Harnessing the River Murray

STORIES OF THE PEOPLE WHO BUILT LOCKS 1 TO 9

1915 – 1935

HELEN STAGG

The day has gone by for interstate mistrust, suspicion and jealousy, and should now dawn for cordial co-operation in a work for the benefit of the whole Australian nation.—Advertiser, Adelaide.[1]

You couldn't fraternise with the river because it was too dangerous. There was a deep, very deep respect for it, and a love for it, and people who worked on the River Murray will always have it flowing through the blood of their veins.—Max Pearson.

HARNESSING THE RIVER MURRAY

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HISTORY SA

Government of South Australia

In memory of my mother, Evelyn Smith, her parents Arthur and Florence Rains, and all the unsung men, women and children who took part in harnessing the mighty Murray.

CONTENTS

UNIT CONVERSIONS AND ABBREVIATIONS

This book uses the measurements quoted in primary material.
Conversions provided below.

LENGTH

1 inch	=	25.4 millimetres
1 foot (ft.)	=	30.5 centimetres
1 yard	=	0.91 metres
1 chain	=	20.1 metres
1 mile	=	1.61 kilometres

MASS

1 pound	=	0.45 kilograms
1 ton	=	1016 kilograms

AREA

1 acre	=	0.405 hectares

TEMPERATURE

100°F	=	37°C

CURRENCY

12d (12 pence)	=	1s (1 shilling)
20s (20 shillings)	=	£1 (1 pound)

When Australia adopted decimal currency in 1966,
£1 was set as equivalent to $2, 1s became 10c, and 6d became 5c.

ABBREVIATIONS

AWU	Australian Workers' Union
CPW	Commissioner of Public Works
EIC	Engineer-in-Chief
EWS	Engineering and Water Supply Department
MDBA	Murray Darling Basin Authority
MP	Member of Parliament
SLSA	State Library of South Australia
SRSA	State Records of South Australia
PROV	Public Records Office of Victoria
WW1	World War One

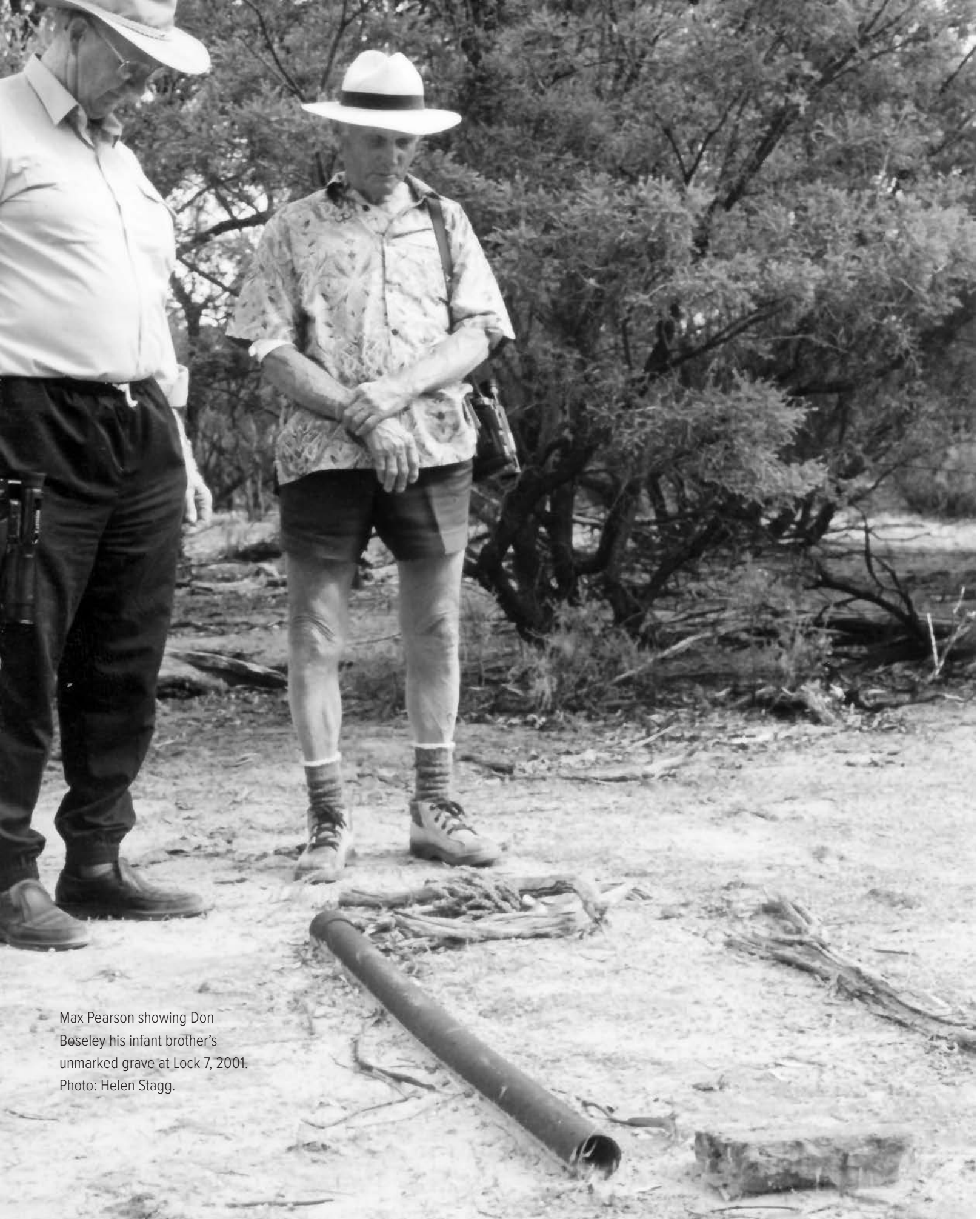
FOREWORD

The creating of the series of large weirs and locks on the Murray River and the building of the Hume Dam upstream was an exciting national project. In the eyes of rural Australia, it vied with the Sydney Harbour Bridge in the years between the two world wars.

Along the Murray, townships sprang up for the work gangs, and then quickly vanished as each project was completed. In this book Helen Stagg has resurrected the townships and their vigorous life – their suburbs of tents and huts, their shanties made of scavenged iron and timber and their furniture made of packing cases and empty kerosene tins. We see in words and pictures the mobile schools, the teams of workhorses, the flying foxes that took the place of river bridges, the heavy pile-drivers, the drownings and other fatal accidents, and the resilience and optimism of the townsfolk. Every six weeks came a long-awaited reward for the children - the noisy arrival of a river steamer that was really a floating mini-department store. The coming of the doctor was another memorable event: he came once a week.

For more than a century these come-and-go towns could be found in their hundreds – wherever an inland railway was built, a long bridge, a mountain road, a big gold mine in the bush, a jetty and breakwater, or a major lock or weir on Australia's only large river-system. Rarely if ever has the life of these rough and ready places, so important to Australia, been told with such detail and empathy. The book rests not only on persistent research in libraries, and many interviews with the old, but also on an affection for the meandering river and its river-red gums and its people. 'Just like my mother before me', writes Helen, 'my childhood knew the river's constant presence'. The result is this engaging history.

Professor Geoffrey Blainey



Max Pearson showing Don Boseley his infant brother's unmarked grave at Lock 7, 2001. Photo: Helen Stagg.

PREFACE

My mother, Evelyn Smith, née Rains, said she wouldn't sell any raffle tickets for the school. I later understood why as I began to learn about her family's hardships at Lock 7 on the Murray River in the early 1930s. It was during the Great Depression: work was scarce and her father, Arthur Rains, was on rationed hours of work and had a wife and six children to clothe and feed. The Rains family, like others who were involved in the lock construction, had to make ends meet somehow. The situation was so dire that Florence Rains, Evelyn's mother, decided to raffle her beloved sewing machine, an important commodity in many women's lives at the time. My mother recalled her embarrassment and humiliation when, at the age of 12, she had to go door to door in the tiny close-knit work camp selling tickets at three pence each.

This story along with many others eventually became part of my mother's written memoir and aroused my interest in the mammoth venture which finally harnessed the Murray River's waters. A part of the scheme almost from its outset, Arthur Rains spent more than 14 years as a cog in the machine of men who built the locks and their accompanying weirs. Evelyn Smith spent her childhood moving from one site to the next as the river succumbed to these man-made restraints. The Rains family's itinerant lifestyle was representative of many other members of this workforce who became a resilient people, hardworking and determined, facing life head-on through good times and adversity.

Max Pearson, whose father Bertie was also a lock-builder, took this journey along the Murray River at the same time. His stories of life back then intrigued me from my first telephone conversation with him in 1998. One of his anecdotes was of a baby boy who had died soon after birth at Lock 7 when Max was only 12. The baby's grandfather, a carpenter named Rains, had fashioned a small wooden box for the coffin and as there were no undertakers at the sites, Bertie Pearson and two other men assisted with the burial. A few days later, Bertie showed Max the unmarked grave in the sandier soil among the teatrees about a kilometre away from the clay soils of the camp. With the passage of so much time, Max felt a strong desire to connect the remote little grave with any of the baby's living relatives. From the information given, I knew that the baby's grandfather was Ernest Rains, and the mother was Myrtle Rains who had married George Boseley in 1932. In 2001, Don Boseley, the baby's brother, accompanied me to Lock 7 where Max showed us the remote burial site.

It was a poignant day as we stood at the grave and contemplated the family's heartache on Christmas Day 1933. My journey into the lives and stories of these people had begun. This little grave, now marked with a permanent memorial stone, symbolises for me all the other river-babies who are buried in unmarked plots at former lock campsites or town cemeteries.[2] Their anonymity blurs, or hides forever, the pain their parents experienced.

In 2009 I interviewed Max Pearson for an oral history unit, part of a Master's Degree in History, followed up in 2010 with a research project on lock construction. Aware that the generation of lock builders' children was diminishing with each passing year, I interviewed several others to collect their memories also. By this stage I was entangled in the vicissitudes of their parents' lives, enthralled by the stories of community and captivated by the tenacity of the people and their enduring connection with the river and with each other.

Extensive archival research of the lock and weir construction records – primarily the correspondence files of the Engineer-in-Chief's Department, (EIC), the predecessor department to the Engineering and Water Supply Department, (EWS) South Australia – enabled me to uncover the official evidence of the taming of the Murray and thus form a framework in which to place the memories.[3] As a research historian, it has been an enriching journey peppered with important micro journeys such as the pursuit of a particular accident report, finally uncovered in a dusty archival box near the end of my research.

The quest to learn more about the lock and weir construction communities has been both intellectual and emotional. My daily walk in the trackless bush near the river in Mildura always brings me nearer to these people's lives as I visualise times past in the red gum and black box forests. I can almost hear the blast of a paddle steamer whistle, the excited sounds of children at play, the cracking of leaves underfoot on the unpaved roads of the little towns and the call of kookaburras high in the treetops. In the background is the relentless, sharp, metallic noise of the three-ton pile driver at the worksite reverberating through the bush – 'whoosh-bang, whoosh-bang'. The lives of the lock workers and their families are now part of my life.

Although the tracks of this strong and resilient people have disappeared and their lives are all but forgotten, it is now my privilege to record their joys and struggles in an attempt to rekindle the spirit of these ordinary yet remarkable men, women and children of the locks and weirs.

Helen Stagg, Mildura 2015.

ACKNOWLEDGEMENTS

While it is impossible to mention by name all who have assisted with this work, I gratefully acknowledge the support of many 'un-named' people, including family and friends. Many relatives of lock workers have readily supplied information and/or photographs and have shown great interest in my research. I thank them all sincerely.

My mother's verbal anecdotes, together with her written but unpublished memories of her childhood on the locks, are the source of my initial inspiration and I honour her memory through these pages. I am indebted to those whose fathers were lock builders and who shared their precious memories with me: Max Pearson, Charlie Adams, Thelma McGair, Marjorie Francis and Murray Brooks.

Max Pearson encouraged me from the very beginning of my research with his passion to share this history. I spent countless inquisitive hours in his company and on the phone and accompanied him on several 'trips back in time' at the Lock 7 site. With his wife Jan, Max provided warm hospitality on my many visits to their home. Charlie Adams with his insight, sharp recall and dry wit has enlivened my quest for information. Thelma McGair's insightful memory and fascinating anecdotes added greatly to the pleasure of my research. Marjorie Francis' gentle manner and her enthusiasm to talk about her childhood supplied new details to the evolving story. In 2012, Marjorie hosted a small gathering at her home with Max and Charlie which allowed me to glean something of their shared experiences. Murray Brooks' passion for the history was infectious. He gave me insight into traits of humanity and goodness which he said were born in the lock camps. Phillis Pickering, whose father was a wood contractor at Locks 7 and 8, told me of school life at Lock 7 and the tragedy of the diphtheria epidemic of 1931. I also acknowledge Ian McPhee and Henry Milne, now both deceased, who shared their memories of the lock building era during the time I was completing my Masters of History in 2010.

From the birth of the concept for this book, emeritus Professor Geoffrey Blainey and his wife Ann have been enthusiastic. Ann's discussion of the concept of 'journey' gave wings to some of my ideas and I thank Geoffrey for his kind words in the Foreword.

I am indebted to Dr Rhondda Dickson, Chief Executive of the Murray Darling Basin Authority for her enthusiasm and support for my work. Her staff, in particular, Megan Douglas, have provided welcome assistance and advice over many months and the successful completion of this project owes much to their backing and guidance. I also thank Brayden Dykes at MDBA who assisted with graphic work, artwork for the cover and repairs to old photographs.

Hayley Morton of the SA Water Library has offered advice and inspiration and granted access to the SA Water Heritage Collection of photographs. The staff at

State Records of South Australia, (SRSA) and at the State Library of South Australia, (SLSA) have been obliging during my research trips to Adelaide.

Heather Everingham of the Renmark branch of the National Trust first alerted me to the presence of the letters from the Rains children in the *Murray Pioneer and Australian River Record*. She offered assistance on aspects of local history in the river regions as well as arranging access to the collection of Olivewood Estate, Renmark.

Christeen Schoepf, historian, has been a pillar of strength and encouragement, especially when the research and writing journey seemed interminable. Her appreciation of the obscurities and challenges in historical research and her celebration of the discoveries made along the way gave me timely moral support.

Robert R Simmonds kindly allowed me to use material from the biography of his grandfather, Robert John Barkley III, a rare first-hand account by a lock worker.

ABC journalist Tom Fedorowytsch's curiosity about the project and his interview with me for *7.30 South Australia* was a springboard for some very important connections.

David Kehoe edited the text providing professional advice for improvement. Carly Sutherland gave helpful feedback on the manuscript and Merrilyn Gaulke painstakingly assisted with the final proofreading of the book.

My husband Lloyd's database expertise aided with recording the workers' details and those of their families. His kindness and patience in allowing me to follow my bliss is greatly valued. Our children Philip, Siobhan and Brendan have been behind me all the way. Thank you.

COPYRIGHT ACKNOWLEDGEMENTS

INTRODUCTION

The 'Mighty Murray' is an impressive river meandering its way 2520 kilometres from its source in the Australian Alps to the sea near Goolwa in South Australia. It flows along the border between NSW and Victoria before snaking its way 500 kilometres through South Australia and emptying into Lake Alexandrina. The Murray's waters have not only been a source of life but also a source of contention, even into the 21st century as various parties lay claim to their use. These differences in opinion extend to the river's title as well. Is it the River Murray or is it the Murray River? South Australians often use 'River Murray' and this narrative interchanges both forms of the title.

My family roots are in the great Murray Darling Basin, and I understand the importance of a permanent supply of water in this dry continent. I grew up in sun-drenched Mildura beside the beautiful Murray. Just like my mother before me, my childhood knew the river's constant presence. However, if it had not been for the great scheme to harness the Murray waters with weirs, the river would not play the significant role it does today in the economic and social lives of the many towns and cities along its banks.

In pre-lock days, navigation regularly ceased above Renmark in South Australia near the borders of Victoria and New South Wales. It could not resume until winter rains had swollen the river at Albury in north-east Victoria or occasionally when the Darling River flushed in some water at Wentworth about 150 kilometres from Renmark.

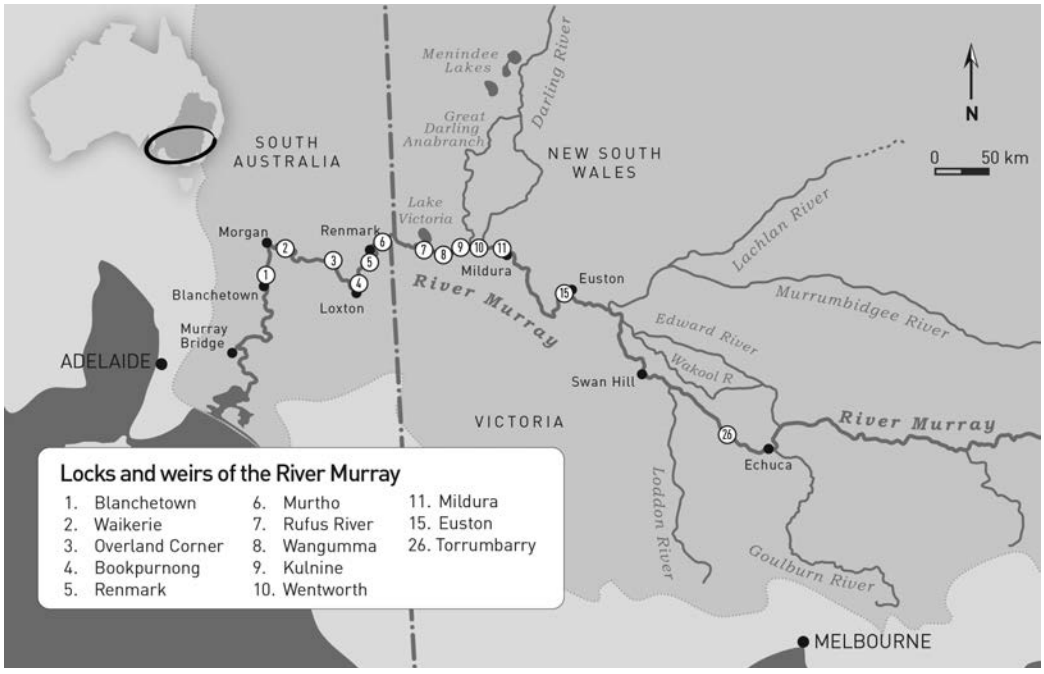
Starting out from a half century of interstate indecision over suitable plans to appropriately use and manage the Murray waters, and the various agreements which finally allowed the harnessing of the river, this book describes the construction of the locks and weirs in general terms before focusing on the people who comprised the workforce. Their social lives in their thriving small communities, the provision of health services and schools at each site, the many accidents and other tragic events which peppered their lives as well as evidence of hardships through financial cutbacks and the Great Depression, all build a picture of communities who really were living on the edge. The news reports, archival records and oral histories create an image of energetic, cohesive and harmonious communities. However, by sneaking a view behind the veil of everyday life, one also glimpses vulnerabilities and darker sides to life in the lock camps.

Although the scope of this history is 1915 to 1935 and focuses only on the construction of Locks 1 to 9, I acknowledge the contribution of those involved at the other sites which were also part of the River Murray Waters Agreement of 1914. These include the Lake Victoria Storage, the Hume Dam, the barrages at the Murray Mouth and the other locks and weirs further up the river.

This is a *people's history* about the lives and experiences of the 'common' people during a significant event in Australian history, the locking of the River Murray. Despite their struggles, many of these workers and their families emerged from a successful engineering feat forever changed by their experiences. This shines especially through the oral history in Part Two. Such workers and their wives include Arthur and Florence Rains, George and Mabel 'Rose' Brooks, Charles and Florence Adams, Arthur and Eva Eddy, Bertie and Ida Pearson and John and Mavis Mullane.

The author, Helen Stagg (left), with interviewees Thelma McGair and Max Pearson standing beside Lock 7, 21 May 2010. Photo: Helen Stagg.

MURRAY RIVER LOCKS AND WEIRS



Lock and weir locations on the River Murray.
Map courtesy of Brayden Dykes, MDBA.

Lock and Weir 1, Blanchetown: 274 km from river mouth, completed 1922.

Lock and Weir 2, Waikerie: 362 km from river mouth, completed 1928.

Lock and Weir 3, Overland Corner: 431 km from river mouth, completed 1925.

Lock and Weir 4, Bookpurnong: 516 km from river mouth, completed 1929.

Lock and Weir 5, Renmark: 562 km from river mouth, completed 1927.

Lock and Weir 6, Murtho: 620 km from river mouth, completed 1930.

Lock and Weir 7, Rufus River: 697 km from river mouth, completed 1934.

Lock and Weir 8, Wangumma: 726 km from river mouth, completed 1935.

Lock and Weir 9, Kulnine: 765 km from river mouth, completed 1926.

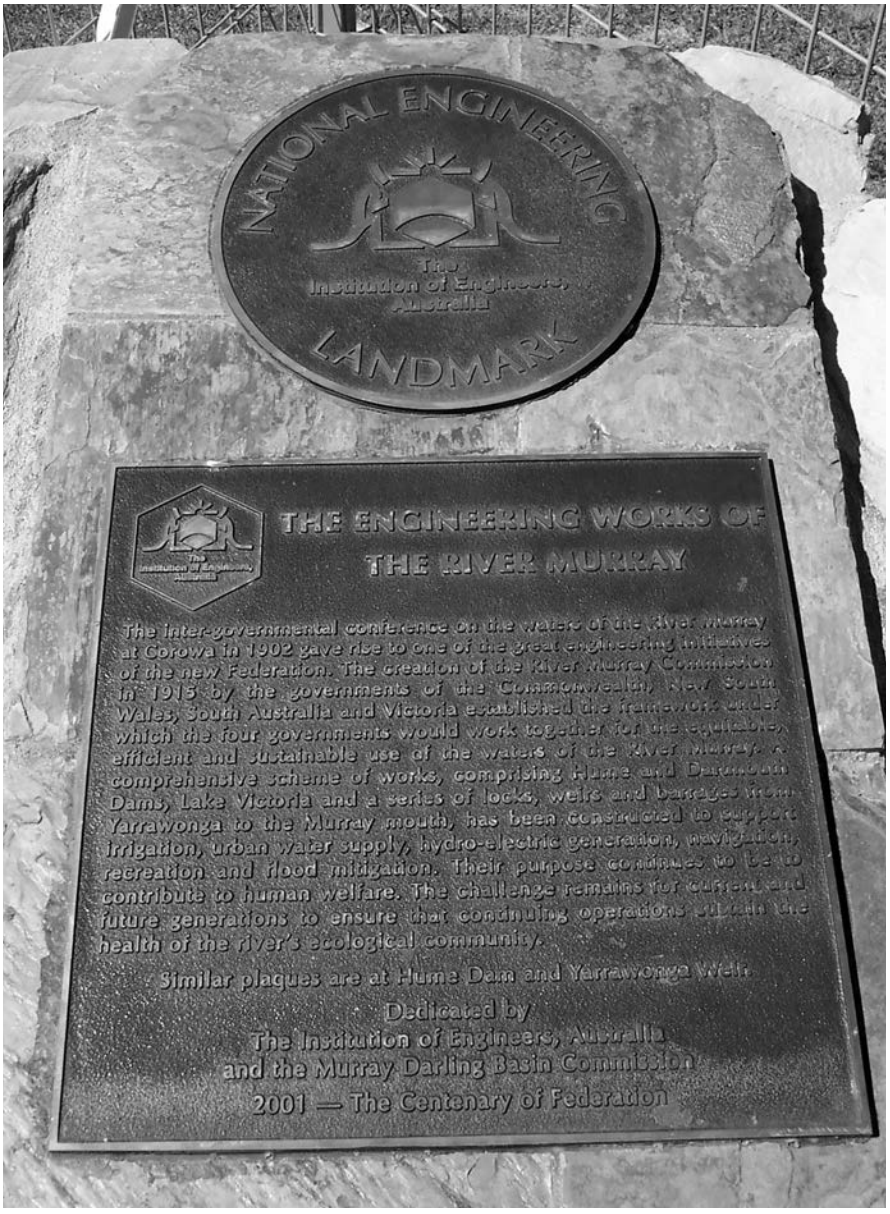
Lock and Weir 10, Wentworth: 825 km from river mouth, completed 1929.

Lock and Weir 11, Mildura: 878 km from river mouth, completed 1927.

Lock and Weir 15, Euston: 1110 km from river mouth, completed 1937.

Lock and Weir 26, Torrumbarry: 1638 km from river mouth, completed 1924. Replacement weir 1996.

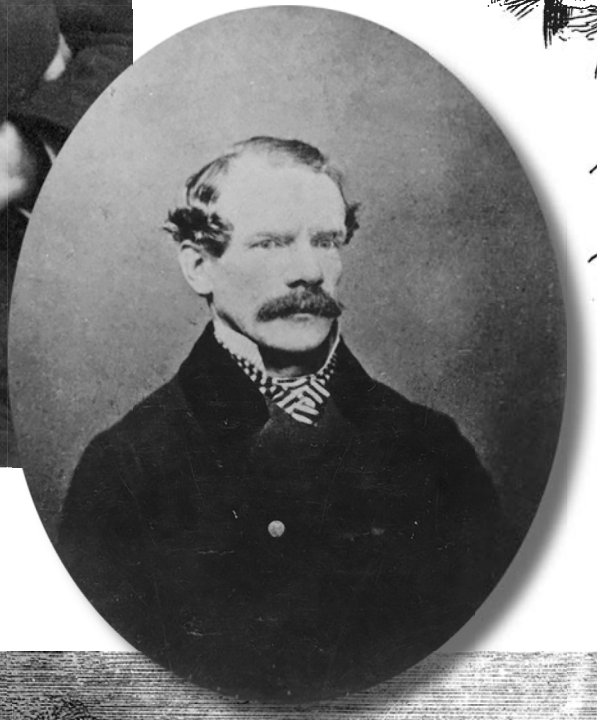
Weir, Yarrawonga: 1992 km from river mouth, completed 1939.[5]



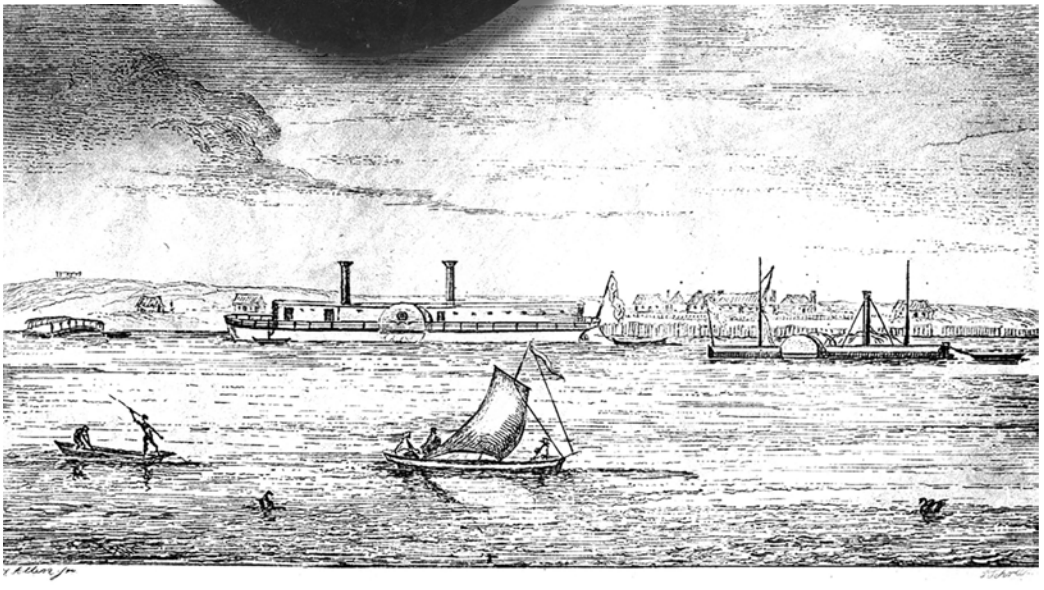
National Engineering Landmark at Lock 1, Blanchetown. The inscription reads:
The inter-governmental conference on the waters of the River Murray at Corowa in 1902 gave rise to one of the great engineering initiatives of the new Federation. The creation of the River Murray Commission in 1915 by the governments of the Commonwealth, New South Wales, South Australia and Victoria established the framework under which the four governments would work together for the equitable, efficient and sustainable use of the waters of the River Murray. A comprehensive scheme of works, comprising Hume and Dartmouth Dams, Lake Victoria and a series of locks, weirs and barrages from Yarrawonga to the Murray mouth, has been constructed to support irrigation, urban water supply, hydro-electric generation, navigation, recreation and flood mitigation. Their purpose continues to be to contribute to human welfare. The challenge remains for current and future generations to ensure that continuing operations sustain the health of the river's ecological community.
Photo: Helen Stagg

PART ONE:

The History



CLOCKWISE FROM LEFT:
Captain William Randell.
Photo: State Library of South Australia B 9439;
Captain Charles Sturt, pencil sketch, 1849.
Photo: State Library of South Australia B 6687/1;
PS *Lady Augusta* (left) and PS *Mary Ann*.
Photo: State Library of South Australia B 6852.
CENTRE: Captain Francis Cadell.
Photo: State Library of South Australia B 13508.



SWAN HILL.

CHAPTER ONE:

The Murray River, contest for control

Over thousands of years the Murray River has held people in its spell, with Aboriginal people maintaining a strong physical, economic and spiritual connection with it. Since European settlement, it has continued to play an important role as a source of life and livelihood. To that end, sustainable water management is of the utmost importance and the views of Lock 3 Resident Engineer Russell Dumas in 1924 apply today as they did then:

> *The conservation of water is and probably always will be the paramount problem in Australia, and from the days of the first settlement, work with that object in view has been steadily increasing.*[6]

Because of this, the Murray's precious contents have been contested since at least the middle of the 19th century.

In Captain Charles Sturt's journey in 1830 along the length of the Murray, he observed the potential which the river held for navigation by vessels much larger than his twenty-five foot whaleboat. With the spread of European pastoralists into the interior of the country, it was important to find cost-effective means of transporting wool to coastal markets. Such an opportunity was seized after the way was opened for the Murray to become a highway for paddle steamer traffic.

Lieutenant-Governor of South Australia, Sir Henry Young, was keen to develop the Murray River as a highway for river trade for NSW, Victoria and South Australia, and he offered incentives from 1850 for early navigation along the river. Captain William Richard Randell in the PS *Mary Ann* and Captain Francis Cadell in the PS *Lady Augusta* took up the challenge and both made successful journeys up the Murray from its mouth to Swan Hill in 1853. Randell then continued on as far as Echuca-Moama.

Over several decades, river transport prospered in a mutually beneficial partnership with the pastoralists. Paddle steamers and barges plied the river system in large numbers. In a system akin to what is known today as 'back-loading', passengers and stores including flour, candles, saddlery and fabrics were transported up river and on return journeys, cargoes of wool and wheat were taken to port, initially to Goolwa in South Australia for transfer by horse-drawn train to Port Elliot and later to Victor Harbor. As the irrigation settlements were established, dried and fresh fruit also formed part of the regular cargo going downstream.

Railway building later changed this dependence on paddle steamers; Victoria tapped the river at Echuca with a rail line as early as 1864 which allowed vast quantities of wool to be loaded onto trains for transfer to port at Melbourne. South Australia noticed the decline in freight and in 1878, built a rail line to Morgan north-east of Adelaide to once more create boom river traffic through its own waters. However, frequent seasonal fluctuations in the river's levels from flood to 'no flow' continued to create problems. At rare intervals such as the droughts of 1902 to 1903 and 1914 to 1915, the river was closed to traffic all year and in some places, it was little more than a series of stagnant waterholes.

Irrigated settlements began to proliferate from the 1880s when the Chaffey brothers launched their crop irrigation schemes on the Murray at Mildura and Renmark. Other irrigation settlements in South Australia included those at Waikerie 1909, Berri and Cobdogla 1910, Moorook 1911 and Kingston 1913. This expansion of irrigation continued right along the river into Victoria and NSW and added to the demand for reliable access to irrigation water. Farmers literally left high and dry during the searing drought of 1902 protested loudly about better water supplies. The cry was heard along the Murray Valley for effective water storages and distribution for the irrigation settlements.

Solutions to these problems took decades as fierce interstate rivalries between Victoria, NSW and South Australia led to ongoing debate and indecision. In 1902 a tri-state Royal Commission was held which reported that: 'Nature by her work of ages, has provided at our hands, thousands of miles of storage excavations and all man needs to do to accomplish two great national ends is to erect locks and weirs where required.' It also noted that there were 60 million acres of irrigable land which could be developed with a reliable water supply. Support was given for reliable navigation on the river with more than 70 witnesses strongly advocating this.[7] The Royal Commission's final recommendations included the construction of storages on the Upper Murray and at Lake Victoria 70 kilometres west of Wentworth in NSW and ultimately the provision of a series of locks and weirs from Blanchetown in South Australia to Echuca in Victoria. These would ensure navigation over that section of the river. However, the report did not satisfy any of the states at the time and it was 12 years before an agreement was finally reached on these recommendations.[8]

In 1905, South Australia forged ahead and passed its own legislation authorising preliminary investigations and surveys for Murray lock sites within the state.[9] In 1910, SA Treasurer Crawford Vaughan and two key figures in locking the river, Simpson Newland and George Ritchie, were among 30 members from both sides of the South Australian Parliament who took a tour along the Murray on the PS *Marion* to view the expansion of agriculture. The public gathered at the various wharfs as the tour progressed along the river and many called for immediate action to be taken on the river question. At Mannum, a man said:

> *You people must lock this river. Why is there all this hesitation? Every legislator says he is in favour of the work. Each government takes office enthusiastically determined to build the first lock, but year after year passes and nothing is done. Settlement is increasing so rapidly along the waterway that some day when the river suddenly gives out, there will be a famine at some towns and then won't there be a row? I have seen £5 to £10 paid for the carriage of necessaries during a low river. That didn't matter when there were only a few people, but look at the increased population of places like Loxton, Lyrup and Renmark. There will be a crisis, and then the people will blame past governments, and rightly too, for having neglected to harness this stream and make it permanently navigable.*[10]

At Loxton, a few days later, growers showed legislators their bumper wheat harvest and informed them that a falling river would prevent timely transport to markets and spell serious losses for them. A resident said: 'Give us a locked river and permanent irrigation and this place would go ahead by leaps and bounds.' The crowd assembled at Lake Victoria responded with cheers when Mr Vaughan told them that his ministry was determined to lock the Murray in South Australia.

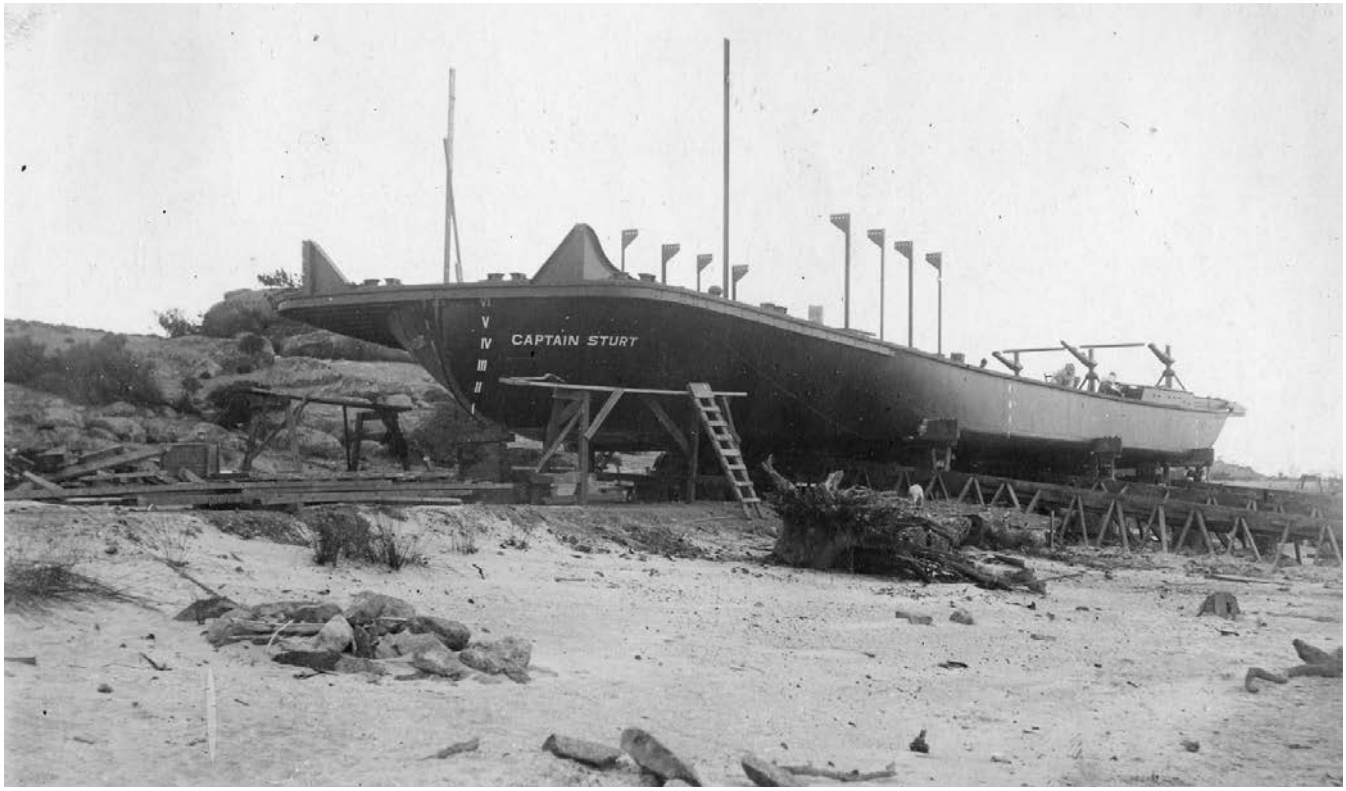
On their return to Adelaide, the MPs agreed when Premier John Verran stated: 'Yes the river must be locked, and that without undue delay, no matter what may be the attitude of neighbouring states.'[11] Both sides of politics agreed that the Murray Waters question was above party politics and that they must unite to safeguard South Australia's interests. On 7 December 1910 the *Murray Works Act (South Australia)* authorised the building of the locks and gave the Commissioner of Public Works (CPW) the power to enter into an agreement with NSW and Victoria to use Lake Victoria as a storage dam for South Australia's water supply.

In 1911, a Premiers' Conference held in Melbourne led to the three states setting up an inquiry by three engineers, Messrs Graham Stewart, South Australia, John Stewart Dethridge, Victoria, and Ernest Macartney De Burgh, NSW. Their report's primary conclusions involved the regulation of water supply with the construction of weirs and locks along the Murray and the lower Murrumbidgee. Water storages would be provided on the upper Murray River and at Lake Victoria. The report concluded that:

> *No estimate has been made of the probable returns from expenditure in irrigation and navigation, but it seems clear that both lines of development can be co-ordinated, and that being undertaken as interdependent or necessarily associated works, the success of one conduces to the success of the other.*[12]

This report formed the basis of the River Murray Waters Agreement of 7 April 1914 which was developed between the Commonwealth, New South Wales, Victoria and South Australia.[13] In November 1915, the agreement was ratified by Acts of Parliament passed simultaneously by the Commonwealth and the three states. This provided for the lock and weir and storage construction as outlined in the engineers' report and also stipulated that the Murray's resources above Albury would be shared equally between NSW and Victoria and that South Australia was to receive a specified minimum amount of water.[14]

The River Murray Waters Agreement came into operation on 31 January 1917 and the River Murray Commission, made up of four representatives—one from each state and a Federal Government representative—was established to oversee its implementation. Federal Liberal Opposition Leader, Joseph Cook, expressed his gratification at such progress saying: 'I am very pleased at the practical fruition of the scheme … I venture to say it represents the commencement perhaps of the biggest scheme of development yet projected in Australia.'[15]



The sternwheeler, the PS *Captain Sturt*, (used extensively during lock construction) was made of plate iron and imported in pre-fabricated form. The hull was re-assembled and the engine installed at Mannum in 1915. Photo: SA Water, Book 078 page 033 image 087.

CHAPTER TWO:

South Australia leads the way

Having passed the *Murray Works Act (South Australia)* in 1910, the South Australian Engineer-in-Chief (1909-1918), Graham Stewart, went to England and America early in 1911 in search of an eminent engineer to conduct surveys and draw plans for his state's locks and weirs. The American expert, Major Edward Neele Johnston, assistant to the Chief Engineer of the United States, with his extensive experience in lock and dam construction, especially on the Ohio River, was engaged. In October 1913 Johnston's report was tabled in South Australia's parliament. South Australia's Legislative Council then decided to proceed independently with the locking of the Murray as far as Wentworth, which would allow permanent navigation for 1,065 miles along the river with a minimum navigable depth of almost 6.5 feet.

Johnston had examined the various sites, sunk trial holes in the river to test suitable foundations, and made detailed drawings of the first lock. All that remained was to call for tenders. Johnston recommended appointing Robert C Cutting, a civil engineer with practical experience in lock building in America, as resident engineer for the first lock. Cutting arrived in 1914 and undertook the planning and start of the project, including the submission of large scale orders for heavy machinery and equipment from overseas and local sources.

By the start of 1915, the sleepy little hamlet of Blanchetown, 85 miles north-east of Adelaide, stood on the brink of significant and permanent change as tenders were called on 26 January for the building of Lock 1. Preparatory work at the Blanchetown site was underway, including surveys and land-use negotiations with local farmers even while tenders were being assessed. In February Thomas Edson, a Blanchetown farmer about to sow a crop, complained to the Engineer-in-Chief's Department (EIC) about the survey pegs on his land and demanded appropriate information and compensation. Indeed during the construction, about 3.5 acres

were temporarily leased from Edson and eventually a small portion of his land containing the abutment of the lock chamber was purchased. By the time a second lot of tenders were called in February, a hopeful lot of men had been passing through Blanchetown seeking work.

On 13 April 1915 the EIC departmental tender was accepted to undertake the works and ten days later on 23 April as the ANZACs were being prepared for their assault on the Gallipoli Peninsula, 14 men were employed at Blanchetown and another 13 were working 57 miles south-west of Blanchetown at the Mannum quarry. The quarry was to supply the crushed granite for the immense amounts of concrete work anticipated at each lock site. The Sands and McDougall directories and birth records indicate that the earliest lock workers at Blanchetown may have included Arthur and Ernest Rains, George Knight, Victor Weedeman, John McDonald, George Dyer, Ernest Purnell, Alf Golley and H Lehmann. An average of 25 men were constantly employed during the remainder of 1915 and made steady progress with the site preparations at Blanchetown.[16]

Even though the *Murray Waters Bill* was not officially passed until 19 August 1915, the laying of the foundation stone on 5 June 1915 at Blanchetown, heralding the start of the work, sealed the project and jubilant celebration accompanied the occasion. Many dignitaries including Prime Minister Andrew Fisher, Federal Attorney-General William Morris Hughes, Premier of NSW, William Holman, Premier of South Australia, Crawford Vaughan, and Governor of South Australia, Sir Henry Galway, were among the 120 people on board the PS *Marion* which arrived at Blanchetown for the occasion.[17]

Recognising the significance of the event, eager onlookers travelled from far-flung places including Renmark, Waikerie, Morgan, Mannum, Angaston and

PS *Marion* arrives at Blanchetown carrying politicians and other dignitaries.
School children line up ready to sing the national anthem, 5 June 1915.
Photo: SA Water, Book 079 page 008 image 022.

The crowd watch the foundation stone laying ceremony, Lock 1, 5 June 1915. Photo: SA Water, Book 079 page 009 image 023.

Truro and gathered on the sloping riverbank to enthusiastically welcome the officials as they disembarked. The area was brightly decorated with flags, and the children from the Blanchetown School lined up on either side of the landing stage and sang *God Save the King* and *Rule Britannia*. Posts and red flags on either side of the river marked out the lock site allowing visitors to get an idea of the dimensions of the project.

Sir Henry Galway was given a silver-mounted mallet made of South Australian wood similar to what was being used for the lock works. He then ceremoniously placed the foundation stone in position to mark the site of the William R Randell Lock, named after the pioneer riverboat captain. Galway gave a rousing speech wherein he spoke of the immense importance of the locking of the river to the development of South Australia and to the Commonwealth of Australia and of the great hope arising from 'South Australia's greatest asset' now to be fully developed.

Governor Galway said:

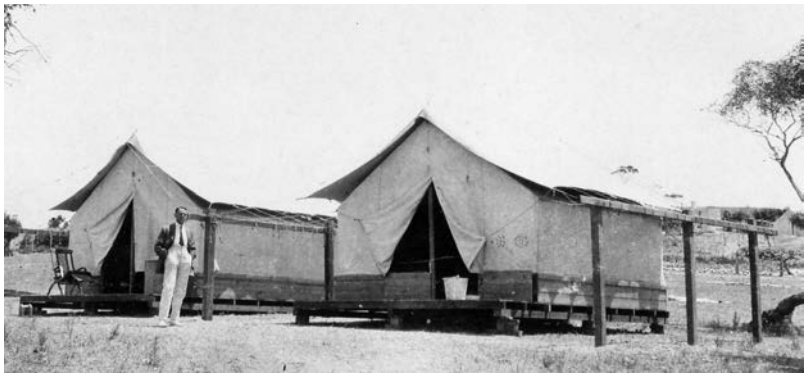
> *…as this grand stream is bitted and bridled and put under control, new provinces will spring up, and the now wastelands of this great Commonwealth will be converted as time goes on, into green pastures, wheat lands and orchards, inhabited by a virile race of progressive and prosperous people…*[18]

Victorian MP Richard Rees said that water storage was essential as a safeguard against the times of drought while NSW Premier Holman saw this moment in Australia's history as the most gigantic step forward in material development as had ever been witnessed.[19]

PS *Captain Sturt* under construction, 1915. Photo: SA Water, Book 088 page 137 image 425.

Setting up and stockpiling supplies and materials was the first focus at each site. With the requirements at each lock being between 25,000 to 30,000 tons of stone, paddle steamers, many of which had the capacity to carry freight in their holds in addition to what they towed or pushed in barges, were in constant use during the navigable periods of the river. The sternwheeler, the PS *Captain Sturt*, made of plate iron, was especially brought in from America in pre-fabricated form. The hull was re-assembled and the engine installed at Mannum before being towed to Blanchetown where the superstructure including decks and cabins were completed. In 1916, the PS *Captain Sturt* with its 28 feet diameter stern wheel, was commissioned as the main workhorse, usually pushing three barges heavily laden with granite and other materials ahead of it. The PS *Industry*, a government steamer, was also extensively used on the work, often involved in de-snagging operations to clear the river of fallen trees at the lock sites. Much of the other necessary plant was built in South Australia including the derrick boats, the dipper dredges *Milang* and *Manno*, seven barges and the motorboat *Antigone*.[20]

Despite World War One and the consequent 'season of unprecedented financial stringency', some public works were given the highest priority as they were essential to national development and to guaranteeing water security for South Australia. The River Murray Works, Millbrook Reservoir, Encounter Bay Scheme and the Warren Weir Scheme in the Barossa were among such projects. By 15 February 1916, preparatory works involved about 50 men at Blanchetown setting up workshops and building the necessary plant and equipment, including barges and derrick cranes. At this early stage, most men lived under canvas, but provision was made for a mess for the single men. By April, 61 men were employed in the earliest stages of the first coffer dam, the 'more or less' watertight wall which would protect the construction area.



Tents at Blanchetown, possibly for the engineers. Photo: SA Water, Book 079 page 037 image 092.

The media of the day followed progress closely. At the end of the Premiers' Conference in May, the *Register* (Adelaide) published a very descriptive piece titled 'To the Lock and Back', which elaborated on what the governors and legislators aboard the PS *Ruby* and *Marion* were able to see at Lock 1. It noted that Blanchetown had assumed national importance, 'no longer local', having developed into a centre of industry since the foundation stone was laid in June the previous year. There were plenty of riverboats and derricks on site as well as a cluster of tin sheds, stacks of timber and a start had been made on the flying fox. The settlement was dotted with dwellings ranging in variety from a substantial stone residence down to the time-honoured canvas tents.[21]

Early cottages at Lock 1. Photo: SA Water, William Moffat Anderson collection, Album D Image 088.

Mr Cutting would not commit when asked about a proposed completion date, stating, 'It's very problematical; it depends upon so many circumstances.'[22] Despite the public being keen to see the first lock completed, three successive floods in 18 months, a number of strikes, and difficulties obtaining materials, especially steel during the war, made early completion impossible.

A high river flooded the coffer dam for the first time in November 1916, and by December, when the river reached a height of 17 feet 11 inches, many men were laid off and only a core team retained. These men continued to prepare the site, completing equipment and building levee banks to isolate the plant and equipment

from the flood.[23] Floods again interrupted work in the coffer dam between August 1917 and March 1918 and between September 1918 and January 1919. When flood waters eventually subsided, pumping could begin to unwater the coffer dam so that work could resume.

Blanchetown flood 1917, showing worksite buildings and plant inundated. Coffer dam completely submerged.
Photo: SA Water, Book 055 page 016 image 052.

Work dragged on for eight years at Blanchetown, until finally on Wednesday 7 April 1922, the William Randell Lock was officially opened. The River Murray Commission handed over the lock to the South Australian Commissioner of Public Works, William Hague. A working demonstration of the lock and weir followed; several sets of stop logs and boule panels were gradually placed in position for the full length of the weir at a pace so as not to interfere unduly with the flow of the water. As a tribute to its contribution to the work, the first steamer through the lock was the PS *Captain Sturt* with two barges loaded with 400 tons of crushed stone.

Initially it was planned to proceed upstream in the numerical order of the locks but this was altered for strategic reasons. In mid-1920, it was decided to start on Lock 3 four miles upstream from Overland Corner in SA. This lock and weir would dam the water for up to 70 miles for irrigation and navigation and also allow water storage in Lake Bonney for the developing irrigation settlements around Barmera and Cobdogla.

Preparatory work began in October 1921 at the Lock 9 site, outside the South Australian border near the junction of the Frenchman's Creek and the Murray. The weir at this site was essential to hold water for diversion via Frenchman's Creek into Lake Victoria in NSW where works had already begun on water storage and associated embankments. Retaining water in Lake Victoria would provide sufficient water to keep the South Australian lock pools fresh and supply South Australia's irrigation needs.[24]

By August 1922, Lock 5 Paringa, near Renmark, was put in hand because of the demands for irrigation in that locality. Working in the order chosen meant that there were long periods when passage of the steamers with materials and supplies was impossible due to fluctuations in river height. It was argued by some that the works would have progressed more expediently if they had been built in order. In that case, the river would always have been navigable as far as the point where building was proceeding.

With works expanding, it can be imagined that what was one workforce had to increase three-fold as three sites were underway at the same time albeit with a staggered start. Three times the amount of plant and materials, in addition to steamers, barges and dredges had to be provided simultaneously, adding to what had grown to be a very large and complex operation. A nucleus of expert staff, trained under the instruction of engineer Robert Cutting, were sent to each of the next three sites with their foremen or gangers, but many new recruits were also needed.

However, at this time, displaced workers were on the move. Industrial strife had been prevalent in Broken Hill over many years but Broken Hill's greatest industrial battle, the Big Strike, lasted 18 months from May 1919 until November 1920. By the beginning of 1921 there were 5,000 unemployed in Broken Hill, many of whom left seeking work elsewhere including on the River Murray.[25] South Australian workers at the Port Pirie smelter were similarly displaced and miners from Moonta and Wallaroo lost their jobs when the mines closed at the end of 1923. With the end of hostilities on the Western Front in Europe in November 1918, returned soldiers also joined the ranks of men seeking employment on the Murray River Scheme. This made labour supplies plentiful for the work of locking the river.

The men who worked on the locks fell into two categories, either permanent or casual, with the latter group accounting for a significant portion of the workforce. Casual men were employed at peak periods of construction. Assistant Construction Engineer Angwin wrote:

> *The maximum number of men is engaged during concreting operations which may take place at any time during the year. River floods occasionally necessitate reducing hands to a varying degree depending on the height and duration of the flood, the reduction, if any, taking place from approximately July to October, and the demand for re-engaging labour occurring early in the year.*[26]

Lock 1 Blanchetown during construction of second coffer dam circa 1920. Photo taken from flying fox tail tower looking across river to the completed lock, workshops and town.
Photo: SA Water, Book 218 page 014 image 043.

At the end of June 1927 five hundred and twenty six casual-wages men were employed all together at Lock 2, (108), Lock 4, (179), Lock 5, (57), Lock 6, (13), Lake Victoria, (139), Mannum Quarry (22), PS *Industry*, (5), and PS *Captain Sturt*, (3).[27] The core of permanent workers who stayed as a community, moved together to the next location. The following figures from Lock 6 also serve to illustrate labour requirements at the other sites. The average number of men employed during preliminary work (construction of buildings, clearing the site, and receiving plant and material from Lock 5) was 28. The average number of men employed during construction of the main works was 103. The average number of men employed during the whole period of operations at Lock 6 was 80.6 while the greatest number of men employed at any period was 156 and the lowest was five.[28]

Various trades and skills were needed for the many facets of the job and some multi-skilled men were promoted and took on different jobs as the works progressed. Of the 142 workers employed between March 1931 and March 1932 at Lock 7, there were five foremen, ten carpenters, six riggers/pile drivers, 13 enginemen including a motorboat driver and chauffeur, ten firemen, three blacksmiths and fitters, three watchmen, 83 general labourers, three youth labourers, three horse drivers, one timekeeper, one oxy welder and one storeman.[29] In addition to the above, there were the professional engineers, officers and clerks and men employed on the steamers and by contractors for the supply and delivery of stone and timber.

With the completion of Lock 3, the crew and plant moved to Lock 2, at Boggy Flat near Waikerie, where the main preparations got underway about mid-1924. When Lock 9 was completed in 1926, the crew was sent to begin Lock 4 near Bookpurnong, between Loxton and Berri, and when Lock 5 was completed in 1927, a start was made at Lock 6 near Murtho, the last lock within South Australia. Lock 2 was finished at the end of 1927 and some of the men from there transferred to Lock 6. During 1929 and 1930, the crew from Lock 4 went to Lock 7, and the crew from Lock 6 was split between Lock 7 and Lock 8 both of which were near to Lake Victoria. With continued experience, the main core of workers grew more highly skilled as works proceeded along the river.