

Dundullimal's southern cross windmill resurrected

By Richard Wesley

A grant from the Commonwealth Department of Environment and Heritage is allowing the Trust to restore a long neglected 'Southern Cross' windmill, which has been a feature of the Trust's Dundullimal Homestead at Dubbo since the early twentieth century.

As well as reducing the dependence of the property on town water, the soon-to-be-operational windmill will reinstate equipment which has been an integral part of drought management in rural Australia since the turn of the nineteenth century, while also reflecting Australia's links with American product development.

A breakthrough in dry land management

The year 2004 saw the 150th anniversary of the first ever commercial prototype for a

self-governing windmill. Unlike traditional European windmills which had a range of uses, this new technology had one key purpose; to power the pumping of water from deep set wells to an above-ground holding tank. Water stored there could then be distributed to a homestead, or to distribution points for cattle and sheep.

Designed by an enterprising American, Daniel Halliday, the windmill had four wooden blades which turned automatically to face the direction of the wind, with varying pitch to control the speed of the blades. That same year, Halliday organised commercial manufacture of his invention in Connecticut. Thousands of his windmills were sold, helping to bring a change in dry land agriculture which would spread across the world.

Designs changed with the times. In 1867, the Reverend Leonard Wheeler launched his 'Eclipse' design featuring a hinged weather vane or tail, and replacing the pivoting wheel with a solid wheel. By the mid 1870s, metal was replacing the former all-wood construction.

In Australia, this technology enabled farmers in dry areas to operate successfully throughout the latter quarter of the nineteenth century, and into the twentieth.

The first NSW windmill patent was taken out in 1864 by the Melbourne engineer, H W Sharp. Other successful pioneers of windmill manufacture in Australia included Comet in Rockhampton, Queensland (1871), Griffiths Bros & Co, an engineering company in Toowoomba, Queensland (1874) and James Alston in Warrnambool, Victoria (1884).

In 1876 the first order for a windmill manufactured in Australia was placed with Griffith Bros & Co. Although it was difficult for Australian products to compete commercially with those produced overseas for mass markets, a climate of strong competition between the Australian firms produced great technological advancements, with some companies specialising in windmills for particular conditions and usage. The Comet windmill was developed to pump water from the great depths of sub-artesian bores, while the Alston product was renowned for its reliability, due to the enclosing of its gear components in a weatherproof case, immersed in an oil bath.

By the turn of the century, the 'Eureka' and the 8ft 'Southern Cross' windmills – designed, manufactured and sold by Griffiths & Co – were selling in sufficient numbers to ensure their long term future in Australia. Over a century later, the brand name Southern Cross dominated the local production of water pumping windmills.

Head Station for the Dundullimal Run

In 1986 the Trust acquired Dundullimal, an 1840s slab constructed homestead built as head station for a 6,500 hectare squatting run. The actual date of construction is not known, but it is possible that the central part of the house was the 'timber hut' recorded in



Front verandah, Dundullimal Homestead



A delicate task – dismantling the Southern Cross windmill for repairs. Photos courtesy of the *Daily Liberal*, Dubbo.

the 1839 Census, when Dalmahoy Campbell held license to the *Dundullimal Run*.

In 1842 the property passed to John Maughan, who had arrived in the colony in 1828. It is thought likely that it was he who extended the house and constructed the stone stables; perhaps to consolidate his position, or to make a more comfortable home for the arrival of his new wife, Aphra, in 1852.¹

Although the property had fallen into disrepair when assessed by Trust representatives in 1985, they enthusiastically declared it to be ‘the most sophisticated extant slab building known in New South Wales and the oldest extant slab house outside 19 settled counties’.

In 1988, under the supervision of restoration architect, Clive Lucas, and informed by tenacious archaeological investigations by Martin Davies, the property underwent extensive restoration. Among those involved with this work was John Macarthur, former property manager for Ralph (Pat) Palmer who owned Dundullimal from 1962 until his death in 1982.

John Macarthur was able to provide the Trust with a much needed insight into the operations of the property, including the location of irrigation and water supplies. These included a windmill that pumped from the Macquarie River to a header tank (thought to be installed in the 1920s), and an underground sump which collected runoff from the buildings that provided drinking and washing water for the property occupants.

As part of the 1988 restoration and conversion of the property into a house museum, this traditional service was disconnected. Dundullimal was connected to town water as a means of keeping its grounds ‘forever green’ and ensuring a reliable water supply

for the weddings and functions which help to fund the upkeep of the property.

Now, times have changed. Widespread drought, the rising cost of water and the growing need for the sustainable management of natural resources have combined to prompt the resurrection of the long neglected Southern Cross, supplemented with the installation of water tanks.

A tradition maintained

Windmills, irrigation and water tanks still dominate the rural landscape and in regions such as Dubbo, there is still a wealth of experience and knowledge within the pastoral industry.

As luck would have it, John Macarthur (now in his 79th year) was able to offer the benefits of 50 years experience in installing wells and irrigation systems to Ian Morris of Outwest Pumps and Irrigation (himself a farmer who can boast a family tradition dating back to the 1880s). Their collective memories and expertise – and Macarthur’s particular recollections of connecting a water supply from the old windmill to the property – have been invaluable in achieving a working restoration of the Southern Cross windmill.

It is anticipated that the windmill will be operational by the time you read this magazine. A replacement header tank, made from corrugated iron and similar in size to the original is awaiting connection. This will provide a fresh water supply for our animals and visitor facilities.

Funding is also available to enable new tanks to be installed on the boundaries

of the property, to store rainwater from the Stables and Shed which are now used as an education and function centre. As the region is still in drought, this will provide a much needed water catchment supply. With a ‘top up’ system from the town supply, it will help to keep the property’s garden looking beautiful.

Although the Southern Cross and ancillary technology is from the nineteenth century, it is being given a twenty-first century boost. The current irrigation system will be updated to include soil moisture sensors and weather stations to enable optimum water savings.

In addition to the environmental and financial benefits, the project will make it possible to consider reinstating the traditional fruit orchard that ran from the front of the property to the Macquarie River.

Dundullimal Homestead is open every Tuesday. Group bookings are welcome at any time.

For further details, phone Ann Brandon, Regional Property Manager, Dundullimal Homestead (02) 6884 9984. Ann contributed local details to the research for this story.

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¹ Professor Richard Mackay AM, in *reflections* May-July 2004

Unfortunately space constraints precluded publication of a contribution from the Federal Democrats for the ‘federal politics – and the environment’ story in the previous issue of the Trust Magazine. Please see <http://www.democrats.org.au> for further information on the Democrats’ current environmental policies.