevent evaporation. Over this period, the physical features of the country and knowledge of food and water systems came to define language clan boundaries similar to those existing at the time of European contact.⁷ By the time Europeans arrived, the landscape was thus significantly marked by well trodden pathways, excavated wells, scar trees, crops of cultivated yams, large earthen mounds and middens, the creation of grasslands through fire stick burning, engineered channels to catch fish, and burial sites.

⁶ Based on information in Colin Pardoe, "Riverine, Biological and Cultural Evolution in Southeastern Australia," *Antiquity* 69, no. 265 (1995): 696-713. *Mallee Area Review*, 22-8, John Mulvaney and Johan Kamminga, *Prehistory of Australia* (St. Leonards: Allen and Unwin Pty. Ltd., 1999), 157.

⁷ Many local Aboriginal leaders note that the need to delineate indigenous boundaries stems from a white understanding of the world. Traditional boundaries were in fact fluid and dependent on particular activity and seasons. The defining of more formal boundaries has become necessary because of the introduction of Native Title applications.

3 EXPLORATORY, OVERLANDING AND SURVEY EXPEDITIONS

On 3 November 1829 Charles Sturt's expedition left Sydney to begin an investigation of the Lachlan-Murrumbidgee river system. In January 1830 with seven other men, Sturt rowed a whaleboat down the Murrumbidgee River to a 'broad and noble river', which he named the Murray.⁸ He described what was to become known as the Mallee from a vantage point close to where the Darling River and the River Murray meet: '[we were] hemmed in by those sandy and sterile tracts upon which the beasts of the field could obtain neither food nor water'.⁹

In 25 May 1836, Surveyor General Thomas Mitchell, in looking for a place to cross to the southern bank of the River Murray near its junction with the Murrumbidgee, described the Mallee as 'one of the most barren regions in the world. Not a spike of grass could be seen, and the soil, a loose red sand, was in most places covered with a scrub, like a thickset hedge of eucalyptus dumosa'.¹⁰ Later in July 1836, Mitchell recorded that his second in command G. W. C. Stapylton, whilst looking for the Wimmera River north from Mount Arapiles in the Port Phillip District, crossed country which 'assumed the barren character of the lower parts of the Murray' that the party had journeyed through earlier in the same year.¹¹

Edward John Eyre made an attempt to cross the Mallee in 1838. On 21 December 1837, Eyre had left from Limestone Plains in New South Wales to drive three hundred cattle to Adelaide. With six men, 'two little black boys and a black from Gundaroo named Unmallie',¹² three drays, a small flock of sheep and eight horses, after leaving Melbourne, Eyre expected to arrive in Adelaide in nine weeks. In his haste to get to there before overlanders Charles Bonney and Joseph Hawdon, Eyre made several disastrous shortcuts. In an effort to find the necessary water to get the cattle to Adelaide, Eyre determined to follow the Wimmera River, learning from local Aborigines that it emptied into a large lake. He consequently came across a large fresh water lake that he named Lake Hindmarsh. In the hope of finding the Lindsay River described by Sturt, taking Unmallie with him Eyre set off on 4 April 1838 in a northerly direction. From the elevation of a 'high sandy ridge...densely covered with the eucalyptus dumosa' Eyre saw in every direction the 'almost impenetrable scrub'. Eyre abandoned the search for the Lindsay River and retraced his steps back to Lake Hindmarsh. Eyre made one more attempt to cross the Mallee by journeying west. In discussions with a Lake Hindmarsh Aborigine, Eyre learnt that the sea to the south and the Murray River to the north both lay ten days travel away. Eyre was told that locals travelled through this place chiefly in wet weather and carried water in skin bags and collected dew from the grass.¹³ He gave up the attempt to cross the Mallee, and with reduced rations the party backtracked to the Yarrayne river (the Loddon River) and then to the Hume (the River Murray). Following this watercourse, the expedition finally arrived in Adelaide on 13 July 1838, five months after leaving Melbourne.

By 1838, financial difficulties had forced explorer Charles Sturt to join a venture for overlanding cattle to South Australia. The cattle were driven along the Murray, moved to the

⁸ The Hume was named by Hamilton Hume in 1824. The Murray was named by Charles Sturt in 1830 downstream from its junction with the Murrumbidgee. By 1836, the river had been proven to be one in the same and was named the Murray.

⁹ Charles Sturt, "Two Expeditions into the Interior of Southern Australia During the Years 1828, 1829, 1830, and 1831: With Observations on the Soil, Climate, and General Resources of the Colony of New South Wales Volume II." (London: Elder and Co., 1833), <http://setis.library.usyd.edu.au/ozlit/> (accessed 1 February 2009).

¹⁰ Major T. L. Mitchell, *Three Expeditions into the Interior of Eastern Australia, with Descriptions of the Recently Explored Region of Australia Felix, and of the Present Colony of New South Wales, 2nd Edition, Carefully Revised. Volume Two* (London: T. & W. Boone, 1839; reprint, Adelaide: Library Board of Australia, 1965), 97.

¹¹ *Ibid.*, 191.

¹² Jill Waterhouse, ed., *Autobiographical Narrative of Residence and Exploration in Australia 1832-1839 by Edward John Eyre* (London: Caliban Books, 1984), 121.

¹³ *Ibid.*, 144.

left bank at Barmah Forest and then on to Adelaide using the tracks of Hawdon and Eyre. Although in the process Sturt was able to add something to knowledge of the Murray River, the journey almost ended in disaster because of what he described as the 'dry and barren' nature of the land that was to become part of the Rural City of Mildura.

In later years, a number of surveys and expeditions were undertaken to glean more knowledge of the Mallee country. In 1845, Governor Charles La Trobe requested information on the Mallee from Captain Dana, supervisor of the Native Police. Dana, in describing his personal knowledge of the region, wrote that 'The line of the [Murray] river affords excellent feed, and is occupied by settlers who run their sheep and cattle as far back as the supply of water allows. Behind that the land, although it may be good, is of course useless.'¹⁴

Surveyor Henry Wade partially surveyed the New South Wales and South Australia border in 1847. He described the supply of water in the Mallee as almost non-existent except for 'a few native wells'.¹⁵ In 1849, with assistant-surveyor E. R. White, Wade was instructed to finish the survey. The survey party was forced to stop a number of times due to lack of funding and equipment. In 1849, White ran out of water and lost several bullocks and horses before reaching safety. The survey was finally completed in 1850. Assistant Surveyor Pritchard, engaged in a survey of the River Murray in 1850-1, mapped the Hattah Lakes.

A number of expeditions were also made into the Mallee and along the River Murray in order to collect flora and fauna specimens. Daniel Bunce travelled down the Murray Valley from Melbourne to Adelaide in 1849. In 1853, botanist Baron von Mueller travelled through the Mallee on a collecting expedition from Lake Lalbert to the River Murray and then along its course to its junction with the Darling River. Bunce and Mueller were followed in turn by Wilhelm Blandowski and Gerard Krefft who conducted a natural history survey near Mildura Station in 1857.¹⁶

In 1858, A. J. Skene Surveyor-General of Victoria reported that:

*With the exception of a narrow tract of land along the banks of the Murray which is classed as second-rate pastoral land, and a small area on the Yarriambiack Creek and around Lake Hindmarsh... this district [the Lower Murray] presents a scrubby sandy waste almost entirely destitute of fresh water and grass, and therefore unavailable to human industry.*¹⁷

In a similar vein, government statist Henry Hayter wrote in 1860 that much of the northwest of the colony was covered by 'impenetrable mallee', and that in the 'tolerably open country...cultivation has generally been looked upon as a hopeless experiment'.¹⁸

As part of his magnetic survey of Victoria, George Neumayer provided other information about the Mallee in his travels through the region from 1860 to 1862.

Although not all these explorers, overlanders and surveyors travelled into the area known today as the Rural City of Mildura (see Figure 2), their written accounts all contributed to an understanding of the Mallee as a harsh and unforgiving environment. Their expeditions are marked by a number of cairns. Sturt's route along the white cliffs of Merbein on 22 January 1830, for example, is commemorated by a stone cairn in the Chaffey reserve.

¹⁴ Cited in Alfred S. Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912* (Clayton, Victoria: Wilke and Company Limited, 1982), 12.

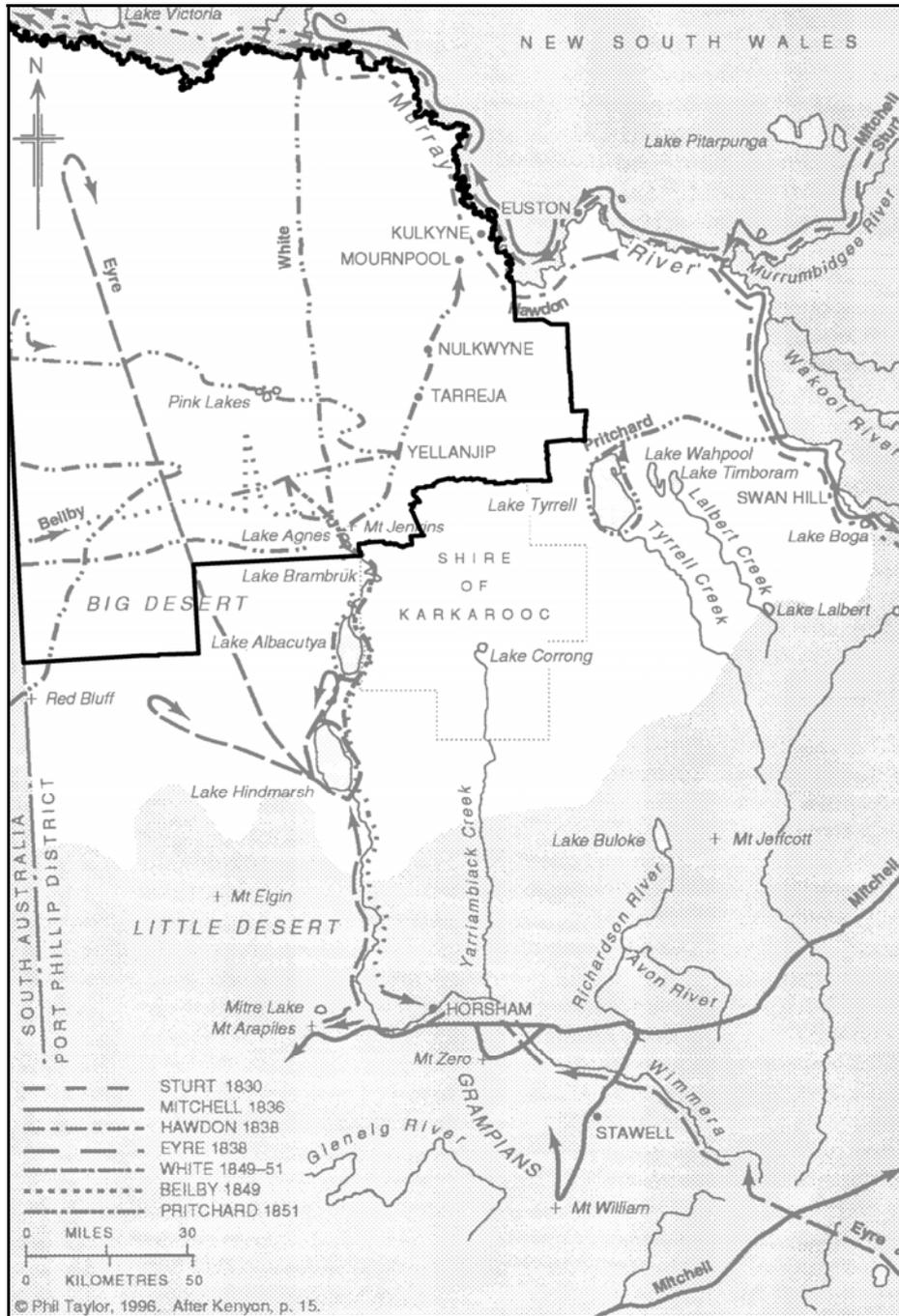
¹⁵ Cited in Ibid.

¹⁶ Ken Orchard, "Regional Botany in Mid-Nineteenth-Century Australia: Mueller's Murray River Collecting Network," *Historical Records of Australian Science* 11, no. 3 (June 1997): 389.

¹⁷ Cited in Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 85.

¹⁸ Cited in Ibid.

Figure 2: Explorer, overlander and surveyor routes within study area



Source: Phil Taylor, *Karkaroc: A Mallee Shire History, 1896-1995*, 17.

4 PASTORAL OCCUPATION

In 1837 in an effort to control the expansion of squatting into Port Phillip District, Governor Richard Bourke introduced the *Crown Lands Occupation Act* which disallowed depasturing of lands beyond the limits of location around Sydney unless they were taken up under an annual lease or licence based on a stock assessment costing £10.¹⁹ In 1839 an additional stock fee was introduced to raise revenue to establish border police to oversee the process of taking up the country. Even so, a major expansion into Port Phillip took place in the period 1838-40 when, with a sheep in 1838 worth £3, profits from the pastoral industry soared and squatters assessed the capabilities and capacity of the new country with a fair degree of independence from official control. By the mid 1840s, with most of the better-watered land claimed and stock numbers increasing due to breeding, fierce competition forced run seekers to move further afield to find fresh pastures. There remained at this time only the areas of Gippsland, the Wimmera, the Mallee, and 'the scantily watered plains in the north'.²⁰ An Order in Council passed in 1847 promised fourteen-year leases and pre-emptive rights (the right to purchase up to 640 acres of the run at £1 per acre) to those in occupation. Because of the discovery of gold, instead of the promised fourteen-year leases, yearly tenure only was approved by an Order in Council in 1850. Leases were extended to nine years under the 1862 *Land Act*.

In 1845, squatters had reached the Mallee fringe and, no doubt influenced by the pending 1847 Order in Council, began to take up extensive runs in the Mallee proper. Three main phases of pastoral occupation of the study area can be discerned. The first phase incorporated the movement of squatters along the Murrumbidgee, Wimmera and Murray Rivers to take up by 1847 eight runs that occupied the full frontage of the River Murray and Outlet Creek. The second stage of occupation was triggered by gold discoveries in 1851 after which, by 1858 150,000 people were at work on the central goldfields of the colony.²¹ To take advantage of growing goldfield markets, several backcountry runs away from the river were occupied over the years 1850-60. The imminent introduction of the 1860 *Land Act*, which allowed free selection of Crown land including that occupied by pastoral leases, shaped a third phase of occupation. From 1860 a high turnover of runs ensued, and in 1860-1 tenders were called for runs to ensure that Mallee lands were preserved for the Crown. Many of the runs in the study area taken up by 1865 were occupied in this way (see Table 1 and Figure 3); most were speculative applications and by 1865 had been forfeited.

¹⁹ The term squatter first applied to those pastoralists who took possession of land before legislature was introduced in 1836 but came to be applied more generally.

²⁰ Stephen Roberts, *History of Australian Land Settlement* (South Melbourne: Macmillan, 1968), 169.

²¹ Graeme Davison, John Hirst, and Stuart Macintyre, eds., *The Oxford Companion to Australian History* (Melbourne: Oxford University Press, 1998), 283.

Table 1: Runs taken up in study area by 1865²²

Run name	Run size & how acquired	Licensee	Year of first license
Annefield A	Subdivision Glenogie 55,930 acres	William Holland	1861
Annefield B	Subdivision Glenogie 55,930 acres	William Holland	1861
Annefield C	Subdivision Glenogie 55,930 acres	William Holland	1861
Annefield D	Subdivision Glenogie 55,930 acres	Robert Bennett for William Holland	1861
Ballochmyle	?	William Hudson	1861
Bellfield (King)	By application	Robert Bennett	1861
Bellfield East	By application	R. Bennett MLA	1861
Bellfield West	?	R. Bennett MLA	1861
Benetook	By tender 210 sq. miles	Harry Grover	1859
Blackwater	By application	John Crozier	1861
Broomhill	?	W. S. Flint	1861
Cairgains A B C D E F	62,720 acres	William Holland	1861
Campania	By application	William Strettle	1861
Capbera	?	?	?
Chaves Plains East	By application	T. A. Chave	1861
Chaves Plains West	By application	T. A. Chave	1861
Clifton Plains A	By application	John Hood	1861
Clifton Plains B	By application	John Hood	1861
Clifton Plains C	By application	John Hood	1861
Clifton Plains D	By application	John Hood	1861
Corruna	By application	T. A. Chave	1861
Cow Plains (Kow Plains)	By tender 5,720 acres	James Smith	1859
Cullulleraine	By tender 48,775 acres	Crozier & Rutherford	1855
Cullulleraine Outer	By tender 76,000 acres	John Crozier	1860
Culnine (Hawdon's Upper Run)	57,600 acres	John Hawdon jnr.	1846
Culnine Lower (Ned's Corner)	Subdivision of Culnine	Edward Meade Bagot	1857
Culnine Upper (Kulnine)	Subdivision of Culnine	John Crozier	1857

²² Information from Robert and Hugh Anderson Spreadborough, ed., *Victorian Squatters* (Ascot Vale: Red Rooster Press, 1983), 201-55. There are discrepancies in spellings of run names between Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, and Spreadborough, ed., *Victorian Squatters*. Run names as detailed in the latter source are used in this table.

Run name	Run size & how acquired	Licensee	Year of first license
and Cowra)			
Duddo	By tender 64,000 acres	George Archbold	1859
Gayfield (Kulkyne)	19,200 acres	Margaret Hutchinson	1847
Gerahmin	115,200 acres	R. R. Haverfield & James Jardine	1848
Harrow	?	John Crozier	1861
Irymple	By tender 51,000 acres	Hugh & Bushby Jamieson	1854
Jeparit	By application	Robert Bennett	1861
Keera	By tender 102,400 acres	Robert Bennett MLA	1861
Kidds Station (Carwarp)	64,000 acres	John Kidd & James Brown	1847
Lindsay Island	64,000 acres	George Tingcombe	1847
Merrigig	By tender 96,000 acres	Robert Bennett	1861
Middle Boundary	?	?	?
Mildura South (Anneville)	77,169 acres	Hugh Jamieson	1870
Moon Moon	By tender 76,000 acres	John Crozier	1860
Mournpool	20,480 acres	George Coghill	1847
Mournpool West (Anneville)	?	Albert Miller	1870
North Boundary No. 1	?	Samuel Clapham	1862
North Boundary No. 2	?	Samuel Clapham	1862
Nurnurnemal	By tender 16,000 acres	Robert R. Haverfield	1851
Ouyen	By tender 32,000 acres	Orr & Youl	1860
Paignie	By tender 64,000 acres	F. J. Byerley	1860
Pilgrimage	By application	A. Strettle	1861
Pine Plain	45,000 acres	James Maxwell Clow	1847
Pine Ridges	By tender 25,600 acres	A. Miller	1860
Pine Ridges East & West	Subdivision of Pine Ridges	J. H. Clough & Co.	?
Pines	By tender	Robert Ross Haverfield	1855
Poilya	By tender	John Crozier	1860
Poopmindi	By tender	Robert Bennett MLA	1861
Raak	By application 102,400 acres	Keene & Orr	?
Richmond	By application	W. S. Flint	1861
Rock Springs	By application	T. W. Palmer	1861
Ross Plains	By tender	Thomas Ross	1859
Salamanca	By application	T. A. Chave	1861
Salt Lakes	By tender 40,000 acres	H. C. Ellerman	1859

Run name	Run size & how acquired	Licensee	Year of first license
Sandmount	62,720 acres	W. Minifie	1861
South Boundary	?	Samuel Clapham	1862?
South Tyrell	By tender 86,400 acres	James Jardine & Robert Ross Haverfield	1848
Spectacle Plains	50,000 acres	H. C. Ellerman	?
Strathmore	By application	James Smith Lavender	1861
Stretles Plains (Strettedale)	By application	R. Gibson	1861
Sunset	By application	R. Gibson	1861
Tallarook	By tender 174,720 acres	Rob. Bennett 1860	1860
Tarackna	By tender 55,815 acres	Crozier & Rutherford	1857
Totara	By application	William Minifie	1861
Wonga Lake	Subdivision of Pine Plain	Henry C. Ellerman	1856
Woolwoola	86,000 acres	George Tingcombe	1847
Yellamgip or Yallamjip	By tender 200,000 acres	Orr & Youl	1859
Yerre Yerre (Mildura)	150,000 acres	W. Stawell	1847

The reports of survey and expedition parties contributed to a knowledge of the Mallee, but information about the isolated northwest was gathered also by enterprising squatters. In 1849, for example, squatter and explorer John Beilby made a long journey through the area. Afterwards he sent a report and sketch of the area to Governor La Trobe, and published his findings in the *Port Phillip Gazette* in November and December of that year. Others included J. M. Clow who wrote of his experience of Pine Plains station c1847 in *Letters from Victorian Pioneers* and George Everard who worked as a shepherd and itinerant stock-worker on the sheep runs of Outlet Creek in 1857-83, publishing his journal entitled *Pioneering Days* in 1892. In 1861, William Lockhart Morton made five trips into the country from his Pine Plains run and wrote of his experience in his journal published in *Once a Month* between 1884 and 1886.

By 1848 squatters had occupied the best water fontages in the Mallee. Those who had taken up the backcountry spent much of their time establishing a water supply for themselves and their livestock. Because of a lack of fresh surface water at Pine Plain station, for instance, squatter James Clow stayed only a few months. Later in 1849, Beilby came across the abandoned station and wrote of his delight in discovering a well and water trough. Finding the water in the well full of feathers, hairs and large maggots, desperate for a drink he overcame his disgust and imbibed a quart.²³ After sinking wells that produced only salt water, Henry Miller licensee of Pine Plains from 1868, excavated a series of earthen tanks. With the addition of shepherd huts and stockyards, these tanks became the focus of pastoral activity.²⁴ Some of these tanks are still in use. In 1853, James 'Piccaninny' Smith drove his sheep and cattle north from Yanac to an area of the Mallee known in local Aboriginal languages as 'Kow'. After winning the tender for 5,120 acres of the country in 1859 which he named Kow Plains station, Smith contracted George Everard to sink wells and build a trough at the homestead during the 1860s.²⁵ Two wells from which water was raised by a horse whim, and a water trough are still in existence today at Kow Plains homestead built in the late 1870s (see Figure 4). The homestead was given a UNESCO award for heritage conservation in 2003. Other evidence of this era includes tanks, cypress pine fences and tracks now made into roads. Ruins of a homestead building and a headstone remain on the Kulkynne run. Cypress pine log tanks are still in evidence at Nowingi and Timberoo.

²³ Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 31.

²⁴ Andrew C. Ward, *The Desert Blooms: An Account of the Physical Development of the City and Shire of Mildura* (n.p.: City and Shire of Mildura, 1988?), 18.

²⁵ Jocelyn Lindner, *Kow Plains Revisited 1849-2001* (Sea Lake: Kow Plains Homestead Committee of Management, 2001), 6, 27.

Figure 4: Cookhouse at Kow Plains homestead, Cowangie, 2011.



Source: Context.

Because of increasing squatter violence towards the Aborigines, in 1838 in an effort to ‘watch over the interest of Aborigines’ protectorate stations were established in the colony, including Franklinford situated on the upper reaches of the Loddon River. In his role of Aboriginal Protector for the north-western region of the Port Phillip District, Edward Stone Parker was responsible for the management of Franklinford. In November 1841 he noted the first visit of nearly 200 Mallee Aboriginal people (which he called ‘Mallegoondet’) to the Loddon station. With widespread killings of Aboriginal people in reprisal for the killing of two shepherds near Lake Charm (north of Kerang) in 1845 and squatter Andrew Beveridge of Tynytynder station (north of Swan Hill) in 1846, the River Murray peoples had little reason to trust the invaders.

Land was taken up along the same watercourses that Aboriginal peoples depended upon and dams and wells were sunk in the areas of rock wells, soaks and clay pans fed by artesian water that were used by Aboriginal people. Grazing regimes mirrored traditional Aboriginal movements: in winter animals were fed and watered in the backcountry away from the River Murray, and in summer they were moved back to the river. The use and alteration of water sources impacted dramatically on indigenous populations. Ian Clark has remarked that competing needs for limited water in times of drought may have exacerbated Aboriginal-European violence.²⁶

Although the lower Murray clans were geographically isolated and the Mallee remained sparsely populated by Europeans, Aboriginal peoples were impacted on as clans from the south were forced to move northward away from their ancestral lands. Aboriginal people had the choice of attempting to live off the land, surviving on protectorates, begging, or working on sheep and cattle stations.

In 1855, Anglican Rev. Thomas Goodwin established an Aboriginal mission named Yelta on the River Murray approximately one kilometre downstream from the Darling junction. In 1858, Moravian missionaries, F. W. Spieske and Reverend F. A. Hagenauer selected land at Antwerp in the Wimmera for a mission that became known as the Ebenezer Mission. After the Central Board for the Protection of the Aborigines was formed in 1860, a number of other stations and missions were founded across the colony. Local guardians were appointed in 1862

²⁶ Ian D. Clark, *Scars in the Landscape: A Register of Massacre Sites in Western Victoria, 1803-1859*, Australian Institute of Aboriginal and Torres Strait Islander Studies Report Series (Canberra: Australian Institute of Aboriginal and Torres Strait Islander Studies, 1995), 9.

to districts in northwest Victoria 'most frequented by Aborigines' to manage depots that supplied basic provisions. Guardians in the River Murray District included Dr Benjamin Gummow at Swan Hill, squatter Hugh Jamieson at Mildura and Donald Leslie at Kulkyne.

Under the 1869 *Aborigines Act*, the Central Board Appointed to Watch Over the Interests of the Aborigines became the Board for the Protection of the Aborigines and provided for the setting up of six Aboriginal reserves. The coercive Act allowed the Governor to prescribe where and how Aborigines lived, and to take charge of orphaned and neglected children. From this year, Aboriginal people in the study area were forcibly removed to reserves in other parts of Victoria or New South Wales. At Gayfield station on the River Murray, in 1874 2,000 acres at were gazetted for a reserve that was never used for this purpose and revoked for a grazing licence in 1910. The site is now part of the Hattah-Kulkyne National Park. Other people were removed or followed their families to Coranderrk near Healesville opened in 1863, Cummeragunja near Moama, New South Wales, established in 1881, or Moonacullah near Balranald, New South Wales, founded in 1916. According to the Board for the Protection of the Aborigines, by 1884 only 844 Aborigines remained in the colony, with 250 living on reserves, mostly along the River Murray down from Swan Hill.²⁷ Following a review in 1886 of the *Aborigines Protection Act*, the concept of 'protection' was replaced with 'assimilation' and Aboriginal people of mixed descent were deemed wards of the State. This legislation remained in force until 1957. In 1901, the Mildura shire Council approved a request from the Protector of Aborigines to build four small houses on two-three acres opposite Gol Gol for winter accommodation for the station's Aborigines.²⁸

Even in the face of loss of tribal lands and forced dispersion, many Aboriginal people remained on country to work on sheep and cattle runs with their labour forming an important component of station life. Men were employed as shearers, woodcutters, shepherds, water carters, and fencers, and women as needleworkers and bark cutters. In a letter to Bishop Perry in October 1853, Hugh Jamieson who occupied Yerre-Yerre (Mildura) run wrote that Aboriginal labour was of great value to settlers on the Murray and Darling Rivers and that he employed Aborigines exclusively for shepherding.²⁹

²⁷ Lesley Scholes, *A History of the Shire of Swan Hill: Public Land, Private Profit and Settlement* (Swan Hill: Shire of Swan Hill, 1989), 26.

²⁸ Ronald Parsons, *Where the Mallee Meets the Murray: A Centenary History of the Shire of Mildura* (Irymple: Mildura Shire Council, 1990), 138.

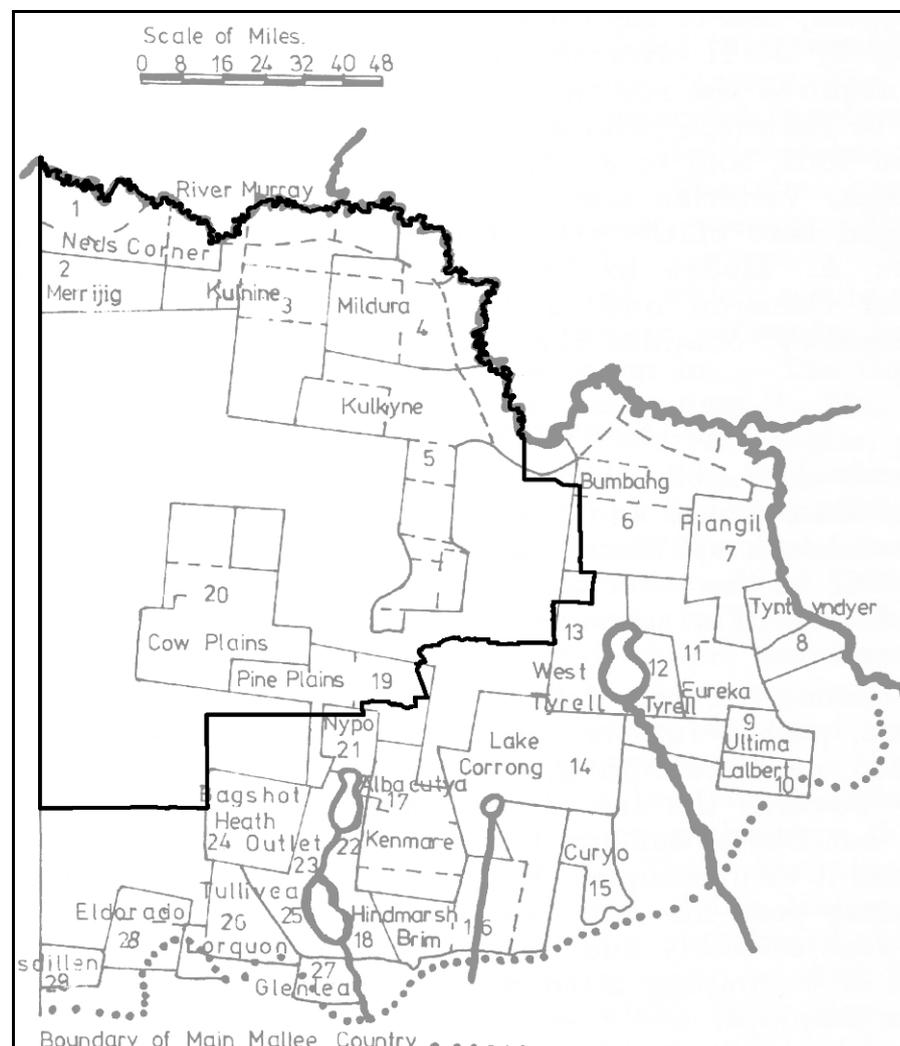
²⁹ Scholes, *A History of the Shire of Swan Hill: Public Land, Private Profit and Settlement*, 22.

5 AGRICULTURAL DEVELOPMENT

5.1 Agricultural settlement of the Mallee

By 1879, rabbits and drought had substantially reduced the carrying capacity of pastoral runs. E. H. Lascelles, who had purchased the lease to Lake Corong Station in 1878, told the New South Wales Commission on the Extermination of Rabbits that the vermin had been first sighted in the area in 1866 at Morton Plains station. Because annual grazing leases were to expire in 1880 under the 1869 *Land Act*, no united action was taken to destroy the rabbits, which by 1878 were in plague proportion. As a consequence of the pending expiry of leases in 1880 and rabbit numbers, from the 1870s settlers began to abandon their Mallee runs (compare Figures 5 and 6).

Figure 5: Mallee pastoral stations in 1873 in study area



Source: Alfred S. Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 71.

In 1875, assessment had been paid on 420,000 sheep in the Mallee; by 1883 the number had been reduced to 70,000-80,000. Similarly, in 1878 1,700 bales of wool were produced; by 1882 this number had fallen to 323.³⁰ Moreover, lands minister A. L. Tucker estimated that £40,000 had been lost to the government in rents over the years 1877-82.

Witnesses involved in pastoral enterprises in the Mallee at the 1878 Royal Commission on Crown Lands demanded an extension of the tenure of their leases, low rental and compensation for improvements made at the termination of the lease. Stories of the impact of rabbits and the continuing dry years over the period 1878-1884 galvanised public sympathy. Combined with the promotion of the Mallee's irrigation potential as 'the richest land in all Australia' by the likes of MLA Hugh McColl with concern over the loss of state and local government revenue, a number of legislative attempts were made to ameliorate conditions. Encouraged by the success in South Australia of machinery such as the roller in clearing the mallee and the stump-jump plough and the stripper in the cultivation of wheat, the Victorian Mallee was chosen as the new frontier in an effort to open the region for agriculture. Because of the Mallee's nature, special legislation was formulated to settle the region. In 1883, Tucker took a large parliamentary party to Lake Hindmarsh to convince them of the importance of his proposed *Mallee Pastoral Leases Act*. The Act was passed in the same year, in effect preserving the land for the Crown for disposal in 1903.

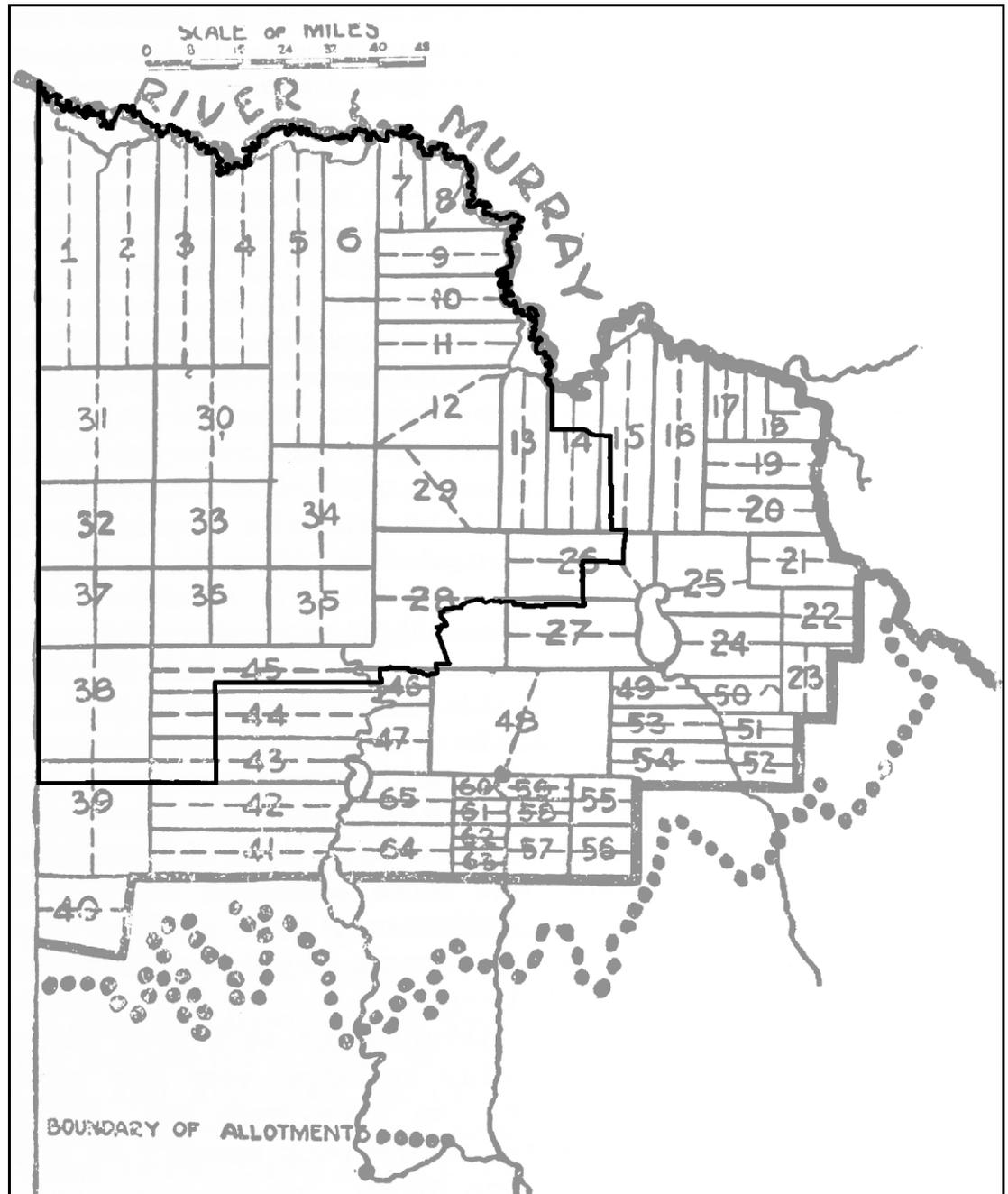
Under the *Mallee Pastoral Leases Act*, Lands Minister Walter Madden divided the Mallee into 'fringe' and 'interior' sectors. In the western 'fringe' sector, Mallee Allotments between 500-1,200 acres extending to 20,000 acres were offered. In the 'interior', land was divided into 'A' and 'B' Mallee Blocks ranging from 60 to over 500 square miles (see Figure 6). 'A' Blocks fronted all available water sources and were made available on twenty-year leases. 'B' Blocks were available on five-year leases. Blocks could be subdivided with permission from the Minister of Lands. Compensation for vermin control, and in 1885 under an amending Act, for clearing and fencing, was to be paid at the expiration of the lease. In 1885, because of the impacts of rabbits and dingoes, the government began the construction of a netting fence between the pastoral blocks and Mallee allotments. By 1891, 487,300 acres of Mallee blocks and allotments had been subdivided and disposed of by the government.³¹

In 1889, the *Mallee Act* was passed to allow the alienation of 320 acres by selection for grazing or agriculture. In 1896, the *Mallee Land Act* allowed for the selection of land to the maximum of 640 acres available either as an Agricultural Allotment that could be held freehold, or under a perpetual lease payable over 40 years. By 1901, the Mallee fringe had been settled as far as the most fertile country extended and as far as the existing railways justified.

³⁰ Ibid., 49.

³¹ Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 90-1.

Figure 6: The Mallee as subdivided under the 1883 Mallee Pastoral Leases Act in study area



Source: Alfred S. Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 76.

Subsequent Land Acts of 1901, 1911 and 1915 accompanied by the construction of railways saw the dividing up of Mallee Pastoral Leases upon their expiration. It was these Acts, particularly a section of the Land Act of 1901 (amended in 1904) that enabled Mallee lands to be purchased after a lease of 40 years, and the 1911 Act that introduced a system of selection purchase leasing over 20 or 40 years, that guided much of the agricultural settlement in the study area. Conditions under the 1911 Act required settlers to clear one-quarter of the allotment and to cultivate a crop within two years. In addition, a proportion of the existing timber on the land had to be protected or trees planted.

Farmers from South Australia and regions in the north and northwest of Victoria arrived to take up the fertile, uncropped land of the Victorian Mallee. Settlers built homes (see Figure 7) and felled and burnt the mallee.

Figure 7: Cookes' cottage, Walpeup, 2011.



Source: Context

Because the massive stumps produced new growth within a year or so, each stump with its large root system needed to be grubbed. This proved a slow, difficult and expensive task. Technology to deal with Mallee conditions was developed in South Australia. Farmers rolled a tree trunk or steam-engine boiler, pulled by horses or a bullock team, across standing scrub, snapping it off at the roots. Larger scrub was felled by hand. After leaving it to dry, it was then burnt. New shoots would develop from the root mass left in the ground. The common treatment was to scratch in a crop of long-strawed wheat, which grew between the woody masses in the soil. After establishing a crop using this process, one settler remarked that 'the shoots from the stumps are nearly as high as the crops and the reaping machine looks like a ship in a storm, as it rocks about going over the stumps'.³² The land was then tackled with the stump-jump plough, invented in 1876, on which the ploughshares would rise and tilt upon meeting an obstacle. Stump-jumping harrows and wheat-strippers were also used. The stripper was indispensable because it harvested the grain but left both wheat stalks and mallee shoots standing. After harvesting, the mallee shoots were burnt, and after three or four years, the mallee roots finally died. Mallee stumps were grubbed and stacked, and then used for a multiple of purposes - fences, construction of outbuildings, shelter for stock, and fuel for fires. It was possible to roll ten acres of mallee a day using this method at the relatively inexpensive rate of 17s. 6d. per acre. Clearing costs were thus slashed and farms brought quickly into production. In later years, steam traction engines, and then tractors, quickened the process.

Changes in farming processes increased crop yields. From the early 1900s, farmers incorporated bare fallowing in a three-year rotation. Bare fallowing, or breaking up the soil, diminished weed growth, checked evaporation through reducing water take up by weeds, and posited a dust layer over the soil. After experiments by individual farmers, the Department of Agriculture detected deficiency of phosphorous in most of Victoria's soils and advised the application of superphosphate to wheat crops to increase yields. By 1903, the application of light dressings of 'phosphatic manures' was in general use in northern and north-western

³² Tony Dingle, *The Victorians: Settling* (McMahons Point: Fairfax, Syme and Weldon Associates, 1984), 110.

Victoria.³³ Improved varieties of seed were developed through systematic crossbreeding of seed saved by farmers from plants displaying drought or rust-resistant qualities. South Australian farmers were experimenting with drought-resistant wheat varieties before William J. Farrer began crossing Indian wheats with quality Canadian baking wheats and Purple Straw wheats to produce 'Federation' variety.³⁴

The first land around Ouyen and Tiega was opened up for selection in 1904. In 1906 A. S. Kenyon was appointed as an engineer in the Department of Agriculture. His responsibilities incorporated the development of the Mallee including advice on clearing of vegetation, road construction, location of wheat silos and the provision of local water supply by wells, bores and tanks. In 1907, the Mallee Select Committee recommended the opening of 750,000 acres for settlement in the central Mallee. On the South Australian border, the parishes of Mulcra and Carina were opened in 1908 followed by the parishes of Gunamalary and Ngallo, situated further south, in 1909 where land was taken up by mostly German settlers from South Australia. After a few years many of these settlers left and farms were put for sale in 1912. In 1909, land was subdivided into allotments of 600-700 acres and thrown open as each section of the Ouyen-Murrayville railway line was opened. The building of the railway was accompanied by the reservation of township sites and the construction of roads and bores and tanks to supply water. Under the 1901 *Land Act*, the costs of these works were added to the land purchase price payable over 40 years at a low interest rate. In addition, if suitable improvements were made to blocks, payment of rents was suspended for the first three years and advances made available of up to 60 percent of the value of improvements. Strong wheat yields due to good rains and high prices triggered a rush for land, particularly in the parishes of Nyang and Underbool. In 1909, 217,241 acres were settled in the Ouyen and Murrayville districts (The pattern and years of land settlement can be seen in Figure 8).

In 1910, after the responsibility for crown lands improvement in the northern Mallee was transferred to the SRWSC, Kenyon was appointed engineer-in-charge of the North-West Mallee. In this role he opened wide tracts of Mallee land to farming. In 1910, another 182,552 acres were opened along the Murrayville line, and by 1912, 735,938 acres served by the Ouyen-Murrayville railway had been subdivided and settled. This area added considerably to Victoria's wheat-fields.³⁵ In 1912, the first subdivision for agricultural settlement of 90,333 acres of the Chaffey brothers' Mildura Concession lands (which had converted to the Crown in 1911) took place. In 1913 and 1914, another 350,065 acres were surveyed and settled. A further 20,663 acres were opened near Murrayville in 1914, and by that year in Walpeup west, 2,500 people had taken up residence and were dependent on 80 bores for their water supply³⁶ (see Figure 17). A. S. Kenyon wrote in 1915 that of approximately 11,000 acres of the Victorian Mallee, the only remaining arable lands suitable for settlement measured 'a little over 300,000 acres...and those wholly between Ouyen and Carwarp'. He continued: 'There is still over 2,000,000 new acres fit for the plough in the Mallee, but their subjugation will require over 200 miles of new railway lines...The remaining 3,000,000 are too poor to serve as anything but a harbor for our native fauna'³⁷ (see Figure 8).

The *Australasian* summed up progress in the Mallee in 1916:

The first years of Mallee settlement were characterised by keen struggle, want of capital, 'scratch' methods of farming and occasional despondency. The support - moral and financial - of the business and commercial community, as well as the State, should be accorded to those

³³ "Summary of Results in the North," *Agricultural Journal of Victoria* (1903-4): 14.

³⁴ R. L. Heathcote, "Managing the Droughts? Perception of Resource Management in the Face of Drought Hazard in Australia," *Vegetation* 91 (1991): 225.

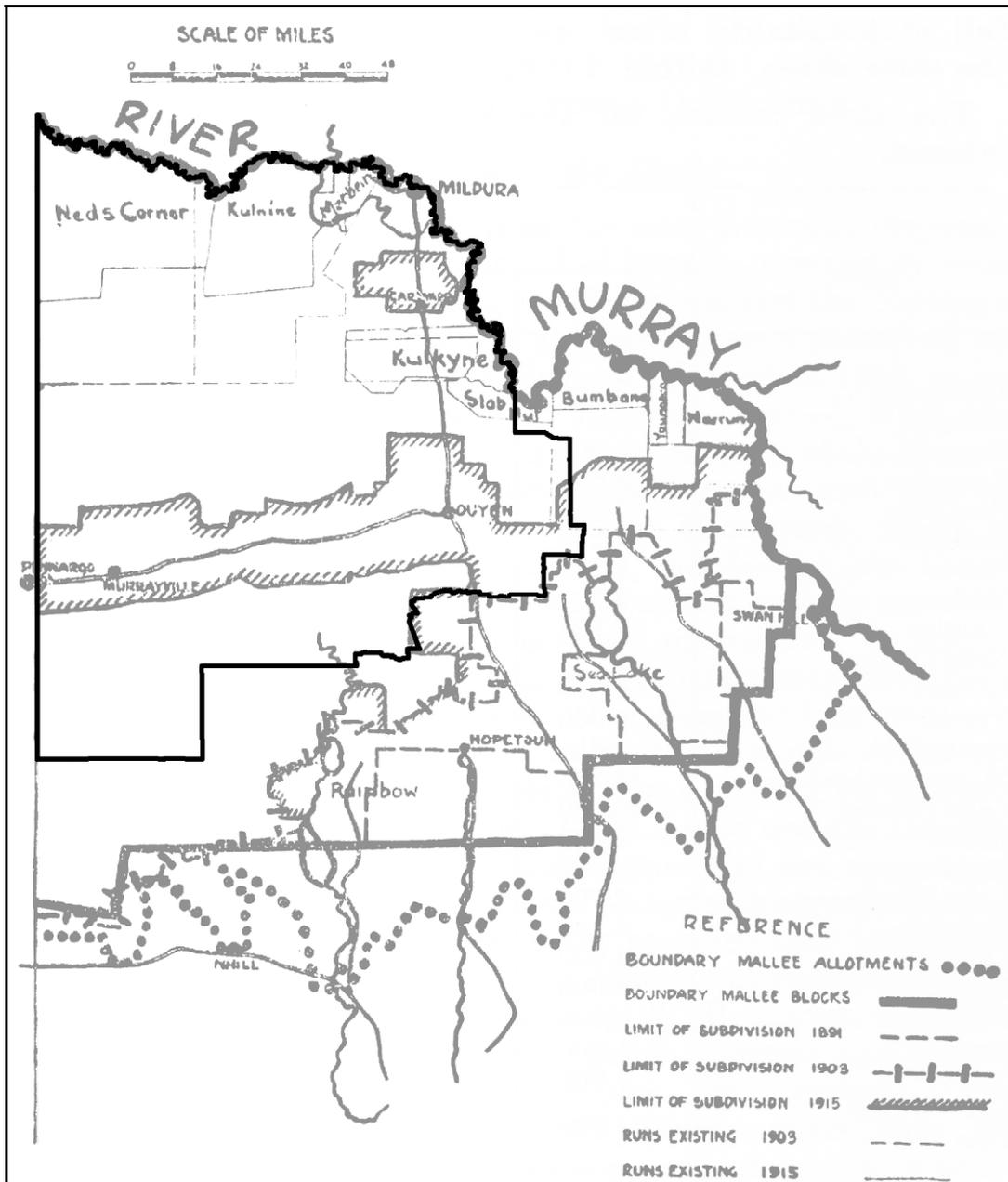
³⁵ Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 92.

³⁶ Rhona van Veldhuisen, *Pipe Dreams: A History of Water Supply in the Wimmera-Mallee* (Horsham: Wimmera Mallee Water, 2001), 101, 06.

³⁷ Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 92-3.

who, by their efforts, were attempting to transform a barren wilderness into fertile fields of grain.³⁸

Figure 8: Subdivision of the Mallee up to 1915 within study area



Source: Alfred S. Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 83.

Focus was again concentrated on the Mallee when traditional agricultural zones were challenged by ideas of scientific cultivation. Only one year after the drought year of 1915, agricultural scientist Thomas Cherry was able to report that ‘Improved methods, greater facilities of transport, and increased consumption in the world’s markets have enabled us to respond to the challenge of nature by the present phenomenal crop of wheat.’³⁹ Using available

³⁸ *Australasian*, 18 November, 1916

³⁹ Thomas Cherry, *Victorian Agriculture: A Textbook of the Principles and Methods Underlying the Pastoral and Agricultural Industries of South-Eastern Australia*, (Melbourne, 1916), p. xxvi.

rainfall statistics, Cherry claimed that the highest rainfall years did not necessarily correspond with the best wheat harvests, proving that 'increased production of recent years is due to improved methods'.⁴⁰ He defined three agricultural rainfall zones for Victoria: the Wheat Belt delineated by an average annual rainfall of 11-25 inches, the Closer Settlement Country (where irrigation was not needed) of an average rainfall of 25-40 inches, and the Hill Country described by an average annual rainfall of 40-75 inches. In developing these zones, Cherry applied a new interpretation to the ten-inch rainfall line, commonly accepted as the delineation of the boundary of desert. He challenged the idea of agricultural limits by arguing that experience had shown that 'with the assistance of small amounts of soluble phosphates profitable crops may be grown on less than 10 inches of winter rainfall', and that with the 'gradual advances in the numbers of stock kept on these [wheat] farms permanent agricultural settlement is likely to extend well beyond the 10-inch line of rainfall'.⁴¹

Ideas of scientific cultivation were influential in opening up more of the Mallee for settlement (see Figure 9). In 1921, the country between Mildura and Kulnine and Ned's Corner was inspected for the construction of a railway line in order to open up the land for soldier settlers. The Railway Standing Committee recommended that a route from Red Cliffs to North Millewa be surveyed. The line, argued Kenyon and the Committee, would open up 400,000 acres of country that offered excellent opportunities for settlement and production (see Figure 20).

While new methods allowed rapid colonisation, they did not guarantee settlers would be able to stay. Land suffered due to continuous cropping and methods used for clearing. The lack of surface water was the bane of the early Mallee settler. Bores more often than not yielded brackish water, thus necessitating the carting of water from often fifteen to twenty miles away. This left little time to devote to farming. Because of inadequate acreages, lack of capital, soil drift (the Mallee Research Station at Walpeup was established in 1935 to develop ways of reducing the severity of soil drift), a surplus of wheat on the world market and the economic depression of the 1930s, many settlers defaulted on their rates or simply walked off the land.⁴² In 1938, 841 farms in the Mallee reverted to the Lands Department and were then leased for grazing.⁴³

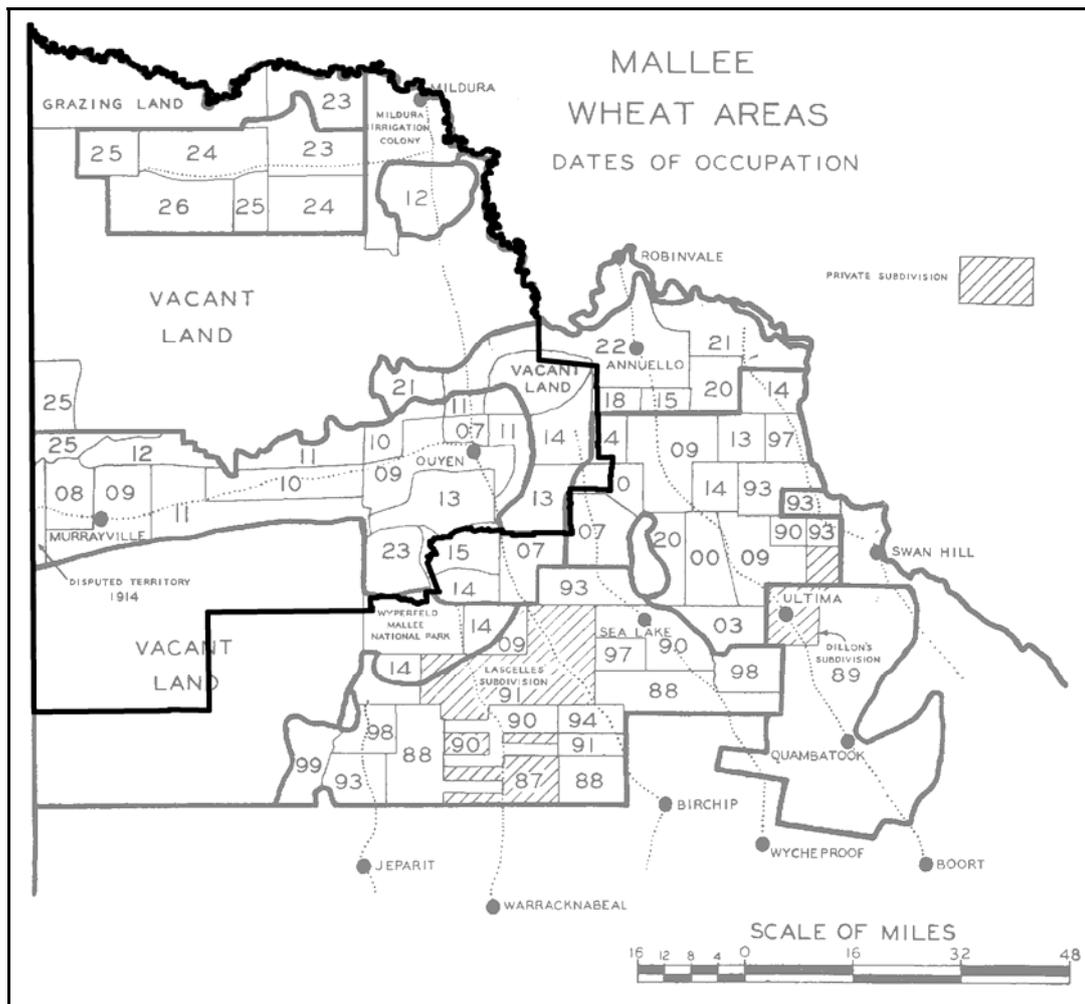
⁴⁰ Ibid., p. 31.

⁴¹ Thomas Cherry, "The Ten Inch Line of Rainfall," *The Journal of the Department of Agriculture of Victoria* (1914): 527. By 1934 wheat growing had moved even further down the rainfall gradient. In this year it was argued that the inland wheat area corresponded with the line of eight inches of average rainfall during the winter growing season. Charles Fenner, "The Murray River Basin," *Geographical Review* 24, no. 1 (1934): 91.

⁴² See J. E. Senyard, "A Mallee Farming Community in the Depression, the Walpeup Shire in Victoria 1925-35" (MA Thesis, Monash University, 1975).

⁴³ "New Land Policy." *The Age*, 18 August 1938, 12.

Figure 9: Dates of occupation of Mallee wheat farms within study area



Source: A. J. Holt, *Wheat Farms of Victoria: A Sociological Survey*, 10.

Aboriginal residents of the Rural City were forced to radically alter their lives to adapt to the new world order. In 1936, many of the district's Aboriginal people were living in 225 shacks along the bank of the River Murray. In 1939, Cummeragunga residents, on strike to highlight the living conditions of Aboriginal people, crossed the River Murray. From here, many returned to take up residence in towns and rekindle relationships with their families and ancestral homelands in Victoria.⁴⁴ In 1967, at least 500 Aborigines were living at Swan Hill and Echuca in huts beside the River Murray.⁴⁵ Unemployment and lack of educational opportunities remain major concerns for today's estimated 1,600 indigenous residents of the Rural City.⁴⁶ Support on issues of importance to local Aboriginal people is provided through the Mildura Aboriginal Corporation and the Murray Valley Aboriginal Co-operative. The Latji Latji, Wergaia and Wotjobaluk peoples have lodged Native Title Applications over land in the Rural City.

⁴⁴ Wayne Atkinson, and A. Berryman, "Aboriginal Associations," in *Report on the Murray Valley Area* (Melbourne: Land Conservation Council, 1983), 13-28.

⁴⁵ Paul Sinclair, *The Murray: The River and Its People* (Carlton South: Melbourne University Press, 2001), 213.

⁴⁶ Australian Bureau of Statistics, 'Experimental estimated resident Australian Indigenous and non-Indigenous population, Statistical Local Areas—30 June 2006'.

5.2 Closer settlement

In the cities of Australia industrialisation was seen as limiting opportunities for workers and contributing to the 1890s economic depression. Settlement in the country, a manifestation of the agrarian myth that had seeped through Australian life from first white settlement, was called on once again to ameliorate the effects of urban problems. Industrialisation had created new social and economic issues but had also produced technological innovations that gave humans increasing power over nature. Under the new closer settlement vision, agriculture was to be encouraged, wheat and dairying areas settled, railways constructed, and roads opened up so that the colony of Victoria could take its place as part of a progressive federated Australia.

The closer settlement of the Mallee was inextricably linked with the development of irrigation by the Chaffey brothers. George Chaffey (1848-1932) and William Benjamin Chaffey (1856-1926) who were born at Brockville, Ontario, Canada.⁴⁷ In May 1862, George was apprenticed as a marine engineer on Lake Ontario and in 1870-80 was a partner in his father's shipyard, designing and building shallow-draught steamers for the Great Lakes and the Ohio and Frazer Rivers in British Columbia. In 1878, George Chaffey senior moved to Riverside near Los Angeles, California, to join other Canadian families in the Santa Ana River irrigation settlement. William Benjamin, who had been in his employment at Kingston, accompanied him, and later George junior joined them. The profits from the Riverside ventures in California encouraged George and William to become partners in the new irrigation colonies on the Cucamonga Plain, named by them Etiwanda and Ontario. Planned towns, social institutes and prohibition of alcohol were features of both model settlements.

In 1885 Alfred Deakin, a minister in the Service-Berry government and chairman of a royal commission on water supply, visited the irrigation areas of California. He met George and William Chaffey, admired their skill and energy and discussed the possibilities of irrigation in Victoria. Deakin's progress report, the dispatches of two journalists, Edward Cunningham and J. L. Dow, who travelled with him, and the exaggerated tales of Stephen Cureton, a newcomer in Los Angeles who had travelled in Australia, combined to tempt George to Melbourne, where he arrived in February 1886. (Despite the later allegations of his political enemies, according to the *Australian Dictionary of Biography*, Deakin never invited him to Victoria.) After a tour of the Murray Valley, Deakin assured George that the government would make available 250,000 acres of crown land on favourable terms. In April 1886, George cabled his brother William to sell their Californian interests, which he did at a fraction of their real worth, and came to Victoria.

The Chaffey brothers selected Hugh Jamieson's derelict sheep station at Mildura as the site for their first irrigation settlement. The Chaffey brothers signed an agreement with the Victorian government on 21 October 1886. A bill to validate this agreement, introduced into the Legislative Assembly by Deakin on 30 November, was violently opposed, the Chaffey brothers being termed 'cute Yankee land grabbers'. An amendment invited tenders for the 250,000 acres at Mildura. Meanwhile John Downer, premier of South Australia, offered the brothers a block of 250,000 acres in his colony which the Chaffey brothers took up in Renmark.

As no tenders were received for Mildura, on 31 May 1887 the Chaffey brothers signed an indenture with the colony of Victoria for a Concession grant of 50,000 acres on the River Murray with the right to buy 200,000 acres at £1 per acre conditional on them establishing an irrigation settlement on the 50,000 acres and making improvements to the value of £300,000 over twenty years. In September the same year, they transferred all their rights under the indenture to the firm of Chaffey Brothers Ltd; twelve months later J. F. Levien replaced Cureton as a director, taking responsibility for the company's finances. William remained at Mildura, and a younger brother Charles came from California to manage the Renmark area.

⁴⁷ This account of the Chaffey brothers' enterprise is taken from Peter Westcott, *Chaffey, George (1848-1932); Chaffey, William Benjamin (1856-1926)* (Australian National University, 2006 [cited 5 February 2009]); available from <http://www.adb.online.anu.edu.au/biogs/A070609b.htm>.

The town of Mildura was laid out and street trees planted in the style of the Chaffey's Californian irrigation colonies and an expensive sales promotion campaign was launched in Australia and Britain. By December 1890, 3,300 people were at Mildura — about half of them British migrants.

Financial dissatisfaction among the settlers due to a lack of transport for the fruit that they grew and high pumping costs associated with the loss of water from seepage and evaporation was accentuated when B. C. Harriman, who had served in the Crown Law Department, told them that the operations of the Mildura Irrigation Co. were illegal and that the subdivisions were entitled to free water. Attacks on the Chaffey's practices were carried to the Victorian parliament. The collapse of the land boom in Melbourne in 1891 and a drift of settlers away from Mildura contributed to the troubles at the settlement. Ministerial reports and a select committee failed to offer a solution.

In August 1893, Stuart Murray, engineer-in-chief of the Water Supply Department, was instructed to report on the complaints against Chaffey Brothers Ltd. He found that some were justified, and, largely on his recommendation, the Mildura Irrigation Trust was set up in September 1895 to take over the functions of the Mildura Irrigation Co. George had visited London in 1894 in an effort to save his firm by selling the ailing Renmark Concession, but failed to raise any money. On 10 December Chaffey Brothers Ltd. went into liquidation, owing £22,000 in wages to its employees and with assets of some 438,000 acres of unsold land at Mildura and Renmark. The Bank of Victoria foreclosed on the mortgages of hundreds of settlers.

State control of closer settlement was introduced through closer settlement legislation enacted in Victoria in 1898 and 1904. Large freehold estates were resumed by the Crown and subdivided into smaller holdings. Turning to New Zealand's example of compulsory acquisition of large estates, the *Closer Settlement Act* of 1904 provided for the establishment in 1905 of the Lands Purchase and Management Board to acquire land, either compulsorily or by agreement, for closer settlement. Under conditional leases, settlers were required to live on the land (in a dwelling erected by the Board if they so wished), to fence the land, destroy vermin and noxious weeds, and to make general improvements. Under this scheme, houses drawn to government plans were erected, fences built and soils graded in preparation for settlers who were given 21½ years to purchase their properties at 4½ percent interest. Advice on irrigated farming was provided by the Department of Agriculture, which took its lead from the Australian Commonwealth Bureau of Agriculture. Over ten years, the Board acquired 500,000 acres of land, 100,000 acres of which was developed by the State Rivers and Water Supply Commission (SRWSC) for irrigated farming.

Closer settlement in Victoria was taken to another level when engineer Elwood Mead, Chief of the Irrigation and Drainage Investigations Bureau in the United States Department of Agriculture, was appointed SRWSC chairman in 1907. Mead made it clear that closer settlement was 'the surest way to success' and the only way to advance the public interest of the State. Mead claimed 'that a 20 and 40 acre block will give a chance to industrious men of small means to secure for themselves and their families shelter, food, a healthy comfortable living, and, in addition, saleable products at least equal in value to the wages of the skilled city worker'.⁴⁸ He issued a call to populate Victoria to reinstate it once more as the 'foremost agricultural State of the Commonwealth'. After Mead's determined push to make the SRWSC responsible for the allocation of land for closer settlement, in 1912, in addition to the planning and carrying out of irrigation schemes, another Closer Settlement Act handed full control of irrigated estates to the SRWSC for the following six years, and then permanently from 1916.

Closer settlement of the Mallee was spurred on by the pending expiration of leases in 1911. After a visit by agricultural scientist Thomas Cherry to Mildura in 1905 and with input from A. S. Kenyon, in 1907 the *Murray Settlements Act* provided for the formation of irrigation

⁴⁸ Elwood Mead, *Policy to Be Followed in Irrigation Development No. 2* (Melbourne: State Rivers and Water Supply Commission, 1909), 7.

settlements at Nyah and White Cliffs (Merbein). The closer settlement estate of 6,700 acres (5,300 acres irrigated) at White Cliffs irrigated by pump from the Murray opened in 1909. Extension of channels to the southeast were planned to allow for grazing. A pumping station was built, and in April 1909 a large steam tractor towed a trolley loaded with a fifteen-ton boiler for the pumping plant from Mildura railway station. In 1913, the pumps at White Cliffs could not deliver the promised irrigation water, yet another twenty blocks were opened in 1914.

Because of a reluctance by locals to take up irrigated blocks in estates such as that at White Cliffs, Mead reckoned some 200,000 extra settlers as necessary to secure the full benefits of irrigation in Victoria,⁴⁹ and those most likely to be open to education, he argued, were those from overseas with experience in intensive irrigation. An injection of new blood was seen as the answer. The blood, however, had to be of a particular type. 'Wanted', a promotional poster declared, '20,000,000 People for Good Old Sunny Australia... The Land of Promise. The White Man's Hope'.⁵⁰ In 1910, a delegation led by Mead and Hugh McKenzie, Minister of Lands, travelled abroad to the British Isles, Denmark, Italy, the United States and Canada to gather information and recruit settlers with irrigation experience and some capital behind them to take up closer settlement blocks. When a group of 40 American land seekers arrived in Mildura in 1912, the *Mildura Cultivator* reported that they placed a great strain on accommodation facilities. Some took up blocks, and in the same year further allotments at Yatpol, Gin Quam and Carwarp were subdivided. In 1914, the SRWSC surveyed channels to supply water to 90,000 acres between Yatpool and Carwarp to open 150 irrigated closer settlement blocks. A pumping scheme to supply the area from the River Murray at Red Cliffs was completed in 1916.

William Cattanach took over as SRWSC chairman when Mead returned to the United States in 1915 and, with the advent of World War One, continued Mead's policy of irrigated closer settlement. Through participation in the war, Australia's confidence in its role as an integral part of the British Empire was boosted. The boom economic climate fed by the assumption that prosperity would endure provided the foundation for the introduction of two new closer settlement schemes: the settlement of Australian returned servicemen, and the British Empire Migration programme.

Discharged Soldier Settlement Acts passed in the period 1917-24 in conjunction with the Closer Settlement Acts of 1915, 1918 and 1922 formed the legislative basis for Victorian soldier settlement on the land. The *Discharged Soldier Settlement Act* of 1917 provided for sustenance money to be paid during the establishment period, and for advances of up to £500 for every settler. Interest commenced at the low rate of 3½ percent for the first year, increasing ½ percent per year until the ruling rate of interest was reached. The Commonwealth and State governments shared the costs of these Concessions equally. Under the 1918 *Discharged Soldier Settlement Act*, advances of up to £1,000 were provided for and training facilities were to be established for inexperienced farmers. Seen as repaying the 'debt of honour', the soldier settlement scheme enjoyed widespread public and political support. Land was allocated for soldier settlement at Merbein in the Birdwoodton Estate located on the western alignment of the Chaffey's Mildura Concession. Following a report on the potential for a dried fruits industry by Kenyon, and under the supervision of SRWSC chairman William Cattanach, the first irrigation estate for returned soldiers was established at Red Cliffs in 1920 on 33,000 acres of the Chaffey brothers' former Concession; currants, raisins and sultanas were to be the main produce. By 1936, the settlement's vineyards supported about 670 families with another 850 persons living in the township itself.⁵¹

⁴⁹ Ibid., 14.

⁵⁰ In John Rutherford, "Interplay of American and Australian Ideas for Development of Water Projects in Northern Victoria," *Annals of the Association of American Geographers* 54, no. 1 (1964): 100.

⁵¹ J. M. Powell, *Watering the Garden State: Water, Land and Community in Victoria 1834-1988* (North Sydney: Allen and Unwin Australia Pty. Ltd., 1989), 181.

The *Empire Settlement Act* introduced in 1922 was based on an agreement reached at the Imperial Conference in London in 1921 whereby Britain was to supply people (where unemployment in 1921-2 measured 14 percent), and Australia the land.⁵² British civilians and ex-service personnel were to be assisted in taking up residence in the under-populated and under-developed Dominions, and in return, Australia was promised 'Imperial Preference' - a ready market for food and raw materials. Australia's future was thus ensured, Prime Minister Bruce claimed, through the combination of 'men, money and markets'. British migrants numbering 450,000 were expected in a decade. Under an agreement made between the Commonwealth and Victorian governments on 21 September 1922, 10,000 approved British migrants were to be advanced loans of up to £1,500, repayable over 36½ years, to take up farms. The State offered farms on irrigated land of between fifteen and 120 acres, and dry land of up to 640 acres. Supervision and training were to be provided to those without farming experience and farm jobs were to be found for those without capital. Settlers under this scheme, as well as local soldier settlers, were allocated land on former Millewa grazing leases in 1924 and at Red Cliffs. A large pumping scheme to provide River Murray water to 700 farms in the Millewa was established in the same year. A colony of some 50 English migrants settled near Merrinee in a locality that subsequently became known as 'Little England'. Within ten years, all but one of them had returned to England.⁵³ Without the promised expert supervision, a Royal Commission in 1925 into the program concluded that in the northwest Mallee, migrants had been placed on 'the inferior and more remote blocks'.⁵⁴ Even so, in 1927 the government investigated the further settlement of the southern portion of Millewa County to be accompanied by a railway line from Nowingi. After the construction of 24 miles of railway line and the survey of 20 blocks, the scheme was abandoned by the Closer Settlement Board in 1928. A grid of tracks in the west Millewa installed in preparation for its subdivision and a bore at Millewa South are still in evidence.

For the most part closer settlement as an active policy was wound down from 1938, however migration programs, particularly during and after World War Two, resulted in new settlers from Greece, Italy and Yugoslavia arriving in the study area to take up mostly irrigated land. From 1947, the Victorian government established migrant reception and holding centres for non-English speaking displaced persons from Europe. A holding centre, which housed up to 2,000 people at a time, operated from the former RAAF training base at Mildura over the period 1950-53. Many of these migrants provided labour for local post-war construction projects and some took up permanent residence in the district.

In 1923, a small group of Greeks had arrived in Mildura for the picking season and introduced methods of drying fruit by using carbonate of potash and olive oil. By 1927, there were approximately 30 Greek families, many of them refugees from Asia Minor, farming irrigated blocks. They formed the Workingman's Organisation of Mildura and District in 1933-4 and started a Greek school in 1939. The Greek community built a hall and church in Deakin Avenue, and another hall in Elizabeth Street after World War Two when large numbers of Greek nationals arrived in Mildura.⁵⁵

In the early 1920s, the first Italian workers arrived in the Mildura district. Italian settlement in the area grew with the World War Two immigration program.

Some of the first Yugoslavians to settle in the district arrived in 1924. By 1938, about 30 families had taken up land in Sunraysia. The Yugoslav Community Club opened in Mildura in 1937, and a hall was built in Deakin Avenue in 1939. Some members of this community

⁵² Richard Broome, *The Victorians: Arriving* (McMahons Point: Fairfax, Syme and Weldon Associates, 1984), 141.

⁵³ A. J. Holt, *Wheat Farms of Victoria: A Sociological Survey* (Melbourne: School of Agriculture, University of Melbourne, 1947), 15.

⁵⁴ Scholes, *A History of the Shire of Swan Hill: Public Land, Private Profit and Settlement*, 147.

⁵⁵ Parsons, *Where the Mallee Meets the Murray: A Centenary History of the Shire of Mildura*, 229-33.

returned home after the conclusion of World War Two, but from the late 1950s, other migrants from Yugoslavia arrived in the district.⁵⁶

In the early 1970s, Turkish people arrived in the study area to take up seasonal work in the fruit industry. The community established social clubs, and in 1984 opened a mosque.⁵⁷ Mildura continues to attract a variety of cultural groups, including more recently Tongans.

5.3 Rural reconstruction

World production of wheat reached all-time records in 1928 and 1930. The resulting surplus and low prices led to international moves to limit wheat production, including in Australia. Questions about the value of the northern Mallee country came to the fore, focusing on the issues of high transport costs and low yields. Settlers' demands for larger holdings to enable mixed farming to be taken up corresponded with a fundamental shift of government policy away from the traditional ideal of yeoman settlement as international competitive capitalism became the determining factor in land settlement. By 1933, unpaid debts of 3.6 million pounds had been written off in the wheat areas of Millewa, Tatchera, Karkaroooc and Weeah.⁵⁸ With the added pressures of low wheat prices caused by the economic depression, many settlers walked off their land. Between 1933-8, the Closer Settlement Commission (CSC) evacuated 1,127 Mallee farmers and gave another 867 farmers additional land to increase the viability of their holdings. From 1933 to 1939 the Mallee region suffered a depopulation of 34 percent; by comparison the Wimmera suffered only a 5 percent loss.⁵⁹ In an effort to relieve the stress on the most affected settlers, in January 1930 260 mothers and children from the Millewa were given a seaside holiday near Melbourne paid for by donations from members of the Victorian parliament and organised by the Country Women's Association. For those unable to leave the district, the Royal Automobile Club of Victoria held a picnic for 200 local children.⁶⁰ This tradition was continued in later years through the conducting of Mallee Boys Camps at Portsea in the 1950s.

Grazing, wholesale clearing of land, and repeated years of fallowing and rabbit infestation contributed significantly to the marginality of the Mallee for growing wheat. As early as the 1880s, the effects of soil erosion had manifested. The already serious problem of soil erosion was intensified by the droughts of 1914-15 and 1929-31. Winds from the west and northwest blew across the cleared Mallee country, blowing tons of soil into the air. Large, billowing clouds blotted out the sun and brought a temporary darkness. The worst dust storms filled channels, covered railway lines and roads, blew soil away from mallee stumps leaving them isolated like weird sculptures, and swept into settlers' homes. Children found their way home from school holding onto fences or by counting the number of road crossings. Traffic, unable to negotiate soil drifts caught by road reserve vegetation, had to negotiate their way over adjoining paddocks.

The Sand-Drift Committee, set up in 1933 to investigate and report on the problem of soil erosion in the Mallee, led to the appointment of an Erosion Investigation Committee in Victoria. In 1935, the Mallee Research Station was established at Walpeup. Its charter was to improve methods of farming Mallee lands thereby reducing the severity of soil drift. The Research Station conducted a number of field days to educate farmers about erosion (see Figure 10).

⁵⁶ Ibid., 240-8.

⁵⁷ Ibid., 251-5.

⁵⁸ Ibid., 267.

⁵⁹ Scholes, *op. cit.*, p158

⁶⁰ Parsons, *Where the Mallee Meets the Murray: A Centenary History of the Shire of Mildura*, 267.

Figure 10: Agricultural field day, Mallee Research Station, 1932.



Source: Pictures Collection, State Library of Victoria.

During a tour of the Mallee after being appointed to the SRWSC in 1938, farmer Harold Hanslow described the landscape:

I saw hills that had five or six feet of soil on them blown down to the lime stone, stumps standing with their roots exposed showing that up to five feet of soil had blown away. I saw miles of roads with soil drifted over them feet deep and rendered impassable to traffic... There were miles of fencing half to three parts buried in soil, to say nothing of fences completely buried and other fences erected over the top of them.⁶¹

Hanslow initiated an annual series of Soil Drift Control Competitions, which eventually led to adoption of methods of farming the Mallee country in long rotations. In 1940, the *Soil Conservation Act* was passed under which the Soil Conservation Board was set up. In 1941, eight Regional Advisory Committees were formed for the Mallee, Upper and Lower Goulburn, East Wimmera, Hume Catchment, Grampians and Central and Glenelg districts. A network of regional offices, including the Mallee Research Station at Walpeup, was established to publicise the results of soil erosion experiments by the Department of Agriculture. Mallee farmers were given superphosphate and rye seed to sow on windblown ridges in an effort to stabilise them. Because of continuing sand drifts, in 1944 the SRWSC was forced to abandon 265 miles of channels in the Carwarp and Coreena districts, and beyond Kooloonong, Annuello and Ouyen.⁶² In the same year, the Walpeup branch of the Victorian Wheat and Woolgrowers' Association convened a meeting at the Walpeup Hall to 'consider steps to arrest the alarming increase of soil erosion throughout the district'.⁶³ The Mallee Research Station at Walpeup continued to conduct trials on methods of agriculture and ways of minimising sand drift, including the stabilisation of dunes through the planting of deep-rooted perennial and salt-tolerant species, and trash-retention (the maintenance of a cover of dry pasture or crop-stubble through summer). Windbreaks were erected on some farms, and conservation tillage practices were adopted. The Research Station closed in 2008.

⁶¹ Powell, *Watering the Garden State: Water, Land and Community in Victoria 1834-1988*, 217.

⁶² van Veldhuisen, *Pipe Dreams: A History of Water Supply in the Wimmera-Mallee*, 158.

⁶³ D. H. Vallance, *Back to Walpeup 1969* (Pinaroo: Pinaroo Border Times, 1969?), 25.

Lewis Ronald, SRWSC chairman, was influential in establishing the need for a high-level national Reconstruction Commission to guide post-war development, an initiative supported by University of Melbourne's chair of agriculture Samuel Wadham who argued for a government-funded Institute of Agricultural Economics to examine 'production and costs, processing and marketing, land utilisation and development, rural finance and government policy, and rural sociology'.⁶⁴ Subsequently, in 1943 the Curtin Labor government established the Rural Reconstruction Commission to advise on 'the reorganisation and the rehabilitation of the rural economy'. Earlier in 1941, the Victorian government had proposed the voluntary removal of 300 settlers and the enlargement of all holdings to 2,500 acres in marginal wheat land north of a line running from Ouyen to Manangatang, but few farmers took up the offer.

The Federal Rural Reconstruction Commission defined the counties of Tatchera, Karkaroc, Weeah, and in particular, Millewa as marginal wheat land after the North-West Mallee Facts Finding Committee of 1946 reported on the deterioration of land through overstocking and erosion. Of the 1,576 original settlers in the region around Mildura, Murrayville, Piangil-Annuello and Manangatang-Ouyen, only 400 settlers remained. The Committee recommended grazing areas of 6,000-5,000 acres in the far northwest, and in the better-watered and more fertile areas, the minimum of 3,000-acre holdings. The *North-West Mallee Act*, providing for perpetual leases, was subsequently passed in 1948, and a committee appointed to oversee the acquisition of land and its reallocation. Farmers were quick to mobilise and voice their concern over the terms of the Act. However by 1951, much of the major opposition had been allayed. An increase in the size of holdings coupled with a guaranteed price under the 1948 *Wheat Industry Stabilization Act* ushered in a new era of wheat growing in the Mallee. The 1961 *North-West Mallee Act* enabled conversion of perpetual leases to purchase leases or Crown grants.

With the end of wheat quotas in 1971, over the 1970s the wheat industry enjoyed relative prosperity compared with other broad-acre industries. However, from 1982 many Mallee farms suffered a dramatic financial downturn due to ongoing drought, a fall in the on-farm price of wheat and significant rises in the costs of production and interest rates. The downturn has had flow-on effects for many Rural City communities.

The proposed extension of agricultural development into the Little Desert in the late 1960s galvanised protest from people concerned about extending human impacts on the environment. As a result, the Lands Conservation Council (LCC) was established. Because of ongoing clearing, fencing and cultivation of public land in the Mallee, in the mid 1970s the LCC recommended the rationalisation of public land boundaries. Areas for development were consolidated, principally in the parishes of Wymlet and Kia, north of Ouyen. Subsequently, regional and national parks across the Mallee were proclaimed, although some areas had been reserved in the 1920s (see Chapter 10.8 Leisure and Recreation). The rate of clearing accelerated in the mid 1980s, partly in anticipation of possible future controls on clearing freehold land. This activity brought forward the LCC's review of the Mallee published in 1987 and its recommendations led to the protection of public land through the further declaration of national parks.⁶⁵

⁶⁴ Powell, *Watering the Garden State: Water, Land and Community in Victoria 1834-1988*, 200.

⁶⁵ *Mallee Area Review*, 230.

6 WATER SUPPLY

6.1 Domestic and stock supply

In the 1890s, Mildura's domestic water supply was provided as part of the Chaffey brothers irrigation system. A steam engine and pump on the River Murray delivered water into a main pipeline in Deakin Avenue and then to a standpipe. As the water flowed into the irrigation channel system, the backpressure provided the town with water via a wrought iron reticulation system. Because there was no elevated storage, the hours of supply were limited to irrigation periods or a few hours per day. The water intake line at the River Murray was in the same area as where the paddle steamers moored so that the direct discharge of the ships' sewerage was a health hazard at times of low river flow. The First Mildura Irrigation Trust took over the town supply in 1895. In 1909, an urban water trust was established to take over supply and replaced wrought iron pipes with timber from 1911. A concrete elevated storage designed by John Monash opened in 1912. Monash also designed a water storage for W. B. Chaffey's Mildura Winery. In 1920, the Mildura Urban Water Trust was constituted an autonomous body under the *Mildura Irrigation Trust Act*. Another water tower, designed by Messrs. Scott and Furphy, was built in 1957.⁶⁶

Away from the River Murray, water was supplied by lake systems, swamps, soaks fed by springs, clay pans, wells (see Figure 11), and the building of catchment channels to augment run off into tanks sunk earlier by squatters.

Figure 11: Well at Cowangie, 2011.



Source: Context.

The onset of dry years from 1878 encouraged the development of water supply schemes for northern Victoria. The Water Conservancy Board established in 1880 comprised George Gordon, former chief hydraulic engineer, and Alexander Black, deputy surveyor-general. Gordon and Black were instructed to firstly, 'inquire and report as to the feasibility of providing, at a reasonable expense, a supply of water to the northern plains for domestic

⁶⁶ Sydney Wells, *Paddle Steamers to Cornucopia: The Renmark-Mildura Experiment of 1887* (Berri: J. C. Iriving Printer, n.d.), 180-9.

purposes and the use of stock', and secondly 'as to irrigation'.⁶⁷ For stock and domestic use, Gordon and Black recommended the construction of weirs and dams in watercourses to direct seasonal overflows from rivers into creeks. Water was to be pumped where necessary from channels and creeks. Public tanks were to be excavated, every five to seven miles, water tanks built (see Figure 12) and swamps used as storage basins for floodwaters for use in drier seasons. In this way Gordon and Black envisaged a water supply for stock and domestic purposes brought to 'a maximum distance of about three miles to every part of the country'.⁶⁸ Their fifth report recommended the constitution of Water Trusts to oversee the construction and management of these schemes. Amongst other programs, they recommended the development of the Wimmera Scheme to supply stock and domestic water to an area of 1,750,00 acres from the Avon and Richardson Rivers in the east, the Wimmera River from Glenorchy to Lake Hindmarsh in the south and west, and the Mallee country in the north.

Figure 12: Water tank, Walpeup, 2011.



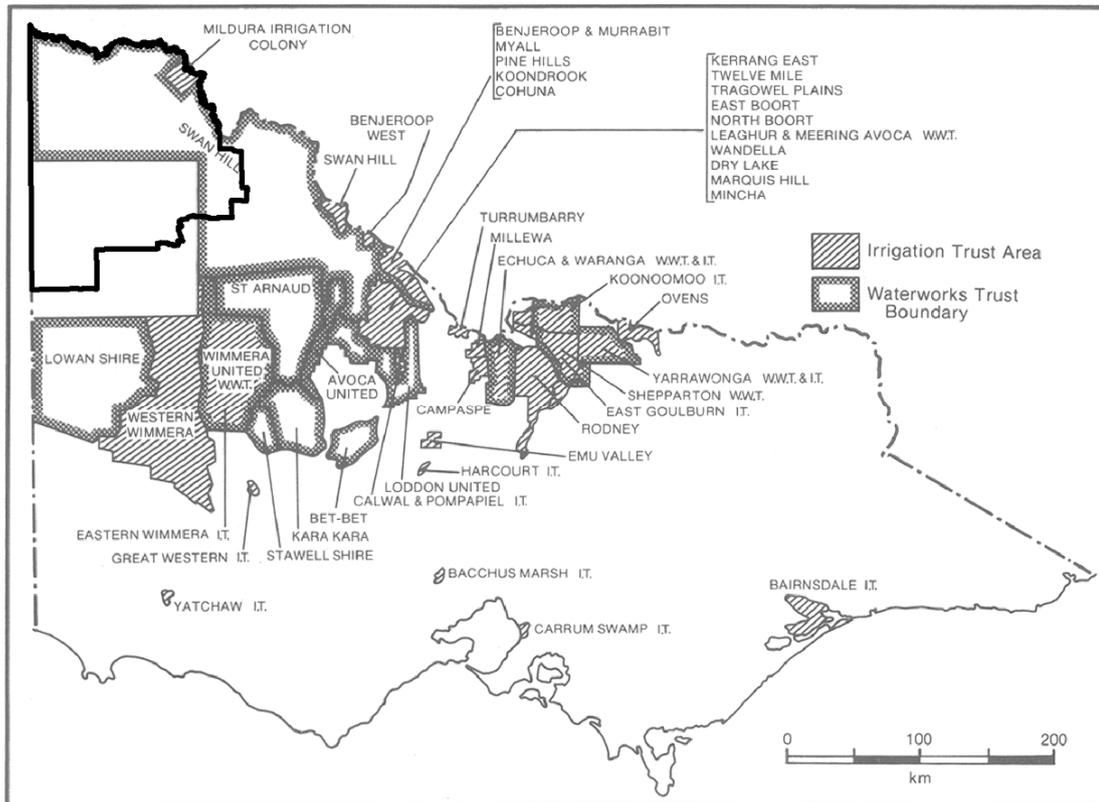
Source: Context.

The *Water Conservation Act*, introduced in 1881, incorporated the key ideas of Gordon and Black and enabled the establishment of Urban and Rural Waterworks Trusts to supply stock and domestic water. By the end of 1882, twelve Waterworks Trusts had been established, including the Swan Hill Waterworks Trust which covered much of the study area (see Figure 13).

⁶⁷ "Supply of Water to the Northern Plains: Reports of the Board Appointed to Advise on the Feasibility of Giving a Supply of Water to the Northern Plains - Part 1 Supply of Water for Domestic Purposes and Use of Stock". John Ferres, Government Printer, Melbourne, 1881, 5.

⁶⁸ *Ibid.*, 5, 11.

Figure 13: Irrigation and Waterworks Trust Areas 1890 within study area



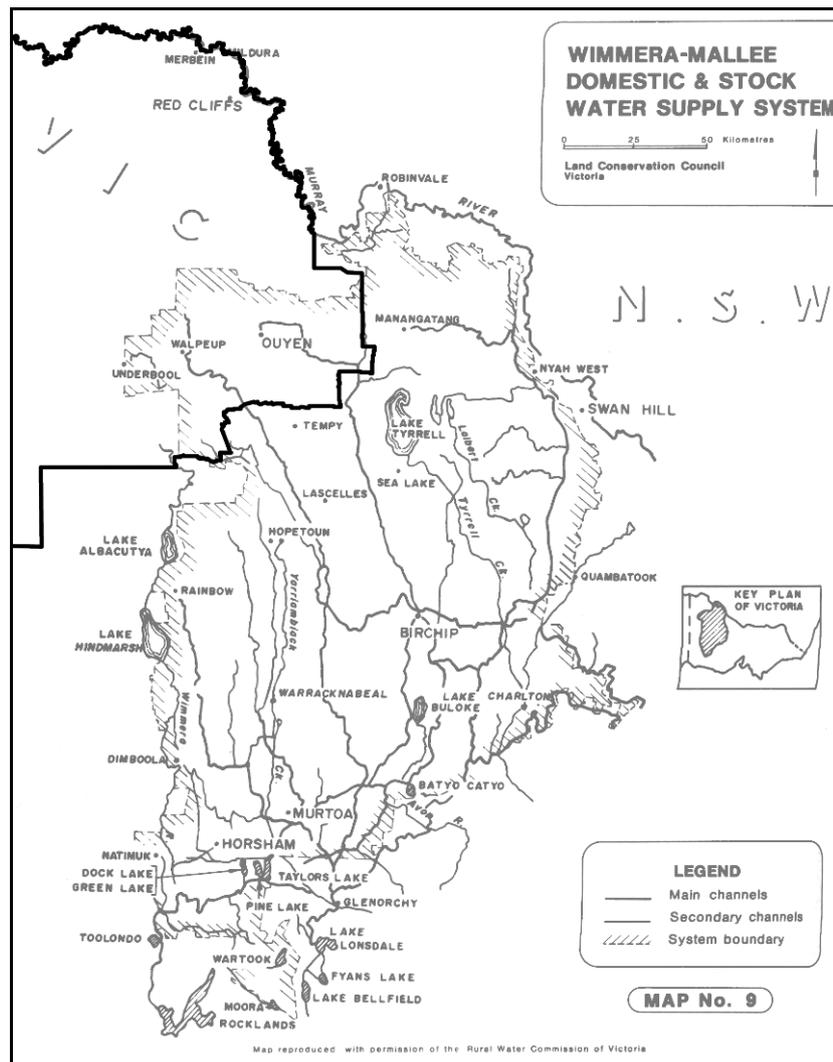
Source: J. M. Powell, *Watering the Garden State: Water, Land and Community in Victoria: 1834-1988*, 124.

Engineer J. D. Derry, who accompanied Alfred Deakin on his 1885 American tour, was instrumental in the formation of the Wimmera United Waterworks Trust. Derry devised a scheme to use the Wimmera, Yarriambiack, Dunmunkle and Richardson as distributaries. The Wartook Reservoir was completed in 1887, and a series of channels, weirs and tanks was laid out.⁶⁹ This system eventually conveyed water to the south of the study area to the country of what was to become the Shire of Walpeup (see Figure 14). In the northwest Mallee to which the Wimmera scheme could not supply water, in 1887 the Victorian Water Supply Department recommended the sinking of test bores in an effort to tap into underground water supplies. The first bore was No. 2 at Morton Plains. By 1897, efforts made to tap into artesian supplies in the Mallee were described as useless.⁷⁰

⁶⁹ Powell, *Watering the Garden State: Water, Land and Community in Victoria 1834-1988*, 170.

⁷⁰ Sir Ronald East, "Water in the Mallee," *The Victorian Historical Magazine*, no. 4 (1967): 182.

Figure 14: Wimmera-Mallee Water Supply System within study area



Source: *Mallee Area Review*. Land Conservation Council, 88.

In 1892, Chief Engineer of Water Supply Stuart Murray divided the Mallee into three water supply districts: the Wimmera District to be supplied from the Wimmera River, Lake Boga District to be supplied from an extension of the Macorna Channel, and the Murray River District to be watered from pumping from the river. Little progress was made on the projects to pump water from the River Murray and after the necessity of supplying water via trains in the dry year of 1898, government funds were made available to extend existing Wimmera channels and to excavate public tanks.

Drought conditions from 1895 and increased numbers of settlers resulted in partial failure of the Wimmera system. The Lake Lonsdale Reservoir was built to relieve the situation, but with a maze of private, Shire and Trust channels in use, uncertainty of supply remained.

In 1900, A. S. Kenyon was appointed assistant engineer in the Department of Mines and Water Supply. After the passing of the 1905 *Water Act*, in the same year recommendations for a new supply system were made by a Board incorporating Kenyon, J. M. Reed surveyor-general and C. Catani chief engineer of Public Works. Subsequently, an Act was passed to supply River Murray water to the whole Mallee frontage of the river to a width of 30 miles. A stock and domestic supply was to be provided to this country from pumping stations established at Long Lake, Nyah, Coreena, Hattah, Carwarp, Mildura, Merbein, and Walwalla. The eastern Mallee

was to be watered from the Wimmera River and the western Mallee by wells and bores (see Figure 15).⁷¹

Figure 15: Number 1 Bore, Panitya.



Source: Context, 2011

After Kenyon was appointed as an engineer in the Department of Agriculture, he devised the ironclad catchment for conserving rain for domestic and stock supplies. Under Kenyon's management in his role as SRWSC engineer-in-charge of the North-West Mallee from 1910, large catchment tanks were excavated 1910-11 as reserves against droughts. They were not for the general use of settlers who were required under the conditions of their leases to make their own provision for water. By 1910, Ouyen's water supply had been boosted by public tanks at Yellangip Plain and Boulka.⁷²

Under Kenyon's management, boring in the Mallee was recommenced. Public bores were sunk in 1910 at Boinka and Underbool, and in 1911 at Linga. Others were established in 1912 at Manpy, Daalko, Nyang, Underbool and Boinka. The bore at Boinka tapped into artesian water that rose above ground level. Water at the other bores was accessed by hand pumps, horse operated pumps, windmills, and in later years, steam driven and diesel pumps (see Figure 16). Bores were opened at Tutye, Duddo, Gongee, Boinka and Underbool in 1920. Water from these bores was often too saline for human consumption, so in 1929 farmers sunk their own bores in the parishes of Boinka, Manpy, Koonaa and Purnya. The bore established at Murrayville in the same year was connected to a deep well turbine pump, the first of its type in Australia. By 1930, the boundary of the area in which usable underground water could be accessed was well defined. Even with the establishment of bores and tanks, water trains were a feature of Mallee life until the late 1920s when the last delivered 200,000 gallons of water to Torrita in February 1928.⁷³

⁷¹ Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 106.

⁷² van Veldhuisen, *Pipe Dreams: A History of Water Supply in the Wimmera-Mallee*, 87.

⁷³ *Ibid.*, 117, 21, 35. Janet Lynch, Margaret Willsmore, and Christy Brown, *A Vision Realised 1988: District History of Underbool, Torrita, Linga, Boinka* (Red Cliffs: Underbool Back To Committee, 1988?), 14-15.

Figure 16: Pumping station at Hattah Railway Station.



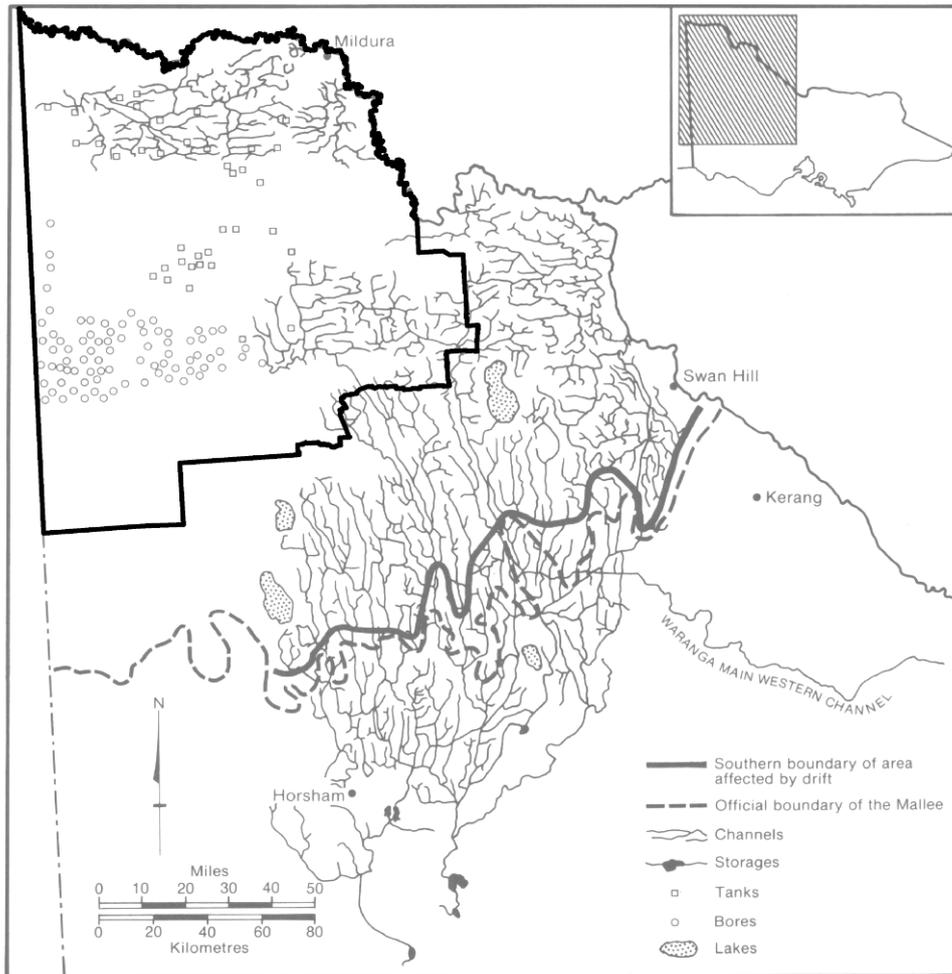
Source: Context.

By 1924, the SRWSC had established a channel system in Millewa fed by River Murray waters from Lock 9, to provide a water supply to local soldier settlers and British immigrants (see Chapter 4.3 Closer Settlement). In 1927, the Standing Committee on Railways investigated the feasibility of settling land in the south of Millewa County. To supply water to the higher parts of this area, a system of ironclad catchments, designed by Kenyon and in operation at Nowingee from 1927, was established. Rivetted or clamped sheets of corrugated iron covering up to half an acre of land caught and distributed rainwater to a concrete tank set in the ground from where the water was hand pumped. These catchments were the only water supply in the area after the program of channel construction was suspended in 1928.

Under the SRWSC, over the period 1906-1936 a three-fold expansion in the area served by the Wimmera-Mallee scheme was achieved, with the total number of people served in the region growing from 12,000 to 52,000. In 1930-1, the Wimmera Mallee Water Supply's channel system was extended to supply the Underbool township and vicinity, and to the high country adjacent to Walpeup. It was officially opened in March 1943. However, approximately 500,000 acres of wheat growing country in the Mallee, mostly between Underbool and the South Australian border, remained dependent on water supply from sub-artesian bores, with 109 of these controlled and maintained by the Commission⁷⁴ (see Figures 17 and 18).

⁷⁴ Powell, *Watering the Garden State: Water, Land and Community in Victoria 1834-1988*, 183-4.

Figure 17: Wimmera-Mallee Supply System 1933 within study area



Source: J. M. Powell, *Watering the Garden State*, 219.

By 1939, the study area had been divided into three rural waterworks districts for the supply of stock and domestic water needs administered by the SRWSC: the Walpeup West District of 239 square miles supplied by private bores and 60 public bores sunk to a depth of about 500 feet equipped with windmills, pumps and tanks; the Millewa District, incorporating Yelta and Carwarp, of 822 square miles served by an earthen channel system carrying water pumped from the Murray at Lock 9 to a main pumping station at Lake Cullulleraine and supplied also by pumping stations at Red Cliffs and Merbein; and the Wimmera-Mallee system which supplied water from the Grampians (supplemented in 1929 by water from the Goulburn River and Loddon River via the Waranga-Mallee Channel) to areas in northwest Victoria including the Underbool district.⁷⁵

⁷⁵ Everard Brown, *Irrigation and Water Supply Development in Victoria* (Melbourne: State Rivers and Water Supply Commission, 1954), 36-40.

Figure 18: Boring for water at Underbool, 1934.



Source: Pictures Collection, State Library of Victoria.

As part of the SRWSC's post-war construction expansion, the security of the Wimmera-Mallee system was improved by the completion of the Rocklands Reservoir in 1953. The enlargement of carrier channels from the Wimmera headworks was undertaken in 1962. An enquiry was held in 1966-7 into the earthen water channels and storages supplying the Millewa settlement from which 95 percent of water was lost through evaporation and seepage. These had been replaced by pipelines and impervious on-farm storages by 1975.⁷⁶

In 1984, the Rural Water Commission was established to operate and maintain most of the state's water supply system, including storages and watercourses. In the same year, the Sunraysia Water Board took over responsibility for sewerage and domestic water services for Mildura, Irymple, Merbein and Red Cliffs. In 1987, Grampians Wimmera Mallee Water took over control of the Wimmera-Mallee Domestic and Stock Supply System, believed to be one of the most extensive gravitational supply systems in the world. In 1987, the scheme covered 28,500 square kilometres, supplying 20,500 farm dams on 15,760 holdings via 16,100 kilometres of open channels.

The 1989 *Water Act* enabled the permanent or temporary trading of water rights separately from the land to which it was attached. In 1992, with the establishment of the Rural Water Corporation, regions were consolidated and greater local management powers given to Regional Management Boards. Eighteen regional water authorities were created in 1994-5. Water authorities currently responsible for the study area are Grampians Wimmera Mallee Water and Lower Murray Urban and Rural Water.

In 1988, pilot projects commenced for the Wimmera Mallee Pipeline, a project that involves the construction of almost 9,000 kilometres of reticulated pipeline to replace over 16,000 kilometres of existing open channels. When the project is completed in 2010, it will supply stock and domestic water to approximately 6,000 rural customers and 36 towns across a region from the Grampians to the Murray River. The fourth stage of the project, opened in 2000, comprised the building of a pipeline from the River Murray to Ouyen. An area between Walpeup and Underbool and north of Walpeup was piped over the next few years.

⁷⁶ *Mallee Area Review*, 90.

After the establishment of olive and potato growing in the Murrayville region that utilised 2,500 megalitres a year, the Murrayville Groundwater Supply Protection Area (GSPA) was declared in 1998. A Groundwater Management Plan was developed for an area from Cowangie to the South Australian border to ensure that supplies were managed equitably and in a sustainable manner.⁷⁷ Towns in this area, including Murrayville and Cowangie, continue to draw water from groundwater bores.

6.2 Irrigation

Irrigation in the study area began with squatters who often employed Chinese gardeners who pumped water from the River Murray via windmills to small-scale vineyards, orchards and vegetable gardens. Rev. T. H. Goodwin, manager of Yelta Aboriginal Mission station in the 1850s, used irrigation to produce grapes which he subsequently dried.⁷⁸

Members of the Water Conservation Board George Gordon and Alexander Black, submitted their first report expressly on the subject of irrigation in 1882. Drawing upon the irrigation experience of India, Spain, Italy, California, and France, they cautioned against the provision of a national plan of irrigation. However, influenced by reports of the success of private irrigation and the lobbying of parliamentarian Hugh McColl and Reverend E. C. De Garis, minister at Kerang and Durham Ox, Alfred Deakin (appointed to the position of Minister for Public Works and Water Supply in 1883) proposed the amending of the 1881 *Water Conservation Act* to provide for Irrigation Trusts. Passed late in 1883, this was the first Victorian legislation to expressly provide for the construction of irrigation works. Because of a shortage of loan capital in London however, no financial support was given by the State and only two Irrigation Trusts were formed under this Act.

On 16 December 1886 another irrigation Act was passed. The initiatives of State support and private enterprise were combined. Trusts were able to borrow up to 70 percent of the gross value of the land within the Trust boundaries with capital advanced by the government at the rate of 4½ percent. Rates on irrigable lands were to be collected by Trusts to repay the interest and to provide a sinking fund of 1½ percent annually. Drawing directly from legislative practice in Colorado, which declared that all streams were public property, Deakin vested the control and management of all water resources within the colony in the Crown.

Based on this Act, in December 1886 the *Waterworks Construction Encouragement Act* was passed, paving the way for the establishment of private companies to purchase, subdivide, and sell irrigated land to others. Under this Act, an irrigation settlement at Mildura was developed by the Chaffey brothers from Canada (see Chapter 4.3 Closer Settlement). The Chaffey brothers ploughed the Mallee with traction engines and dug miles of water channel on their 50,000 acre Concession that they had subdivided into ten acre blocks. After establishing the Mildura Irrigation Company, they relied on pumping water from the River Murray controlled by a weir, and because of a lack of building materials, distributed water by means of open channels. They brought the steamer 'Eliza Jane' to Psyche Bend to be used as a pumping station while George Chaffey designed and built further pumps to augment the steamer. By 1893, water was raised from the River Murray by four high-lift pumping stations which watered 26,020 acres. The Billabong system incorporated the areas of Koorlong and Cabarita in the west and Cardross in the south. The Mildura homestead system served 1,630 acres, the Ranfurly system served 450 acres, and the Mildura township system served another 1,850 acres.⁷⁹ Excavation of the channel system commenced in 1887 and by 1896, 1,000 miles of main channels and 300 miles of subsidiary channels had been built.⁸⁰

⁷⁷ Jocelyn Lindner, *Murrayville 1910-2007* (n.p.: Murrayville Liaison Committee, 2007), 27.

⁷⁸ East, "Water in the Mallee," 231.

⁷⁹ For a detailed description of these systems see Ward, *The Desert Blooms: An Account of the Physical Development of the City and Shire of Mildura*, 35-40.

⁸⁰ *Ibid.*, 40.

After complaints from settlers, a Parliamentary Select Committee was appointed in 1892 to enquire into the cost and supply of water in Mildura. Because of the 1893 bank crash, the over-extension of financial commitments by the Chaffeys, the cessation of land sales in 1894, and the growing complaints of settlers, in 1894 the Mildura irrigation colony went into liquidation. In December 1895, an election was held for commissioners for the First Mildura Irrigation Trust, established to take over responsibility for the irrigation of the Mildura colony. On 7 March 1894, the newly appointed Turner government appointed a Royal Commission to enquire into the dire financial situation of all Victorian irrigation trust schemes. The general failure of irrigation trusts, the 1896 Royal Commission on Water Supply found, was due to human miscalculation and misadventure. Responsibility was sheeted home to the settlers, the Commissioners of the Irrigation Trusts, former Minister for Water Supply Alfred Deakin, and the employees of the Department of Water Supply. The commission's report largely blamed the Chaffeys for the troubles at Mildura, claiming that they had operated on insufficient capital and committed serious errors in planning. However the Commission recommended that loan monies be advanced to line existing channels and improve the existing pumping plant. In addition, the Concession in the indenture of 1887 was cancelled and 188,000 acres reverted to the Crown.⁸¹

After the hearing, in August 1897 George Chaffey sailed to the United States. George's son Ben stayed in Australia, building up business interests in Mildura before becoming a prominent Riverina pastoralist and well-known racehorse owner. William Benjamin Chaffey also remained in Mildura. He brought his orchard of some 200 acres into production and established the Mildura (later Mildara) Winery Pty. Ltd., which moved to Merbein in 1914. Active from 1895 in the development of marketing procedures for local fruit, he became a leading member of both the Mildura and the Australian Dried Fruits associations and was president of the latter for many years. In 1903 he was elected president of the Mildura shire Council and in 1920 first mayor of Mildura Borough. His home Rio Vista has become a cultural centre. A statue of him by Paul Montford was unveiled in Mildura in 1929.⁸²

A new Liberal government under W. H. Irvine introduced the *Water Act* of 1905 under which three major policy changes were made: all Irrigation Trusts except for Mildura were replaced by a central agency; the beds and banks of all watercourses were 'nationalised'; and a compulsory minimum annual charge was levied on each irrigation farm. Defined under the Act, land was divided into three classes and a 'water right' allocated to each irrigation holding. The annual charge was calculated as one-fifth of the unimproved capital value of the irrigated property. Parliamentary members objected that the Act prejudiced their constituents in favour of northern residents, arguing that those south of the Divide had for twenty years subsidised farmers in the 'arid districts'. However the way was paved for the establishment of extensive irrigation schemes in northern Victoria. The SRWSC was appointed on 1 May 1906 with Stuart Murray as Chairman to take control of the assets of the former Irrigation Trusts (except for the First Mildura Irrigation Trust) and responsibility for the management of future irrigation works. Elwood Mead took control of the irrigation vision when he was appointed SRWSC chairman in 1907. Under the advice of Mead, the 1909 *Water Act*, an amendment of the 1905 Act, introduced a compulsory water charge 'to make men learn how to use it properly', especially those 'decrying irrigation...who are not irrigating or paying their fair share of the cost of irrigation works'.⁸³ Irrigation settlements were subsequently established under the *Murray Settlements Act* at White Cliffs (Merbein) in 1909. In 1918, A. S. Kenyon was asked to report on land settlement for the dried fruits industry, needed for the placement of former soldiers. He recommended the development of Red Cliffs, the extension of Merbein, and the establishment of what was to become the Robinvale Irrigation District, all on the Murray River, and was placed in charge of developing the Red Cliffs District.

⁸¹ Ibid., 48.

⁸² This information has been taken from Westcott, *Chaffey, George (1948-1932)*; *Chaffey, William Benjamin (1856-1926)*.

⁸³ Mead, *Policy to Be Followed in Irrigation Development No. 2*, 4, 15.

Concerns of the effects of irrigation by Victoria and New South Wales on navigation of the Murray eventually resulted in a Royal Commission and Interstate Conference of Engineers in 1913. From as early as the 1860s, the River Murray had been the subject of inquiries and commissions relating to its use for navigation and other purposes, particularly to ensure that South Australia received guaranteed minimum flows throughout the year. The severe drought that extended from 1895 to 1902 and Federation of the Australian colonies in 1901 facilitated moves to develop joint control of River Murray waters. The situation was aggravated in 1914 and 1915 when a severe drought combined with the taking of water for irrigation resulted in the Murray ceasing to flow altogether. The water level at Psyche Bend was too low for pumping so an unauthorised temporary barrage was built across the river. Angry settlers from Merbein attempted to breach the dam until SRWSC engineer J. S. Dethridge gave instructions for another weir to be constructed at Merbein and both places be put on restrictions. Water from the river at this time was so high in salt levels that citrus orchards died.⁸⁴

The Mildura and District Research Committee was appointed in 1917 to undertake research into the fungus disease black spot which, with heavy rains in 1917, had affected local vineyards. Funded by a levy on growers, in 1918 the committee's objectives were widened to include research on the treatment of salt affected land, dipping of sultana grapes, manurial, spacing and rootstock trials with vines, and further investigation into fungus diseases. In 1919, the SRWSC offered the committee a farm site at Merbein on which to undertake experiments with the Commonwealth Advisory Council of Science and Industry subsidising the work. In the same year, the Mildura Vineyards Protection Board took over the farm site and laboratory to form the Merbein Viticultural Research Station. In 1927, the Merbein Station was redesignated the Commonwealth Research Station, Murray Irrigation Areas, and in 1967 was reconstituted the Commonwealth Scientific and Industrial Research Organization (CSIRO) Division of Horticultural Research.⁸⁵

In 1917, the River Murray Waters Agreement ratified joint control of the river by Victoria, New South Wales and South Australia and the establishment of the River Murray Commission. The Commission's prime task was the regulation of the main stream of the Murray to ensure that each of the three riparian states, and especially South Australia, received their agreed shares of the Murray's water. The main provisions in the first Agreement for the regulation of the River Murray were the construction of a storage on the upper Murray, the construction of a storage at Lake Victoria, the construction of 26 weirs and locks on the Murray between Blanchetown in South Australia and Echuca in Victoria, and the construction of nine weirs and locks on the lower part of either the Darling or Murrumbidgee Rivers (the Murrumbidgee was selected). The Hume and Dartmouth Dams were built, as were 13 locks and weirs between Blanchetown and Torrumbarry, the Lake Victoria storage, the Maude and Redbank Weirs on the Murrumbidgee, and the Barrages at the Murray Mouth. No. 11 Lock and a removable weir to allow for navigation was designed by engineer J. S. Dethridge of the SRWSC and built at Mildura in 1926-8.

Away from the Murray, in 1944 Reuben Forsyth installed a Pomana pump in the Murrayville district to supply irrigation water. Irrigation from underground bores was trialled in 1959 at Pomona Experimental Farm established by Fred Bethune at Danyo near Murrayville. Eight twelve inch bores, each operated by a 150 horsepower engine, watered 2,000 acres of pastures, lucerne, fruit trees and vines. Two gauging bores recorded water levels and the interpretation of the results indicated that one acre in four in the region could be watered by the equivalent of 30 inches per year without affecting underground supplies. As a consequence, a number of farmers in the Murrayville region established small irrigation plots on their farms. The Pomana Experimental Farm closed in 1973.⁸⁶

Engineer Lewis Ronald East in his role of SRWSC chairman over the period 1936-65 affected a threefold increase of water storages and doubled the area of land irrigated in Victoria. By

⁸⁴ Wells, *Paddle Steamers to Cornucopia: The Renmark-Mildura Experiment of 1887*, 246.

⁸⁵ *Ibid.*, 205-11.

⁸⁶ Lindner, *Murrayville 1910-2007*, 26-8.

1954, 87 miles of sub-surface drains and five miles of open drains were in operation in the Red Cliffs irrigation district. By this stage, Red Cliffs comprised 31,000 acres of which 11,561 acres were irrigated via a pumping plant capable of delivering 500 acre-feet of water per day. In the same year, Merbein Irrigation Settlement comprised 10,526 acres, of which 8,432 acres were irrigated by three centrifugal pumps pumping 300 acre-feet of water per day from the River Murray.⁸⁷

The River Murray Commission investigated the construction of a dam on the River Murray at Chowilla in 1962. If built, the dam would have backed water up the River almost to Wentworth, inundating large areas of private and public land in the study area. The scheme was abandoned in favour of the Dartmouth Dam opened on the Mitta Mitta River in 1980.⁸⁸

In the early 1900s, members of the Mildura First Irrigation Trust had instigated their own program of removing saline water, which had appeared within the first few years of irrigation, by sinking bore shafts to where salty water was drained into underground sands. By the 1930s, with the support of Kenyon, irrigation farmers in the Mildura district were demanding proper drainage systems. From 1932, the SRWSC established sub-surface drainage pipes to prevent water logging and salinity at Red Cliffs, Merbein and Mildura. It was the largest Commonwealth unemployment project at the time, costing £1,100,000 (subsidised by each local orchardist who contribute £5 per acre) and employing 400 men.

However, by the 1960s ongoing related problems of soil compaction, waterlogging, salinity and soil acidity were affecting the productivity of both irrigated and dryland farming. In the late 1960s, the most significant salinity issue for horticulturalists in the Sunraysia region was the poor quality of the River Murray waters impacted on by upstream users. The River Murray Commission conducted salinity investigations in the Murray Valley, and in 1982 a further amendment of the River Murray Waters Agreement broadened the Commission's role to take account of water quality issues in its water management responsibilities. As a consequence, in the early 1980s the SRWSC commenced work on a series of salt-interception schemes on the lower reaches of the River Murray, including the Mildura-Merbein interception scheme and the Lake Hawthorne scheme at Mildura.⁸⁹ It was recognised that the River Murray Waters Agreement and the River Murray Commission were increasingly unable to meet the needs of the Basin's management and its growing resource and environmental problems and that critical issues were no longer confined within distinct jurisdictions, but extended across state boundaries. As a consequence, the Murray-Darling Basin Agreement was established in 1987.⁹⁰ In December 2008, the Murray-Darling Basin Authority assumed responsibility for the functions of the Murray-Darling Basin Commission.

In 1984, the Victorian Rural Water Commission was established to operate and maintain most of the state's water supply system, including storages and watercourses. The 1989 *Water Act* enabled the permanent or temporary trading of water rights separately from the land to which it was attached. In 1992, with the establishment of the Rural Water Corporation, regions were consolidated and greater local management powers given to Regional Management Boards. Five rural water authorities were created in 1994. Those responsible for the study are Grampians Wimmera Mallee Water and Lower Murray Urban and Rural Water, which took control of the 113-year old First Mildura Trust in 2008.

New farming methods aided by technology established to address salinity have ensured that irrigated agriculture remains an economic mainstay of the Rural City. Water tables have dropped with the continuing drought, however communities and the country itself continue to experience significant challenges because of the effects of continuing dry conditions exacerbated

⁸⁷ Brown, *Irrigation and Water Supply Development in Victoria*, 30.

⁸⁸ *Mallee Area Review*, 89.

⁸⁹ Peter Russ, *The Salt Traders: A History of Salinity in Victoria* (East Melbourne: The Department of Premier and Cabinet, 1995), 160.

⁹⁰ Based on *A Brief History of the Murray-Darling Basin Agreement*, (Murray-Darling Basin Commission, 2006 [cited 16 February 2009]); available from http://www.mdbc.gov.au/about/history_mdbc.

by hydrological patterns fundamentally altered by over 160 years of white settlement, and the trading of water rights away from the region. The current low water quality in local streams and rivers evidences the impacts of historical land and water management practices.

7 TRANSPORT AND COMMUNICATIONS

7.1 Tracks, roads and bridges

The first roads were laid down by Aboriginal peoples. One of the better-known tracks, known as 'the blackfellow's route', ran from Hattah Lakes to Pine Plains.⁹¹ The reputation of the Murray River Sydney to Adelaide overland route as the 'great high road of the interior' was sealed with publicity of Hawdon and Bonney's, Eyre's and Sturt's 1838 journeys. The intensive use of the River Murray track to drive stock led to hostile clashes between Aborigines and overlanders.

Later tracks overlaid Aboriginal pathways as stock and workers on Mallee sheep and cattle runs moved between the front (river) country and backcountry. Goldseekers made intensive use of the River Murray route as they travelled from Adelaide to the central Victorian goldfields from 1851.

At the request of Governor Charles La Trobe who wished to visit the Mallee to judge its 'real character', E. H. White undertook survey work from July 1851 for a road from Lake Hindmarsh to the Murray that was closely aligned to the 142nd meridian.⁹²

By 1888, regular services that combined road coach with steamer and rail travel operated to Mildura. These services comprised travel by rail to Echuca from Melbourne then steamer to Mildura; Melbourne to Kerang by rail then Cobb and Co. coach to Swan Hill on to Euston then Mildura; rail from Adelaide to Morgan then steamer to Mildura via Wentworth; and Sydney to Hay by rail then coach to Balranald then coach to Mildura. Coaches conveyed the Royal Mail and passengers direct to Mildura from Swan Hill from 1899.

Disputes over whether the Chaffey brothers or the Mildura shire council controlled roads dominated council meetings in the early 1890s. In addition, road building in the Mallee proved a challenge. Roads were surveyed, but because of shifting sandhills their actual construction often took different routes to those delineated on paper. Built on cleared land, road surfaces tended to blow away or become buried in sand. Roads that followed the natural orientation of east-west dunes were found to have fewer problems. At a meeting in Ouyen in the early 1930s to discuss the problem of sand drift, the cooperation of farmers was sought to keep roads passable.

In opening up the northern Mallee from 1910, the SRWSC cleared and grubbed over 6,000 miles of roads and made more than 200 sandhills passable by surfacing sandy ridges with local limestone.⁹³ This work included the provision of a road north from Ouyen through the Hattah sandhills to Mildura. In 1921, a local newspaper reported that a motorbike and sidecar had made history by covering the 90 miles from Ouyen to Mildura, a feat never attempted before because the road between Ouyen and Carwarp was mostly a sand track. In 1922, the Country Roads Board (CRB) commenced a comprehensive program of road works in northern Victorian shires. In 1927, a bridge over the River Murray at Mildura opened, and in 1928 a bridge connected the Victorian Calder Highway (named in 1929) to Wentworth in New South Wales. Up until this year, a punt forded the Murray opposite the busy Wentworth port at a place known as the 'Cowana' paddock.

Fourteen 'developmental' roads were declared in the Millewa in 1927. In 1928, £6,000 was provided under the Federal Roads Act to extend and metal part of the Murray Valley road (now the Sturt Highway). By 1930, the Renmark-Mildura track via Lake Cullulleraine was in regular use by motor vehicles. A track from Murrayville to Nhill was cleared in 1931. A road from Hattah through Carwarp and Yatpool to Merbein and Abbotsford Bridge was finished in

⁹¹ Based on Ibid.

⁹² Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 38.

⁹³ East, "Water in the Mallee," 193.

1930. Yet, because of poor road conditions, it was still beyond the means of the average motorist to drive from Melbourne to Mildura. With an influx of returned servicemen after World War Two, the CRB ensured that the Calder Highway was sealed from Melbourne to Ouyen to coincide with Queen Elizabeth's visit in 1954. By 1960, the Calder had been sealed all the way to Mildura.⁹⁴ After commencing the sealing and changes to the Mallee Highway from Ouyen in 1955 (first cleared in 1913), the last section between Underbool to Boinka was sealed in 1965-6 and is now used as a main Adelaide to Sydney route.

7.2 River trade

Navigation along the Murray River commenced with Aboriginal people working the river in bark canoes, a practice taken up by squatters who used the same vehicles to transport people, livestock and wool along the river.

Riverboats played a significant role in the development of the northern Mallee. In August 1850, the South Australian government promised a bonus of £4,000 to the first two iron steam boats of not less than 40 horsepower and not exceeding two feet of laden draught to navigate the Murray River to the Darling junction. In 1853, brothers William and Thomas Randell navigated their paddle steamer 'Mary Ann' from South Australia to Swan Hill, with Francis Cadell in the 'Lady Augusta' with a crew including three Aboriginal people to offer navigational advice, close at hand. Both parties subsequently competed for the river trade, and in 1859, one, or possibly both boats landed cargo at the junction of the Murray and Darling Rivers at the settlement of Wentworth.⁹⁵ Cadell was induced to form the River Murray Navigation Company by the South Australian Legislative Council to deliver goods to Victoria's burgeoning goldfields. Squatters in the study area relied on ports of entry and clearance declared under the *Customs Act* of 1857 at Cowana, Narrung, Swan Hill and Echuca for supplies of flour, sugar and tea, and to export livestock and wool. The Port of Cowana was renamed the Port of Mildura and moved to that township in 1888. New brick port offices opened for business on Orange Avenue in 1891 and a wharf was constructed in 1892. A breakdown of goods into Victoria via the River Murray in 1893 indicates that wool constituted the principal import, and that dried fruit and wood made up some of the chief exports. Over the period 1889 to 1901 the customs duties collected at Mildura increased from £73 in 1888, to £4,518 in 1899, and then declined to £2,564 in 1901.⁹⁶

The Mildura Customs House closed five days after the railway arrived in Mildura on 27 October 1903, and the Mildura port closed in 1907, however boats transporting timber continued to ply the river until the 1950s. Today some continue to operate as tourism ventures.

7.3 Railways

In 1895, the Railways Standing Committee considered the question of extending railways into the Mallee. The Mallee lines built to 1898 had 'more than paid their way' according to the Railways Commissioner giving evidence to the Parliamentary Standing Committee on Railways investigating the connection of Mildura to the existing rail network. 'This wheat traffic from the Mallee is a traffic that the more we get the better we like it', he wrote.⁹⁷ The lobbying for a railway line between Mildura and Melbourne intensified after a line was opened to Swan Hill in 1890 and low river levels over the drought years of 1895-1902 stopped shipping on the Murray. The route of the proposed Mildura railway pre-occupied the Standing Committee until late in 1898 after the Boort line had been extended to Quambatook and was

⁹⁴ Howard Carr, *The Calder Highway Melbourne to Mildura: Opening the Victorian Inland* (n.p.: Howard A. Carr, 2006), 101-2.

⁹⁵ Wells, *Paddle Steamers to Cornucopia: The Renmark-Mildura Experiment of 1887*, 19.

⁹⁶ *Ibid.*, 269, 75-8.

⁹⁷ *Final Report from the Parliamentary Standing Committee on Railways on the Question of Further Extension of Railways into the Mallee Districts*, *op. cit.*, p. xiv.

on its way to Ultima. A favoured route commenced at this point and headed northwest through the Mallee almost in a direct line with Mildura. Its advantages included traversing the settled country north of Ultima and resumed land at Waitchie. It represented the shortest route to the seaboard and also avoided what the Railways termed 'water competition'. The Committee adopted this route in its recommendations and proposed that the cost of construction not exceed £2,000 per mile and that the line be ballasted with sand and unfenced using second hand rails. In the event, however, the Mildura railway was built as an extension of the Birchip line to the west and the eastern Mallee was cut up into corridors approximately 30 miles wide with a railway running down the centre (see Figure 20). The line opened on 27 October 1903.

The construction of the Ouyen-Murrayville line, planned to open up 750,000 acres of land for settlement, commenced in 1909 in Ouyen, reached Underbool in late 1910, Linga early 1911, and Murrayville in 1912 (see Figures 19 and 20). At the time, it was the only railway line constructed ahead of settlement. The Border Railways Commission of 1910 recommended the extension of the line to connect Murrayville with Pinnaroo in South Australia. The line was subsequently built and finished in 1915. These lines were built on the 'butty gang' system wherein the Railway Construction Branch of the Board of Land and Works employed people directly to do the work. This system was to prevail from 1 January 1892 and resulted in significant economies over the previous method of calling tenders for the construction of lines in sections.⁹⁸ Houses to accommodate railway workers were built at Underbool, Linga, Boinka and Torrita.

Figure 19: Walpeup Railway Station, 1914.



Source: Pictures Collection, State Library of Victoria

In 1915, A. S. Kenyon SRWSC engineer-in-charge of the North-West Mallee reported on the successful settlement of six million acres of the Mallee. Of the remaining five million acres, Kenyon estimated that only two million were 'fit for the plough' with their 'subjugation'

⁹⁸ Kenyon, *The Story of the Mallee: A History of the Victorian Mallee Read before the Historical Society of Victoria 18 March 1912*, 9.

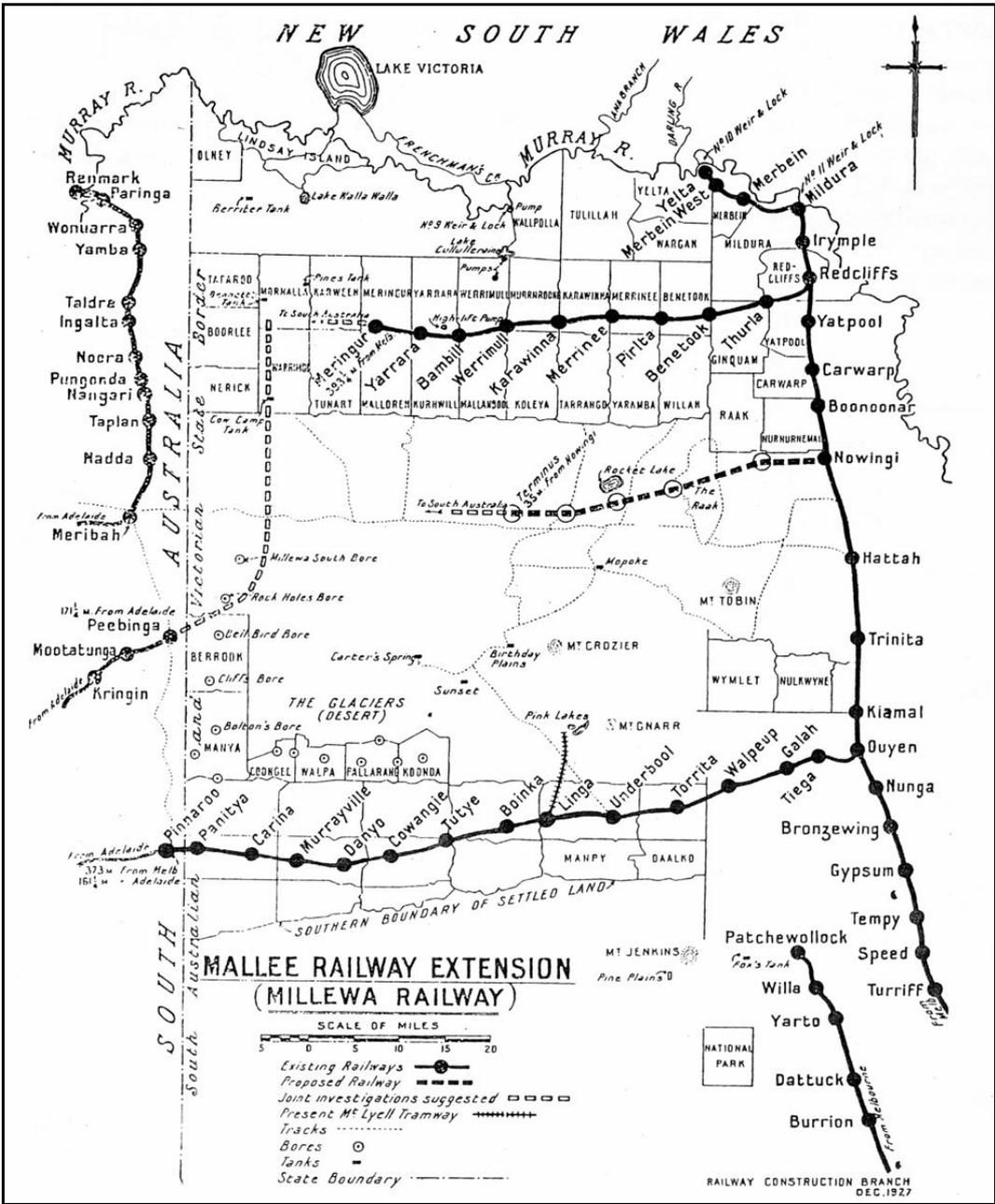
dependent on the construction of over two hundred miles of new railway lines.⁹⁹ The construction of railways thus continued. In 1919 the Nandally to Mittyack line opened and was extended to Kulwin in 1920. Lines were opened from Red Cliffs to Werrimul in 1924, Merbein to Yelta in 1925, Werrimul to Meringur in 1925, and Meringur to Morkalla in 1931 (see Figure 20).

A line from Nowingi towards Millewa South was commenced in 1928 to open up further land for settlement (see Figure 20). After 24 miles of line were constructed, the scheme was called into question and the building of the railway was abandoned later in the same year. A gypsum siding had been established near the sixteen-mile mark at Rocket Lake and in later years, the Victoria Railways dismantled the line back to the gypsum loading site and rented the line to Brunswick Plaster Mills, later CSR Ltd.¹⁰⁰ Evidence of the Nowingi-Rocket Lake railway formation remains.

⁹⁹ Ibid., 92.

¹⁰⁰ Mark Bau, *VR Timeline* (n.d. [cited 2 March 2009]); available from <http://www.victorianrailways.net/vr%20history/history.html>.

Figure 20: Mallee railways, 1927.



Source: Andrew C. Ward, *The Desert Blooms: An Account of the Physical Development of the City and Shire of Mildura*, 63.

Rail services have been reduced over time. In 1964, the Meringur to Morkalla line closed. The Mildura to Merbein and Ouyen to Pinaroo passenger services ceased to operate in 1967 and 1968 respectively. After 1971, lines were operated on an 'as required' basis. Many were declared unviable and dismantling of lines and buildings have occurred. In 1987, the Underbool railway station was demolished. The Red Cliffs to Meringur line closed in 1988. Passenger services from Melbourne to Mildura finished in 1993, although there are plans to reopen them.

7.4 Postal and telecommunications

In 1870, a mail service opened to link the Mallee runs with Swan Hill.¹⁰¹ Another early postal services was operated by Hugh O'Sullivan who lived with his parents at Albacutya Station. Hugh commenced a mail run in 1883 when he was fourteen. He rode the bullock track from Dimboola (the nearest railhead) to deliver mail to stations at Kow Plains, Pine Plains and Albacutya. Participants in the Wild Dog Mail Trail walk trekked the route of the mail run between Pine Plains and Kow Plains in April 2009.

A post and telegraph office was opened at Mildura in January 1888. The Euston-Wentworth mail run operated by the New South Wales Postal Department also delivered the Mildura mail. In December 1897, the first delivery of Melbourne mail via road to the Mildura Post Office took place.¹⁰² Post offices were established elsewhere as the Mallee country was settled under a series of Land Acts (see Table 2). Some of these, such as the Murrabit Post Office built in 1926 (see Figure 21) continue to provide postal services today.

The first telegraph wire from Mildura went to Wentworth where it joined the line to Broken Hill. In 1902, a telegraph line opened to link Hattah and Woomelang to Mildura. In 1905, the Mildura and Irymple post offices were connected by phone. By August 1911, the Railway Department had connected a telephone wire, for railway use only, from Ouyen to Murrayville. In 1914, telephone wires were connected to settlements on the route. From 1911, mails were sorted at the same stations.

The growth and demise of smaller settlements can be traced through their postal history. Table 2 details the operation dates of post offices in the former Shire of Walpeup.

¹⁰¹ Ward, *The Desert Blooms: An Account of the Physical Development of the City and Shire of Mildura*, 24.

¹⁰² Parsons, *Where the Mallee Meets the Murray: A Centenary History of the Shire of Mildura*, 115, 17.

Figure 21: Murrayville Post Office, 2011.



Source: Context.

Table 2: Post offices in the former Shire of Walpeup

Post office name	Years of operation
Boulka	1921-?
Bronzewing	1921-67
Cramerton	1924-69
Galah	1911-76
Galah North	1925-7
Gypsum Siding	1922-40
Kiamal	1917-80
Nunga	1914-67
Panitya	1916-26
Panitya East	1910-33
Sunset	1921-48
Tiega	1911-61
Timberoo and Timberoo South	1913-33
Trinita	1925-36
Wymlet	1912-63

8 GOVERNING

The border between South Australia and Victoria was to have been surveyed along the 141st meridian of longitude. However, through a series of miscalculations the line was originally positioned 3.6 kilometres further to the west. Lines of longitude were difficult to calculate in the 1850s because long distances travelled were measured off by chains which need to be gradually adjusted to compensate for the lines of longitude drawing closer together as one moves away from the equator. In surveying the Victoria-South Australia border, the two methods used to record longitude gave differing results so an average distance was chosen. To further complicate the issue, no adjustment was made to the chains to allow for the distance south of the Equator. The error in calculating the line of longitude was suspected in 1868 and confirmed in 1883. The boundary was disputed by the South Australian and Victorian governments and the matter was taken to the High Court of Australia in 1911. The issue was finally settled in 1914, when the Privy Council upheld the ruling in favour of Victoria. Because of this decision, the western boundaries of Victoria and New South Wales do not meet. The New South Wales border is set at 141° east, leaving a section of boundary between Victoria and South Australia that is undefined along the River Murray, measuring 3.6 kilometres from east to west.¹⁰³

8.1 Roads Boards

The Swan Hill Road District, based at Kerang, was proclaimed on 24 June, 1862 and covered an area of over two million acres of land which supported a population of 470. On 31 March 1863, the District's borders were enlarged, and on 28 December 1864, the western boundary was extended to take in the Mallee to the South Australian border. The Swan Hill Road District then took in 15,000 square miles, nearly one fifth of the entire colony. The Swan Hill Roads Board, amongst other duties, had the responsibility of laying out the road network, controlling thistles, grubbing tree stumps and constructing crossings over watercourses.

8.2 Municipalities

The Shire of Swan Hill, the same area of 15,000 square miles that formed the Roads Board District, was proclaimed on 14 August 1871 and, because of the town's central location by comparison with Swan Hill, continued to be based in Kerang.

Settlers in the Mildura irrigation colony formed a progress committee (later the Mildura Settlers Association) in 1888 to seek severance from the shire of Swan Hill. On 10 January 1890 the Mildura Shire was created through the severing of the northwest portion of the Lower Murray Riding. Timber council premises were opened in 1890 and a new municipal building was erected in 1902. The Shire Hall was enlarged in the same year.

To serve the specific needs of the town of Mildura, the Borough of Mildura was proclaimed on May 18, 1920 and became the City of Mildura on 28 March 1934. Parts of the Sandilong and Lake Ridings were annexed to the City on 1 October 1971.

The Shire of Walpeup, proclaimed by an Act of Parliament on 1 October 1911, covered an area of 4,233 square miles. It was created out of parts of the Shires of Mildura, Swan Hill, Lawloit, Lowan, Dimboola and Karkaroc to serve the needs of settlers who had moved to the area after land was opened up with the building of the Ouyen-Murrayville railway 1909-1912. The Shire was divided into two ridings based on the type of available water supply; bores supplied the West Riding and tanks and dams supplied the East Riding. Municipal offices were built in Ouyen in 1918 and meetings were held alternatively between Ouyen and Murrayville,

¹⁰³ *Border Histories*, (Australian Government Geoscience Australia, 2008 [cited 5 February 2009]); available from <http://www.ga.gov.au/education/geoscience-basics/dimensions/state-territory-borders.jsp#history>.

where Shire offices were built in 1917. The Walpeup Shire was divided into four ridings in 1918: Walpeup, Ouyen, Murrayville and Underbool.¹⁰⁴ Because of falling population numbers, in 1988 the Shire was again divided into two ridings.

On 20 January 1995, the Shires of Walpeup and Mildura and the City of Mildura were abolished and amalgamated to form the Rural City of Mildura.

8.3 Law and order

The Cowana Bend Police Station and Court of Petty Sessions was created as part of the Swan Hill Police District in 1858. In 1889, a Court of Petty Sessions was opened in Mildura and a courthouse opened in 1893.

The first police stations were established in tents in Ouyen in 1910 and in Murrayville in 1914. A weatherboard police station opened in Murrayville in 1915, the same year a courthouse and lock up were established (see Figure 22). Timber lock ups were in use in most of the larger settlements in the Rural City.

Figure 22: Murrayville Courthouse, 2011.



Source: Context.

¹⁰⁴ Lynch, Willsmore, and Brown, *A Vision Realised 1988: District History of Underbool, Torrita, Linga, Boinka*, 13.

9 BUILDING TOWNS AND SETTLEMENTS¹⁰⁵

First settlers built homes, outbuildings and stores of locally available materials. Early houses were built of hessian bags, mallee roots, or tin with brush roofs. In the Mallee, sleeping quarters were constructed underground and later converted to cellars. Other dwellings consisted of crude log cabins made windproof with clay, hessian-lined drop log cabins, wattle and daub constructions, and mud brick. As finances allowed, walls were lined with cardboard, pressed steel (Wunderlich), pine boarding and sheet plaster. Limestone was used in the construction of buildings in the west of the study area, many of which reflect the architecture of German settlers from South Australia (see Figure 23). The original township of Red Cliffs in 1920-22 comprised canvas structures, and settlers at Millewa in the 1920s lived in houses clad in asbestos cement sheet.¹⁰⁶

Figure 23: *Bush Nurse Cottage, Cowangie.*



Source: Context, 2011

9.1 River towns

Yelta

Part of the original Cowra lease was reserved as the township of Yelta by 1852 to serve the Aboriginal mission of the same name. Another site was chosen at a ferry crossing near the junction of the Murray and the Darling on an excised portion of the Cowana run. In 1870, the township of Yelta was proclaimed and surveyed in 1880 into 72 building lots and police, customs and hotel reserves. Overshadowed by the growth of Wentworth, the township never prospered and was absorbed as part of the Mildura colony established by the Chaffey brothers in 1886.

9.2 Agricultural towns

Cullulleraine

Cullulleraine was surveyed as a railway town when the Millewa region was opened for settlement in the 1924. Situated at Lake Cullulleraine on the Sturt Highway between Mildura

¹⁰⁵ Descriptions of some towns are based on details in

¹⁰⁶ Ward, *The Desert Blooms: An Account of the Physical Development of the City and Shire of Mildura*, 69.

& Renmark, it served the needs of over 300 workers and their families involved in the construction of channels and nearby Lock 9 on the River Murray. It was also the site of the SRWSC main pumping station to supply water to the Millewa. The Cullulleraine area today supports vineyards and almond plantations irrigated from the River Murray and dryland grain growing.¹⁰⁷

9.3 Railway towns

Boinka

Settlers arrived in the district in 1911 and camped at Campbell's tank located on what was to become the Boinka township site. The town bore was sunk in 1912 and the first store opened in a tent. Boinka township allotments were sold in 1912 and a post office opened in the same year and closed in 1975. Over the next few years, a plumber, a coffee palace, boarding houses, a draper, a butcher, a grocery, blacksmiths, a Bank of Victoria, and a saddler were established. A hall was built in 1913. In the early 1920s, a Presbyterian church was erected. The town featured a sportsground and tennis courts.¹⁰⁸

Today, the community uses the school, now the Boinka Community Centre, as a meeting place.

Cowangie

Cowangie (also named Cow Plains, Kow Plains and Copi) was surveyed on land that once formed part of Kow Plains station. The town was established on the Ouyen-Murrayville railway line in 1912. In the same year, the first town buildings were constructed along the main street, Dayman Street. A general store and bakery opened in 1912. The Kow Plains Sports Club opened ca. 1913. In 1918, a Commercial Bank agency was established. A sly grog shop named the Black Bull operated in bushland to the east. A hall built in 1913 was replaced by the Cowangie Soldiers Memorial Hall in 1924. The hall has been recently refurbished and hosts a number of community events including the showing of films. The local church, built as a Methodist church in 1926, continues to be used by local parishioners.

Danyo

A railway catchment dam was constructed at Danyo in 1912 to provide water to trains on the Ouyen-Murrayville line. A post office and the Pioneer Store opened in 1912. A hall was built in 1914 and used for school, church and social events.¹⁰⁹

Linga

The Ouyen-Pinaroo railway reached Linga in 1911 and in this year a town bore was sunk. A post office opened in 1912 and closed in 1975. A school opened in 1913. A hall built in the same year was demolished in 1971. Other services provided by the township included stores, a billiard saloon, a coffee palace, a post office, a bank agency and a stock and station agency. From 1916, salt was harvested commercially from the nearby Pink Lakes and transported to the Linga Railway Station via camel teams from 1922 through to the 1940s. A narrow gauge light rail to transport salt from Lake Becking opened in 1923 but closed in 1929. Concrete wheat silos were built in 1938 and a steel silo constructed in the 1970s. Linga remains a delivery point for grain.

¹⁰⁷ History supplied by Margaret Kelly.

¹⁰⁸ Lynch, Willsmore, and Brown, *A Vision Realised 1988: District History of Underbool, Torrita, Linga, Boinka*, 40-1.

¹⁰⁹ Lindner, *Murrayville 1910-2007*, 234.

Meringur

With the opening of the Millewa region in 1924, Meringur was surveyed in the same year as a railway town. A school, hall, church, theatre and various stores were established over the 1920s. In 1940, a state school, post office, church, hall and stores were in operation. In 1986, the Meringur community created the Millewa Pioneer Park, a museum that displays the lifestyles of early settlers. In addition, 500 indigenous trees have been planted, each with a plaque documenting the histories of pioneering families. The Millewa Interpretive Centre displays large boards with information on local flora and fauna.¹¹⁰

Murrayville

The first sale of Murrayville township allotments was held in 1910, the second in 1911, and the third in 1913. The town was named after the Premier of Victoria at the time, John Murray. By 1911, the township comprised a number of stores, a blacksmith and wheelwright, a coffee palace, plumber and a lime kiln. The Murrayville Institute opened in 1911. The town and region experienced consolidated growth after the railway line from Ouyen opened in 1912. In this year, the Murrayville Hotel opened. By 1916, two banks were in operation. A new post office building was erected in 1926. The Murrayville Power House was built in 1928. Bore water was supplied to the township from 1929. A number of halls served the township including the Masonic hall, the Institute hall and the privately owned Austral Hall; a public hall opened in 1957.

Murrayville is promoted as the gateway to the Victorian outback. It continues to service its hinterland's population who are involved in the farming of grain and sheep as well as the growing of olives and potatoes watered by bores.

Figure 24: McKenzie Street, Murrayville, 2011.



Source: Context.

Ouyen

Ouyen was established as a settlement when the Mildura railway line opened in 1903. The location of the line on the western side of Farrell Street (the Calder Highway) resulted in the main business centre being established on the eastern side of that street, a low-lying area that was flood prone. Ouyen grew in size with the sale of township allotments in 1908 and commencement of the construction of the Murrayville railway line. As a consequence of repeated flooding, ca. 1910 the town's main business area relocated to higher ground at its present-day site in Oke Street. In the same year, Ouyen Primary School opened. A courthouse

¹¹⁰ History supplied by Margaret Kelly

opened in 1914 and 1915 the township supported a population of 400. The Victoria Hotel opened in 1918 on a site near the Temperance Hotel (built in 1910). A brick Presbyterian church was built in 1922. A hospital and a higher elementary school opened in 1929. A community club was established in 1959 and in the same year a new Church of All Saints was built. A housing commission estate was built in 1968. Over the years a series of fires destroyed many of Ouyen's buildings.

Today, the commercial centre of Ouyen in Oke Street includes a Rural City of Mildura Service Centre and the Local History and Genealogical Centre which houses a collection of books and historical records in the former courthouse.

Figure 25: Oke Street, Ouyen, 2011.



Source: Context.

Panitya

The sale of Panitya township allotments took place in 1910 at No. 1 Bore. Two halls were built: No. 1 (Carina) Hall located at No. 1 Bore and No. 2 Hall located at Panitya No. 2 Bore. No. 1 Hall was opened in 1911 and a school opened in the hall in 1916. The hall is believed to have closed c1945.¹¹¹

Torritya

Originally called Nyang, the town's name was changed to Torritya in 1922. The first township sales took place in 1913. One of the first businesses, a store, began operation in the railway goods shed in 1913. A school opened in 1914 in the public hall built in the same year. A government school was built in 1920 and closed in 1969. In 1979, it was moved to Walpeup Primary School. A new hall was constructed in 1935. A channel from the Wimmera Water Supply System delivered water to the township in 1930. In 1966, the Torritya Methodist Church relocated the Berriwillock church building to Torritya. The church building was opened in 1967 and moved to Ouyen in 1990.¹¹² The store and post office closed in 1979. The hall continues to be used by the Torritya community.

¹¹¹ Lindner, *Murrayville 1910-2007*, 225-7.

¹¹² Lynch, Willmore, and Brown, *A Vision Realised 1988: District History of Underbool, Torritya, Linga, Boinka*, 77, Jill Nickolls and Ann Angel, *Mallee Tracks: A Wanderer's Guide to the South Australian and Victorian Mallee* (South Australia: Jill Nickolls and Ann Angel, n.d.), 92.

Tutye

The Tutye district was opened for selection in 1911 and in the same year the township was established on the Ouyen-Murrayville railway line. A general store opened in 1914 and closed in 1970. The town housed several businesses including a blacksmith shop, boot repairer, bank agency, boarding house and telephone exchange. A school opened in the town hall in 1913. Tutye also supported a croquet club, golf club, tennis club and racecourse. In 1953-4, a processing plant for crude plaster of Paris was established.¹¹³

Figure 26: Tutye township, 2011.



Source: Context.

Underbool

Underbool was surveyed as a railway township when the line opened in 1910. Under the 1901 *Land Act*, blocks of 600-700 acres were offered for sale to be paid off over 40 years. Demand was so strong that there were reportedly ten applicants for every block offered. The first store operated from a tent in the railway yard in 1911 and a hall was erected in 1913 in which a school opened the same year. As the town grew, other buildings were erected along Cotter, Malkin and Mossop Streets. By 1920, blacksmiths, a drapery store, a bakery, a butcher, a billiard room, boarding houses, a general store, a police station, a plumber, a bush nursing hospital and a post office were in operation.¹¹⁴ A hotel was built in 1926. The Underbool Women's Section of the Victorian Farmers' Union raised money to build a meeting room, which opened as the Country Party Room in 1924. Artesian water in the district was too brackish for human consumption and water from Hattah Lakes was delivered to farmers by train until a channel delivering water from the Wimmera River came into operation in 1930. The channel fed two government dams and a swimming lake. In 1941 and 1968, the lake was converted into two town reservoirs; the first provided a reticulated water supply to the town. A swimming pool opened in 1978.¹¹⁵

Today, a hotel continues to operate at Underbool. Our Lady of the Fatima Catholic Church and the Uniting Anglican Church hold services. The township's water is now supplied by a pipeline from the River Murray.

¹¹³ Nickolls and Angel, *Mallee Tracks: A Wanderer's Guide to the South Australian and Victorian Mallee*, 89.

¹¹⁴ Lynch, Willsmore, and Brown, *A Vision Realised 1988: District History of Underbool, Torrita, Linga, Boinka*, 29-36.

¹¹⁵ *Ibid.*, passim.

Figure 27: Underbool General Store, 2011.



Source: Context.

Walpeup

The first store in Walpeup opened in 1909. The first school operated from a private home in 1911 and was transferred to the Little White Hall in 1912. In 1914 a one roomed wooden building was built in Glen Street (present school site)¹¹⁶. A post office was established with the opening of the Ouyen-Murrayville railway in 1912. Matchett's brick store opened in 1918 and was also used as the post office. A Bank of Victoria opened in 1918. The Walpeup Memorial Hall opened in 1923 and a reticulated water supply was provided to the town in 1935. A Catholic church opened in 1921. From 1935, the town provided services to employees working at the Mallee Research Station. In 1935, the Paignie State School building was moved to Walpeup for use as a Presbyterian church. In 1937, a Methodist church opened. In 1955, electricity was switched on.¹¹⁷

Today, the Walpeup Memorial Hall houses a large collection of historic photographs including photographs of locals who enlisted in World War One and Two, a welcome home banner from World War One and a hand-sewn community mural tapestry created in 1989. The town also features a dryland garden.

Figure 28: Mallee Highway, Walpeup, 2011.



Source: Context

¹¹⁶ *A Vision Realised 1988: District History of Underbool, Torrita, Linga, Boinka.*

¹¹⁷ Vallance, *Back to Walpeup 1969*, passim.

Werrimull

Werrimull was settled in 1925 as the Millewa was settled from 1924. In 1940, the town was supported by regular train services and housed several stores, churches, hotel, bush nursing hospital, and SRWSC offices. As the population of the district declined, especially after reallocation to increase the size of farms in 1949, Werrimull survived as the main township. This was due in part to its central location and it being the home of government departments. It was also chosen as the site for a consolidated school as the smaller schools closed. Today it has the area's only school (P-12), and a preschool. It is the centre for the DSE and Parks Victoria. The hotel, post office and engineering works still operate and there are two grain receival sites. In 2009, twenty houses remained, eight of them empty.¹¹⁸

9.4 Closer settlement towns

Irymple

The Irymple irrigation settlement of 12,000 acres was surveyed as part of the Mildura settlement in 1892 around a tank on the former Irymple run. Settlers began clearing and planting the land in the same year and a public hall was built in 1893, however the economic depression stalled progress later in that year. A railway station opened in the town when the Mildura line went through in 1903. A hall opened in 1908. By 1940, Irymple comprised a post office, two state schools, three churches, a savings bank, four fruit packing factories, distillery and stores.

Merbein (White Cliffs)

Merbein, firstly known as White Cliffs, was named after the white cliffs of the River Murray where it is located. Some planting of fruit trees took place from 1894, however it was the subdivision of 120 square miles into blocks irrigated by water pumped from the Murray and opened in 1909 for closer settlement, initially for dairying, that facilitated the growth of the settlement, renamed Merbein. A railway built in 1910 linked the town with Mildura. In 1910, 60 blocks remained unsold. In 1917, Birdwoodton was established as a soldier settlement. A brick post office and St Johns Church of England were built in 1921. By 1940, 6,000 acres of fruit were under irrigation. In the same year, Merbein housed a savings bank, state school, hotel, picture theatre, hall, three churches, police station, court of petty sessions, a SRWSC office, distillery and three fruit packing factories. The area experienced a further boost with the influx of World War Two migrants. Today the Merbein district produces citrus, wine grapes and dried fruits.

Mildura

The original site for the township of Mildura was chosen by George Chaffey in 1886 on the pre-emptive right of the Mildura run. However, in August 1887 another site upstream was surveyed. Early plans indicate that Mildura's riverfront was intended for commercial use with a 'better class' residential section situated at the far end of Deakin Avenue on the former Irymple run. Most settlers though took up residence near the river, initially in tents, for the steamers were the only means of transport in and out of the isolated irrigation colony.¹¹⁹ The Chaffey's laid out Mildura using the planning principles employed in the towns of the Californian irrigation colonies where they had earlier worked (see Figure 29). Some street names were imported from California and streets lined with trees including Moreton Bay figs planted along Deakin Avenue in 1889 (replaced with peppercorn trees in 1895) and trees, including Sugar Gums, planted in 1900 in the block bounded by Eighth, Ninth, Madden and Deakin Streets. The first auction of town land was held in 1890. Work began on the Mildura Refrigerating Works in 1890 and a new school opened in Magnolia Avenue in the same year. Public

¹¹⁸ History provided by Heather Yates.

¹¹⁹ Parsons, *Where the Mallee Meets the Murray: A Centenary History of the Shire of Mildura*, 14.

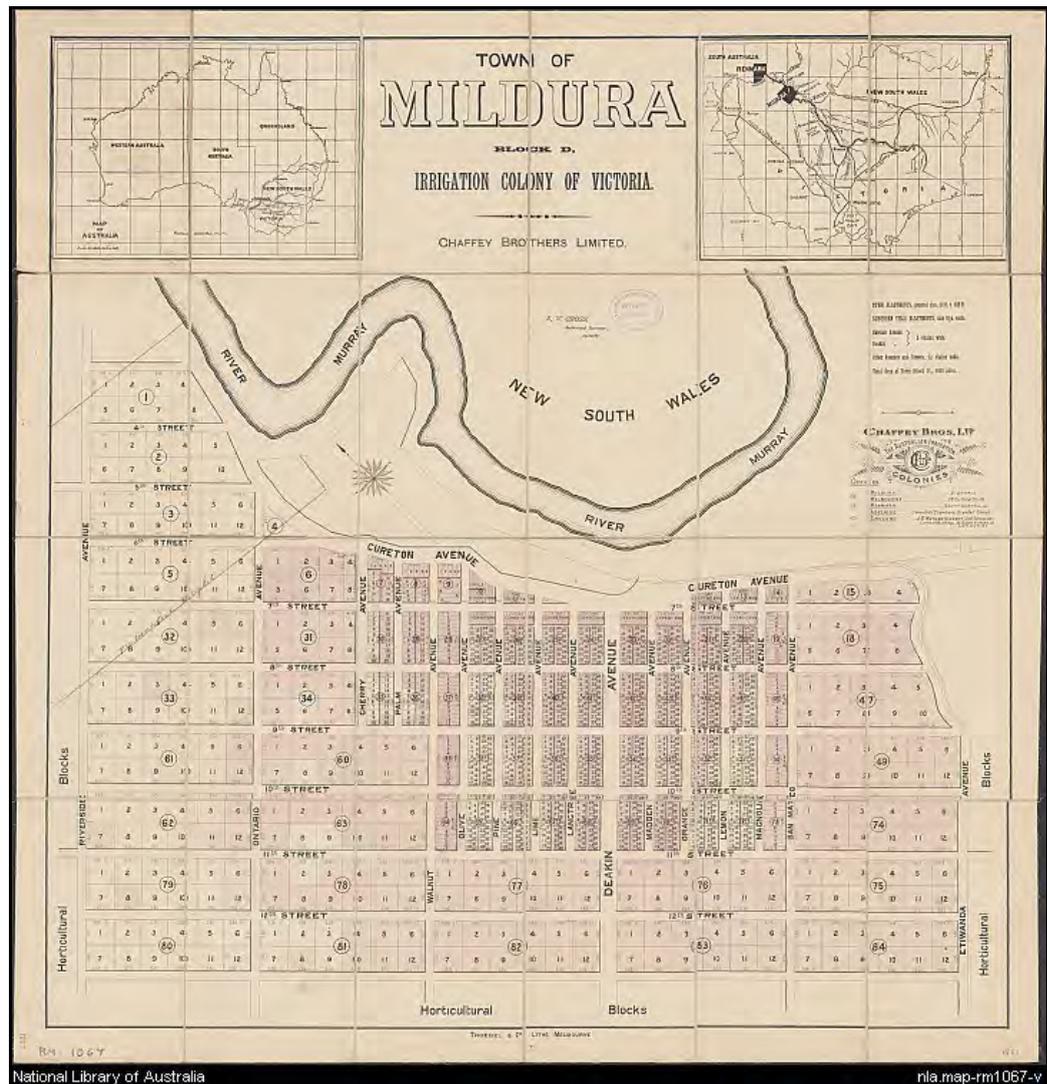
buildings were constructed including a mechanics' institute hall and council chambers which were both in operation by 1891. A new Presbyterian church opened in 1891. Drainage works to take stagnant water away from the township were commenced in 1894. An electricity supply was established in 1909.

By 1910, the National Bank, Bank of Victoria, Carnegie Library and municipal chambers had been established in Deakin Avenue.

In 1954, a new power station was opened to supply electricity to Mildura, Red Cliffs and Merbein districts.

After the death of W. B Chaffey's widow in 1950, the Chaffey home was purchased by Mildura City Council and formed the basis of what is now called the Mildura Arts Centre. In 2006, Mildura's population was 30,016.

Figure 29: Mildura town plan 1887



Source: National Library of Australia

Red Cliffs

Red Cliffs was developed after World War One for approximately 700 returned soldiers. The 33,000 acres of the settlement were subdivided into blocks of approximately fifteen acres for the production of dried fruit. In 1920, the contract for clearing the land was given to Frank Bottrill. The tractor he used for this purpose, 'Big Lizzie', can be seen on the Calder Highway at Red Cliffs. The largest pumping plant in the Southern Hemisphere was completed at Red

Cliffs in 1923. By 1940, 12,000 acres of vines and citrus fruits were being irrigated. In the same year, the township comprised a post office, six churches, a SRWSC office, three banks, general stores, picture theatres, two state schools, police station, court house, hotel and public baths.

The settlement today has developed from its dried fruit beginnings into diverse horticulture enterprises, predominantly wine plantings.

10 INDUSTRY

Agriculture (including horticulture), along with forestry and fishing, is the largest employer in the Mallee region, employing 23 percent of the workforce.¹²⁰

10.1 Dryland agriculture

Wheat growing has been a mainstay of the Rural City's economy since 1910. In the 1920s, about forty to forty-five percent of the area sown to wheat in Victoria was in the Mallee.¹²¹ Wheat was harvested and stacked in bags at railway sidings where weighbridges were built. Mechanisation in the post-war period of World War Two, coupled with consolidation of farm holdings, resulted in vast acreages being put under cultivation. Bulk handling of wheat, introduced with the 1939-40 harvest, resulted in the building of concrete silos at railway stations across the Rural City (see Figure 30). Steel silos were erected at the same sites in the 1970s. From the 1980s, wheat bunkers have been constructed.

Figure 30: Silos at Galah, 2011.



Source: Context.

With an increase in property size as the number of farms have been reduced, the growing of broadacre crops include wheat, barley, vetch, pulses and oilseeds. In 2003-4, 765,600 tons of wheat valued at 153 million dollars was grown in the Mildura region.¹²² Structures that testify to the importance of wheat growing to the economy of the Rural City include silos which exist at most railway stations.

¹²⁰ *Mallee Region*, (Department of Primary Industries, 2009 [cited 9 March 2009]); available from <http://www.dpi.vic.gov.au/dpi/nrenti.nsf/LinkView>.

¹²¹ H.J Sims & C.G. Webb *Mallee Sand to Gold: the Mallee Research Station Walpeup 1932-1982*. Victorian Department of Agriculture, Melbourne, 1982, pp.4-5

¹²² Lindner, *Murrayville 1910-2007*, 166.

The grazing of sheep is an adjunct to wheat farming in the study area. A public sheep dip was established in Murrayville in 1912.¹²³ In 1925, a company was formed at Underbool to undertake the shearing of sheep in a communal shearing shed.¹²⁴ The Co-operative shearing shed still stands today. Sheep (predominantly for wool), beef and dairy are the dominant livestock industries. Public land in the Millewa, Sunset Country and the Big Desert supports extensive grazing of sheep. In 2003, the Mallee region also contributed a third of Victoria's pork production.

10.2 Irrigated agriculture

The Mallee includes one of the most important horticultural regions in the state. With the emergence of the dried fruits industry at both Renmark and Mildura, the Mildura Raisin Trust (known as the Mildura Dried Fruits Association from 1897) and the Renmark Raisin Trust were both formed in 1895. Both organizations had the same objective of protecting growers' interests by regulating prices, setting standard terms and conditions of sale, and promoting exports. The Australian Dried Fruits Association (ADFA) was formed in 1907 as a federation of the Mildura Dried Fruits Association and the Renmark Raisin Trust, with E. C. De Garis a founding member. However, in 1923 with the influx of soldier settlers, the return to growers crashed. The crisis led to a restructuring of the ADFA with the creating of a national Board of Management to act as the association executive. The first harvest in 1924 at Red Cliffs returned 570 tons of dried fruits. The harvest by 1954 measured 16,000 tons of raisins, currants and sultanas, in addition to grapes.¹²⁵ Today, the Mildura region produces 95 percent of Australia's dried grapes.¹²⁶

Irrigation districts at Mildura, Red Cliffs, Irymple, Merbein, Nangiloc and Colignan utilise water from the River Murray and support a significant amount of the state's agriculture. A large proportion of Victoria's grapes, almonds and fruit for drying are produced in the region. A wide range of produce is grown including table grapes (in addition to wine and dried fruit), nuts (almonds and pistachios), vegetables (with notable production of asparagus, mushrooms, avocados, potatoes and carrots). Fruit includes watermelons, citrus, pome fruit and stone fruit. Producers range from smaller holdings growing traditional crops such as grapes and stone fruit to those growing vegetables under large-scale broadacre conditions. Corporate producers operate in the region and there is a recent trend for investment in horticulture by investment companies. A significant proportion of Victoria's nut production is grown in the Mallee. In 2008, an estimated 71 percent of Australia's almonds were grown in the Sunraysia region. Pistachios are also an important crop, with an estimated 41 percent of Australian pistachios grown in the region in 2003. Some of the largest plantings are at Nangiloc. Local horticultural growers produce high quality product for the fresh and processed product markets Australia-wide and internationally.¹²⁷ In recent years, potato growing using bore water has been taken up near Murrayville.

Wine making on a commercial basis began in Mildura in 1892. Today, some of the largest national wineries and many medium-sized wineries are located in the region. Victoria's dried grape industry is centred in the region and there are several olive oil producers. Large fruit and vegetable concentrate manufacturers operate in the Mallee. Irymple Citrus Products produce 30,000 tonnes of carrots annually, and export an estimated 85 percent of their product to Japan.¹²⁸

¹²³ Ibid.

¹²⁴ Lynch, Willsmore, and Brown, *A Vision Realised 1988: District History of Underbool, Torrita, Linga, Boinka*, 57.

¹²⁵ Brown, *Irrigation and Water Supply Development in Victoria*, 30.

¹²⁶ As at November 2008. Figures supplied by Mildura Development Corporation.

¹²⁷ *Mallee Region*. Figures also provided by Mildura Development Corporation.

¹²⁸ Ibid.

10.3 Forest industries

The vegetation of the Rural City has been heavily harvested for timber over the years. The first white settlers harvested timber to clear the land for grazing and for use as fence posts, housing materials and fuel. The cypress pine and belah of the Mallee, particularly in the Millewa, was sought after for the construction of outbuildings and fence posts, and black box was felled for fuel, posts, poles and vine trellis material. Red gum forests have been logged extensively from the paddle-steamer, railway and gold eras, especially with the operation of quartz reef mining during the 1870s. Commercial sawmills were established along the River Murray to provide red gum to the export markets of the British colonies which were heavily engaged in railway and wharf building from the 1860s. Sleeper cutting finished in the mid 1980s. Estimates suggest that on average, a paddle steamer burnt half a tonne of fuel an hour in its boilers. Similarly, steam driven pumps for irrigation utilized massive amounts of timber. Timber from around Hattah-Kulkyne was used to feed Mildura boilers, and extensive areas of black box in the Cullulleraine region was felled to feed the boiler of the Millewa irrigation system. Mallee stumps were removed to enable cropping to take place and were sold and transported by rail to the cities for fuel for fires.

The massive demand for timber had taken a significant toll on forests by the early 1870s. From the 1920s, the SRWSC stationed foresters in the Mallee at Ouyen, Swan Hill, Nyah and Mildura in an attempt to re-forest cypress pine areas. These efforts were largely unsuccessful due to the grazing of stock and rabbits. From the 1930s, harvesting of cypress pine was mainly restricted to the removal of dead timber.¹²⁹ Merbein Sawmills, located at Yelta, harvests red gum sawlogs for housing, landscaping, furniture and fence posts.

From 1977 to 1987, 9,130 tonnes of mallee broombush was harvested, mostly in the Sunset Country, Big Desert and Wyperfield National Park areas, for use in domestic fencing, shade-house construction, ceiling panels and wind-diffusing materials.¹³⁰ Although some harvesting continues on private land, in Victoria in 1989 a complete ban was imposed on harvesting broombush from public land.

Charcoal burning took place in the study area from the earliest days of settlement through until the 1970s. Charcoal was used for blacksmithing purposes, and later to fuel the gas-producer plants of crushing batteries in gold mines. Charcoal burning enterprises, significant during the petrol-rationing of World War Two, operated in the Mallee utilising mallee stumps for fuel. Charcoal making was undertaken by Aboriginal people, local farmers, itinerant workers, internees and prisoners of war working at camps on the river by burning wood in clay-based or brick-lined pits, or metal drums, covered with corrugated iron sheets. Charcoal was produced and railed to Melbourne to be used in the production of gas as an alternative to liquid fuel, most often in gas-producing units fitted to trucks and cars. Mallee vegetation was also used for the production of eucalyptus oil. A distillery operated at Murrayville from the late 1960s through to the early 1980s. Some charcoal burning continues to take place in the Shire today.

Honey production is a present-day regional industry. Six hundred beehives are permanently operated in the Mildura region and others are brought into the region seasonally. One thousand tonnes of honey are produced in the region representing 3.2 percent of Australia's production.¹³¹

10.4 Extractive industries

Mineral sands mining is a major industry in the western Mallee. In 1974, CRA Exploration located considerable deposits of heavy mineral sand in the Parilla Sand. Minerals in these sands

¹²⁹ *Mallee Area Review*, 46.

¹³⁰ *Ibid.*, 264.

¹³¹ *Mallee Region*.

include ilmenite, leucosene, anatase, rutile, zircon, and traces of 'rare earths'.¹³² Currently, Iluka is mining the Kulwin deposit about 28 kilometres east of Ouyen and combined deposits at Woonack, Rownack and Pirro about 20 kilometres south-east of Ouyen.

Salt has been harvested in the Rural City since the early 1900s. Commercial salt-harvesting began in the Pink Lakes in 1916 using shovels and wheelbarrows, then horse-drawn scrapers and tip drays. Because of problems with sand drift and erosion, from 1922 Afghani workers used twelve teams of camels to transport salt to the railway at Linga. In 1923-4, a narrow gauge light rail was built from Linga to Lake Becking and operated until 1929, having to close because of sand drifts. Remnant formations of the line can still be seen. Itinerant workers over the Depression years of 1929-35 and World War Two internees took up work at Pink Lakes.¹³³ Trucks replaced the camels in the 1940s and harvesting continued until the Pink Lakes were declared a State Park in 1979. Evaporative salt production for both gourmet and industrial markets occurs today around Mildura and Hattah.

Figure 31: Mineral sands mining site, Ouyen, 2011.



Source: Context.

Figure 32: Camel salt team at Underbool, ca. 1905-1928.



Source: Pictures Collection, State Library of Victoria.

¹³² *Mallee Area Review*, 271.

¹³³ *Ibid.*, 272. Lynch, Willmore, and Brown, *A Vision Realised 1988: District History of Underbool, Torrita, Linga, Boinka*, 22.

The highly saline groundwater is the source of the Mallee's widespread gypsum deposits, which, when mixed with clay and/or sand are known locally as copi. Near Nowingi, gypsum was extracted from 1908 by open-cut mining for use in the manufacture of plasterboard, and from near Tutye for cement manufacture. In Tutye in 1953-4, Associated Plaster and Gypsum set up a processing plant for crude plaster of Paris.¹³⁴ Ramps and sidings for the unloading of gypsum are in evidence on the railway line at Cowangie.

Limestone was burnt in kilns in Murrayville in 1911. Calcrete (a hard limestone) and gravel for road construction are extracted from pits on public land in the parish of Mildura. An abandoned limestone quarry can be seen near Kow Plains homestead.

¹³⁴ Nickolls and Angel, *Mallee Tracks: A Wanderer's Guide to the South Australian and Victorian Mallee*, 89.

11 COMMUNITY LIFE

The history of establishing halls, churches and schools of the Rural City is typified by the moving of buildings to follow the fluctuations in population numbers. As settlements were established, permanent buildings were erected out of local materials. Community buildings in the area opened up by the Ouyen-Murrayville railway line were often constructed of limestone (for example, the Underbool Methodist church), or limestone rubble and concrete.

11.1 Health services

Early settlers in the area experienced increased risks to their health due to the remoteness of communities and lack of facilities. Beyond the everyday health issues of the community, the district experienced a number of epidemics that stretched available health care facilities to their limit. These included typhoid carried by contaminated water in the late 1880s, early 1890s, and early 1900s, and measles in 1899, and scarlet fever in 1910.

The Mildura region was initially served by the Wentworth hospital and the Lower Murray and District Hospital opened in 1860 in Swan Hill. The Lower Murray and District Hospital was established to cater for the needs of white male labourers, however patients seeking admission included Aborigines suffering from pulmonary diseases and syphilis. Most were refused treatment because they could make no financial contribution. German doctor O. L. M. Abramowski set up a medical consultancy in Mildura in 1888. A hospital for Mildura was commenced in 1891. The building opened in 1892 and 300 trees were planted in the hospital grounds in 1893. Events to raise funds for the hospital were held regularly, including in 1900 a procession of 700 Chinese. A base hospital was built in 1934.

Prior to the 1890s, few women were allowed admission to hospitals. Childbirth and the treatment of women's illnesses were carried out at home with the help of visiting bush nurses, midwives or relatives. Midwives, including Aboriginal women, and bush nurses played a vital role in providing care for settlers in the district from the days of early settlement right through until the 1950s in the more isolated towns. Midwives and nurses walked or drove buggies to reach their patients; some set up beds in their own homes. Payment for their services was often made in farm produce. Private hospitals were established in the region from the 1890s including 'Tiverton' in Ouyen.

In 1909, the Bush Nursing Centre initiative was launched to provide health services to Victoria's rural and remote communities. Centres were established in communities that could raise sufficient resources to attract and employ a nurse. In 1914, Superintendent Nurse Greer of the Victorian Bush Nursing Association presented a lecture in the Kow Plains Hall. Subsequently, at Kow Plains a nurse was appointed in 1916 and the Cowangie Bush Nursing Centre building was commenced in 1917.¹³⁵ The Underbool Bush Nursing Centre opened in 1917 in a large tent with sides boarded up to a height of six feet and with a corrugated iron roof. In 1920, a two-roomed weatherboard cottage was built and added to over the years.¹³⁶ In 1920, Freelands farmhouse was moved to Walpeup for use as the Bush Nursing Hospital.¹³⁷

Murrayville Hospital opened in 1920, was converted to the Murrayville Bush Nursing Hospital in 1956 and enlarged in 1981. After closing in 1990, health services were provided by Mallee Track Health and Community Services. Ouyen and District Hospital was officially opened in 1929 and in 1936, a new wing and nursing quarters were completed.¹³⁸

¹³⁵ Lindner, *Murrayville 1910-2007*, 118.

¹³⁶ Lynch, Willsmore, and Brown, *A Vision Realised 1988: District History of Underbool, Torrita, Linga, Boinka*, 48.

¹³⁷ Vallance, *Back to Walpeup 1969*, 24.

¹³⁸ Phil Taylor, *Karkaroo: A Mallee Shire History, 1896-1995* (Warracknabeal: Yarriambiack Shire Council, 1996), 158, 72.

11.2 Education

During the period of first white settlement of the study area, most station homesteads were too isolated to send children to school. Some children attended boarding schools in the city; others were instructed by governesses and tutors at home. In 1872, the Victorian *Education Act* established a central public school system based on the principles of free, secular and compulsory education. Local residents, often represented by Progress Associations, petitioned the Department of Education to give approval for the opening of a school. Early school buildings were constructed of local materials. Schools were built at an average of ten miles apart so that children could walk or ride. Settlers often donated the land, provided half the cost of the school (sometimes more), and boarded the teacher, while the government paid teachers' wages, provided some equipment and the balance of school costs. Because of a lack of financial resources of many of the settler communities, schools often did not appear until some years after settlement. School buildings were used for a variety of community purposes.

Mildura Agricultural High School opened in 1913. A higher elementary school opened in Ouyen in 1929. The first Victorian Consolidated School using buildings from outlying areas was established in Murrayville in 1946. An initiative of the Chaffey brothers, from 1916 through to present day the *Mildura College Lease Act* has provided funding to local schools from rentals on land. A branch of the University of Melbourne operated at Mildura 1947-9. La Trobe University currently operates a campus at Mildura.

Figure 33: Ouyen State School No. 3615.



Source: Ouyen District History and Genealogy centre, reproduced by H. Carroll, *Mallee Roots to Vanilla Slices*, 2009.

11.3 Halls and meeting places

Public, memorial, shire and church halls became the focus of district social life. The erection of a public or memorial hall, often through the efforts of the local progress association, stood as a measure of faith in the future of the community. Often built of timber, or only partly finished, halls required regular upkeep and often rebuilding. Torrita Hall, for instance, was built by the Murphy brothers of Walpeup in 1935. Measuring 45 feet by 25 feet, it was constructed of hardwood, pine and galvanised iron. Funds did not run to internal lining at the time. Communities came up with creative ideas on how to raise funds needed for upkeep and extensions. Additions to, and internal linings for halls were sometimes built from funds raised

though the sale of wheat harvests. In Linga, a wool exhibition in 1935 raised £38 for the hall.¹³⁹ From 1970, Linga and Underbool shared a hall built in that year.

Halls became the focus of community life and housed a variety of activities, including school classes, dances, meetings, church services, wedding receptions, drama and musical entertainments, kitchen teas, court cases, debates, horticulture shows, and film screenings. In the 1920s, community facilities were often financed in part by the holding of Queen Competitions in local halls. These competitions involved young women of the community in a round of fund-raising activities. Halls were also the focus of sadder occasions such as gatherings to commemorate the lives of servicemen who did not return, or send offs to settler families leaving the district.

11.4 Places of worship

A church was often one of the first buildings erected as the nucleus of a settlement. Prior to the erection of permanent structures services were conducted wherever shelter was available. The first pastoralists conducted services in their huts. With the arrival of clergymen to areas along the River Murray, often in small missionary boats such as the 'Etona', services were conducted as part of circuits under trees, in tents, private homes, coffee palaces, and hotels. The first Anglican service in Underbool was conducted by a lay preacher at the old Underbool bore.

Church buildings were erected in the study area as settlements grew and funds were raised for the establishment of permanent structures. Early structures were often constructed from local timber, and if finances allowed, were replaced by more substantial brick buildings in later years. Many church services in the towns on the Ouyen-Murrayville line were conducted in public halls. Lutheran services were organised by German settlers at Galah and the Walpeup Memorial Hall from 1923. A Lutheran manse was built at Walpeup in 1936. St Peters Lutheran Church was built at Murrayville 1923-4.

Figure 34: Lutheran Church, Walpeup, 2011.



Source: Context.

¹³⁹ Lynch, Willsmore, and Brown, *A Vision Realised 1988: District History of Underbool, Torrita, Linga, Boinka*, 37.

During the latter half of the twentieth century because of falling congregation members, churches have consolidated. The Methodist and Presbyterian denominations amalgamated to form the Uniting Church in 1977. In many towns throughout the Rural City today church buildings have closed leaving only one denomination being represented by a single operating church, or several denominations operate from the one building.

11.5 Wars

The advent of wars impacted greatly on community life in the study area. Local residents served in the Boer war, World War One, World War Two, and the Korean and Vietnam Wars. Women played an important role during the wars both overseas and at home. Red Cross committees were formed during World War One to put together parcels of food and clothes for those serving overseas, and were instrumental in raising funds for the war effort.

Over the course of World War Two, those German and Italian residents of the study area who hadn't gained citizenship were classed 'enemy aliens'. Some were interned; others were put to work, for example, cutting wood for irrigation pumps, picking fruit and harvesting salt from Pink Lakes where a large camp was built to house them and other workers at Lake Crosbie. Local women joined the Land Army and worked alongside Italian internees on fruit blocks.

Located at the pre-war civil airfield, RAAF Base Mildura was established to provide operational training for fighter pilots in 1942.

After World War One, the Returned Sailors and Soldiers Imperial League of Australia (RSL) was established and sub-branches formed in most towns across the study area. New district meeting rooms were built in Underbool in 1962 and are still in evidence today.

Residents commemorated those who served in the wars through the erection of war memorials, memorial gates and honour rolls, and the planting of trees. In Mildura, more than one thousand residents enlisted, one of the largest per capita enlistments in the nation. One hundred died in battle and their names are recorded on plaques at the entrance to the Carnegie Library to which, in 1922, a tower was added as a war memorial.¹⁴⁰ Trees were planted in Murrayville in 1918 to honour those who had enlisted in World War One. Similarly, a row of sugar gums was planted on the highway at Danyo and in Gregory Street Ouyen, and peppercorns were established at Cowangie to commemorate local residents who had served in World War One.

Figure 35: Memorial Hall, Walpeup, 2011.



Source: Context.

¹⁴⁰ Glen Miller, Mildura and District Historical Society

11.6 Cemeteries and lone graves

Cemeteries throughout the Rural City still in use are associated with larger townships. Other cemeteries evidence the decline in population of some settlements. Elsewhere single graves testify to the deaths of early settlers who were isolated, could not afford a cemetery plot, or who died before public cemeteries were established. Three such graves exist in the Kow Plains area: one marks the death of young boy who died of diphtheria in the early 1900s; another evidences the death of a railway worker who was working on the Ouyen-Murrayville railway line in 1911-12; the third is the grave of Clara Ann Walters who died when 14 days old.¹⁴¹

Records exist of less conventional ceremonies to mark the death of Indian hawkers who plied their wares to businesses and private homes across the study area. Traditional Hindu cremations were performed with the coffin packed with pounds of butter and doused with kerosene.

Figure 36: Ouyen Cemetery, 2011.



Source: Context.

11.7 Hotels and inns

Early inns in the district provided accommodation, food and alcoholic refreshment to travellers, and communities a meeting place. The first inns established in the area were along stock routes and at river crossings. A hotel, for example, was licensed at Cowana on the River Murray in 1870. De-licensing of hotels in townships in the period 1910-20 often meant the closure of the attached general store, a process impacted on again with the establishment of supermarkets in larger towns in the 1960s.

A Settlers Club opened in 1893 in Mildura and operated at premises on the corner of Eighth Street and Orange Avenue until 1993. Despite the consensus that Mildura was to be a temperance town, in August 1894 the Mildura Working Man's Club opened in Madden Avenue to provide entertainment and 'teas' to its members. In January 1895, a liquor licence was granted to the club, and even though vigorously opposed, was renewed at the turn of the century. The present site was acquired in 1908. In 1935, an upper floor was added. The club has, purportedly, the longest bar – 91.5 metres – in the world. The Mildura Club for professional gentlemen opened in 1890. Early meetings were at the Coffee Palace (later the Grand Hotel) until new premises were built at 29 Deakin Avenue. The present building, at the

¹⁴¹ Lindner, *Kow Plains Revisited 1849-2001*, 139-40.

corner of Deakin Avenue and Ninth Street, was erected in 1920. William Chaffey was a long-serving president of the club up until his death in 1926.¹⁴²

Figure 37: Underbool Hotel, 2011.



Source: Context.

11.8 Leisure and recreation

The Mallee and the River Murray provide diverse opportunities for recreation and leisure pursuits in the study area for both locals and tourists. These activities range from organised sports such as football and cricket played at recreation grounds, rifle range shooting, motor-cross and horse racing to more informal pursuits such as fishing, bird watching, picnicking, camping and walking.

Figure 38: Outen Park, Underbool, 2011.



Source: Context.

¹⁴² Wells, *Paddle Steamers to Cornucopia: The Renmark-Mildura Experiment of 1887*, 193-4, 98, 200.

Social gatherings on Sunday afternoons often took place on sand bars along the River Murray. Mildura's 'Floating Baths' on the River Murray were in operation by 1891. An initiative of Wally West, water was delivered via a channel from the Wimmera Mallee system to fill a natural depression north of Underbool for use as a lake and recreation area. Swimming also took place in channels. A swimming pool opened in the early 1930s in Ouyen. Public Olympic sized swimming pools were constructed across the region from the 1960s.

From the 1920s, films were shown in public halls, and in 1936, the Victory Theatre was built in Ouyen. It was later renamed the Roxy (see Figure 39).

Figure 39: Roxy Cinema, Ouyen, 2011.



Source: Context.

Sporting activities have played an important role in communities throughout the Rural City. Residents of the first settlements were quick to form sport teams and utilise available spaces until funds allowed the erection of permanent facilities or the setting aside of recreation reserves. A football line league comprised towns on the Ouyen-Murrayville railway line. Members were transported to matches by rail-motor vehicles. Bowling, croquet, golf and tennis clubs were established from the 1920s.

A horse race club was formed in 1888 and meetings held on land owned by W. B. Chaffey and later near the Mildura run homestead. In 1914, the racecourse moved to its present location. Racecourses operated at other locations including Ouyen.

Agricultural shows commenced in Mildura in 1891.

Tourism to the area commenced in 1890 when the Melbourne to Swan Hill railway line opened. Tours were arranged for parties to travel by train to Swan Hill then by steamer to Mildura. The steamer also provided accommodation at Mildura. In December 1920, the first car service commenced when the Sunraysia Car Service conveyed passengers from Mildura to Renmark, which connected to another car to Morgan then to a train to Adelaide.¹⁴³ With the increasing popularity of the car, the formation of a Tourist Association in Mildura in 1930, and a more direct train service to Mildura established in the same year, numbers of urban dwellers began 'wintering in the north' at the end of the economic depression (see Figure 13). The district experienced the beginnings of a profitable tourist trade, and there were suggestions that Hattah Lakes be developed as a tourist resort. Over the 1950s, accommodation for tourism in Mildura received a major upgrade.

¹⁴³ Ibid.

Figure 40: Promotional poster for Mildura 1930s



Source: National Library of Australia

Natural features of the Rural City have been preserved through the proclamation of reserves and parks, including a number of national parks. In 1909, following the lead of Arthur Mattingly, a number of naturalists persuaded the government to temporarily reserve 3,900 hectares of this fast-disappearing habitat. Wyperfeld National Park was declared in 1921, and has been considerably enlarged since that time to 365,800 hectares. It is thought that the name of German origin was given to the area by German settlers.

In 1925, 4,570 acres at Pink Lakes was reserved to protect the lakes from wind blown debris. In the 1930s, the Field Naturalists' Club of Victoria and the Royal Ornithological Union lobbied for wildlife protection in the Hattah Lakes area. In 1941, 16,800 hectares was declared a sanctuary for game. In the late 1950s, the Victoria National Parks Association and the Sunraysia Field Naturalists' Club campaigned for a national park, and in 1960 the Hattah Lakes National Park of 7,200 hectares was declared. In 1980 the adjacent Kulkynne State Forest was added to form the Hattah-Kulkynne National Park of 48,000 hectares and Murray-Kulkynne Regional Park, proclaimed in 1990, of 3,530 hectares. The Hattah-Kulkynne Lakes, a system of 12 shallow lakes form park of this National Parl, these lakes are a protected Ramsar Site.

Figure 41: Hattah Lakes, 2011.



Source: Context.

The Pink Lakes State Park came into operation in 1979 and was included in the Murray-Sunset National Park declared in 1991. Measuring 633,000 hectares, it is the state's second largest national park and covers almost a third of the area of the Rural City.

The importance of the natural environment to Rural City residents was evidenced by consolidated protest from 2004 against a proposal by the Victorian Government to build a state-level Long Term Containment Facility for Industrial Waste firstly at Tiega, and secondly in state forest at Nowingi. In January 2007, the Victorian Government announced that it was abandoning its proposal.

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APPENDIX 1: RURAL CITY OF MILDURA HERITAGE STUDY THEMES

The themes for the environmental history component of the Rural City of Mildura Heritage Study have been developed with particular reference to:

- charting the historical development of the municipality,
- explaining the settlement and development patterns of the municipality (i.e. the 'environment'), and
- raising community awareness of the historical development and heritage of the area.

Themes for the Rural City's environmental history are listed as follows with relevant themes from Victoria's Framework of Historical Themes written below each in order to show the connection between the two.

1. The country and its first peoples

- 1.1 Tracing climate and topographical change
- 1.3 Understanding scientifically diverse environments
- 1.7 Appreciating and protecting Victoria's natural wonders
- 2.1 Living as Victoria's original inhabitants

2. Exploratory, overlanding and survey expeditions

- 1.5 Exploring, surveying and mapping

3. Pastoral occupation

- 1.6 Living with natural processes
- 2.1 Living as Victoria's original inhabitants
- 2.2 Adapting to diverse environments
- 2.3 Arriving in a new land
- 2.5 Maintaining distinctive cultures
- 2.7 Fighting for identity
- 4.3 Grazing and raising livestock
- 6.1 Establishing Melbourne Town, Port Phillip District
- 6.8 Living on the fringes

4. Agricultural development

4.1 Agricultural settlement of the Mallee

4.2 Closer settlement

4.3 Rural reconstruction

- 1.6 Living with natural processes
- 2.2 Adapting to diverse environments
- 2.3 Arriving in a new land
- 2.4 Migrating and making a home
- 2.5 Maintaining distinctive cultures

- 2.6 Promoting settlement
- 2.7 Fighting for identity
- 4.1 Living off the land
- 4.4 Farming
- 4.7 Transforming the land and waterways
- 6.8 Living on the fringes

5. Water supply

5.1 Domestic and stock supply

5.2 Irrigation

- 1.6 Living with natural processes
- 4.7 Transforming the land and waterways

6. Transport and communications

6.1 Tracks, roads and bridges

- 3.1 Establishing pathways
- 3.4 Linking Victorians by road in the twentieth century

6.2 River trade

- 3.2 Travelling by water
- 4.7 Transforming the land and waterways

6.3 Railways

- 3.3 Linking Victorians by rail

6.4 Postal and communications

- 3.7 Establishing and maintaining communications

7. Governing

7.1 Roads Boards

7.2 Municipalities

7.3 Law and order

- 7.1 Developing institutions of self-government and democracy
- 7.3 Maintaining law and order

8. Building towns and settlements

8.1 River towns

8.2 Agricultural towns

8.3 Railway towns

8.4 Closer settlement towns

- 6.4 Making regional centres
- 6.5 Living in country towns
- 6.6 Marking significant phases in development of Victoria's settlements, towns and cities

6.7 Making homes for Victorians

9. Industry

9.1 Dryland agriculture

9.2 Irrigated agriculture

9.3 Forest industries

9.4 Extractive industries

4.6 Exploiting other mineral, forest and water resources

4.7 Transforming the land and waterways

9.5 Advancing knowledge in science and technology

10. Community life

10.1 Health services

10.2 Education

10.3 Halls and meeting places

10.4 Places of worship

10.5 Wars

10.6 Cemeteries and lone graves

10.7 Hotels and inns

10.8 Leisure and recreation

1.7 Appreciating and protecting Victoria's natural wonders

7.4 Defending Victoria and Australia

8.1 Maintaining spiritual life

8.2 Educating people

8.3 Providing health and welfare services

8.4 Forming community organisations

8.5 Preserving traditions and commemorating

8.6 Marking the phases of life

9.1 Participating in sport and recreation

APPENDIX 2: RURAL CITY OF MILDURA HERITAGE STUDY THEMES AND RELATED PLACES

Theme	Sub theme	Place (Hermes reference)
1. The country and its first peoples		
2 Exploratory, overlanding and survey expeditions		
3. Pastoral occupation		
4. Agricultural development	4.1 Agricultural settlement of the Mallee	E. porossa (Mallee Blackbox) (108508) Lodwick's Farmhouse (111612)
	4.2 Closer settlement	Brown's Homestead (108490)
	4.3 Rural reconstruction	
5. Water supply	5.1 Domestic and stock supply	Cowangie Catchment Dam (108500) Wells, Cowangie (111423) Water Bore No. 1 (108496)
	5.2 Irrigation	
6. Transport and communications	6.1 Tracks, roads and bridges	Stock Route Road (108498) Gloster and Sons Garage (108549)
	6.2 River trade	
	6.3 Railways	
	6.4 Postal and telecommunications	Murrayville Post Office (108464) Ouyen Post Office (108477)
7. Governing	7.1 Roads Boards	Country Women's Party Rooms (108487)
	7.2 Municipalities	
	7.3 Law and order	State Emergency Service (108463) Former Ouyen Court House (108475)
8. Building towns and settlements	8.1 River towns	
	8.2 Agricultural towns	House, 20 Scott Street (108530)
	8.3 Railway towns	Railway turntables repair site (108538)
	8.4 Closer settlement towns	Ouyen Tyre Service (108470) House, 12 Hunt Street (108480) Former State Bank, Rowe Street (108481) Carina Lodge (108502)
9. Industry	9.1 Dryland agriculture	Kow Plains Homestead (108503) Brown's Homestead (108490) Co-operative Shearing Shed (108491)
	9.2 Irrigated agriculture	
	9.3 Forest industries	
	9.4 Extractive industries	Tutye bore and Site of gypsum/plasterworks (111593)

Theme	Sub theme	Place (Hermes reference)
10. Community Life	10.1 Health services	Lodden Mallee Women's Health Service (108533) Tiverton (108472)
	10.2 Education	Boinka Community Centre (108506) School site (Timberoo East) (xxxx) Ouyen Primary School (108479)
	10.3 Halls and meeting places	Masonic Lodge (108462) Foodworks and NW Express Office (108535) The Torrita Building (108476)
	10.4 Places of worship	St Teresa's Catholic Church (108543) Saint John the Baptist Anglican Church (108466) All Saints Uniting Church (108478)
	10.5 Wars	Memorial trees, Cowangie (108507) Oke Street War memorial (108531)
	10.6 Cemeteries and lone graves	Cowangie Cemetery (108499) Ouyen Cemetery (108523)
	10.7 Hotels and inns	Hotel Victoria (108482) Underbool Hotel (108460)
	10.8 Leisure and recreation	Timberoo Flora and Fauna Reserve (111614) Ouyen Racetrack/Blackburn Reserve (108521) Ngallo Football Ground (108501)