

Newsletter of the Australian Society for History of Engineering and Technology

The Dictionary of Sydney; take a look

The Dictionary of Sydney project is an initiative of the Sydney City Council and the University of Sydney that was launched in 2006 with the help of an ARC grant to the University of Sydney of nearly \$1 million. The idea is to present the history of the Sydney area on line in a series of contributed articles. It first went on line in 2009 and has been steadily expanding since then.

Visit the website at www.dictionaryofsydney.org/ to see the scope of the project. The area covered is the Sydney area from the Hawkesbury to Port Hacking and from the coast to the Blue Mountains. The item furthest from the centre of Sydney in the dictionary is probably the one contributed by Ian Jack on Mount Wilson in the Blue Mountains. The articles on the website are short and readable, well suited to browsing, and are conveniently indexed.

There is a distinguished list of contributors. Anyone may offer a contribution, and many ASHET members would readily find an opportunity to make a contribution that would be a worthwhile addition to the dictionary.

Melbourne has a similar project, The Encyclopedia of Melbourne, that you can visit at <http://www.emelbourne.net.au/>



The tourists

**Industries in New England
By Ian Arthur**

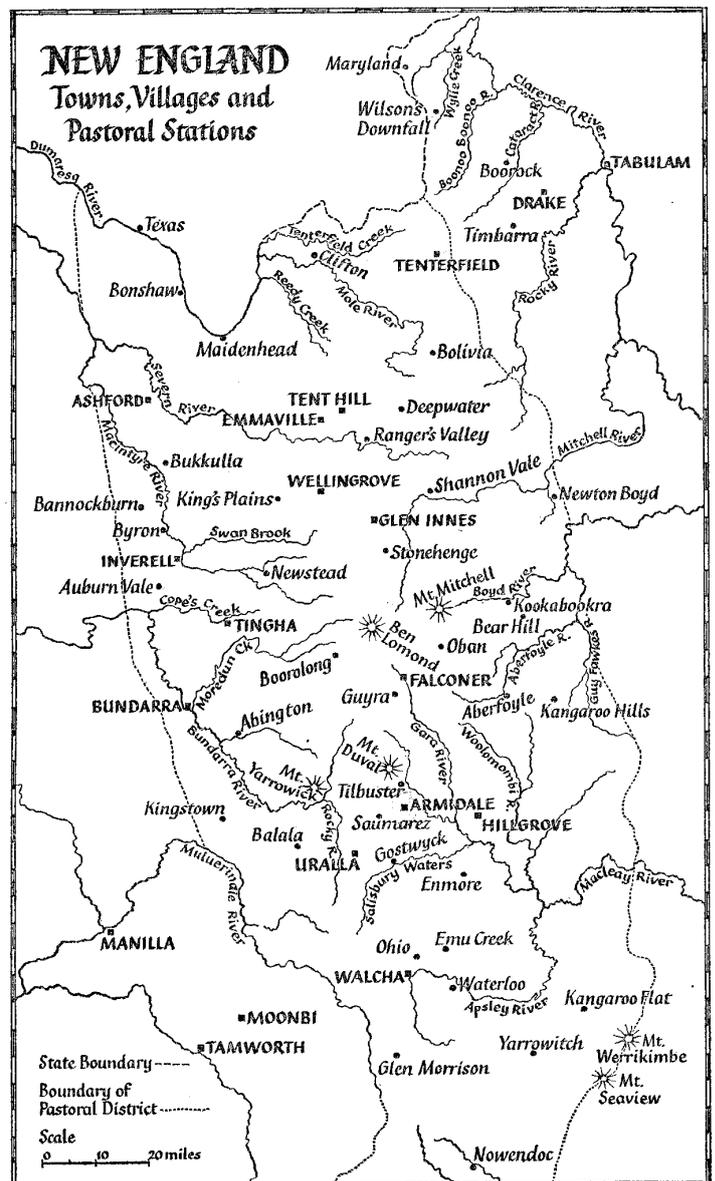
In August this year, ASHET committee member Rob Renew led a study tour for ASHET members and others to the New England area. This article is about some of the places we saw and how they fit in to the history of industries in the region.

New England is not a clearly defined region. The heart of New England is the northern tablelands, with the city of Armidale, population around 20,000, as its major centre. The tablelands extend northwards from the Moonbi ranges just north of Tamworth to the Queensland border, and are bounded on the east by rugged country that is the source of the Clarence, Hastings and Macleay Rivers that flow to the coast. The western slopes of the tablelands are more gentle and are drained by tributaries of the Severn, Gwydir and Namoi Rivers that flow westwards to the Darling. The tablelands are mostly above 800 metres and much of them is over 1,000 metres.

A broader definition of New England includes the western slopes extending to Moree and Narrabri. This article concentrates on the tablelands.

Explorers and early settlement

John Oxley, explorer and surveyor, travelling eastwards from Dubbo, reached the southern end of the tablelands, then followed the Hastings River to its mouth, which he named Port Macquarie. Botanist Allan Cunningham, sent by Governor Darling to explore the interior, travelled along the western edge of the tablelands to reach the Darling Downs in Queensland in 1827. The first settler was Hamilton Collins Sempill, who in 1832 brought his flock from the Hunter valley and settled near Walcha. After that there was a steady stream of squatters coming from the Hunter



From R.B. Walker: Old New England

ASHET events

Thursday 20 October, 2011

Talk by Rosemary Broomham

Sydney's Waterfront Gasworks; their development & technology

Some of Sydney's waterfront gasworks have been replaced by expensive apartments, others have disappeared altogether. An expert in the technology of coal gas production and its social implications, Rosemary Broomham will introduce all the gasworks sites on Sydney's waterways – Darling Harbour, Balmain, Five Dock, Neutral Bay, Parramatta, Manly, Mortlake and Oyster Cove. She will explain the types of production used from 1841 when AGL opened Sydney's first works to the arrival of natural gas in 1976.

This is a joint activity of ASHET and the Royal Australian Historical Society.

Venue: History House, 133 Macquarie Street, Sydney

Time: 5.30 for 6 pm

Cost: \$8.00 Includes light refreshments on arrival

Bookings: phone RAHS on (02) 9247 8001 or email history@rahs.org.au

Tuesday 29 November, 2011

Talk by Ian Jack

Getting to the other side: crossings of the Parramatta River and Toongabbie Creek

The Parramatta River is a navigable arm of Port Jackson as far inland as the city of Parramatta. Because of the relative fertility of the arable land along its banks and further up where it was called Toongabbie Creek both sides of the waterway were settled in the eighteenth century and initially tilled by massed convict labour. The development of Old Windsor Road concentrated the need for crossing-places. As a result, from the earliest days of the colony there was a need to communicate between the two banks of the river and its constituent creeks. This talk will examine the ways in which people crossed the water, by boats, punts, barges, fords, weirs, wooden bridges, stone bridges and eventually railway bridges. Professor Ian Jack has recently been examining Toongabbie Government Farm and will include in his talk the four bridges within a kilometer, which are associated with the convict establishment.

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Other events, not ASHET

Friday, 28 October, 2011

Tour: Discover Newington Armory

Reflecting over 100 years of naval occupation and use, the armory was part of the 1807 colonial land grant to the pioneering Blaxland Family. The original character of the landscape can be seen in the beautiful remnant turpentine ironbark forest and wetlands bordering the site. Get on board the Heritage Train and enjoy an explosive 55 minute trip around the historic Armory Buildings and then a 45 minute walking tour through part of the 52 hectares of urban parkland. Experience how the armaments were stored, transported and protected at what was formerly the Royal Australian Naval Armament Depot (RANAD) for over 100 years and see heritage buildings including the original 1897 gatehouse. Afterwards you can refuel and choose to reload with fresh "munitions" with a caffeine fix or a casual lunch at one of many cafes and restaurants around the Park.

This is an activity of the Royal Australian Historical Society.

Venue: Meet at the Armory Information Booth, Jamieson St, Sydney Olympic Park.

Time: 10am for a 10.30am start

Cost: \$30 per person

Getting there:

Driving: Newington Armory can be accessed via Jamieson Street (off Holker Street), with free parking available at Blaxland Riverside Park.

Ferry: Sydney Ferries operates a daily service between No. 5 Wharf Circular Quay and Parramatta stopping at Sydney Olympic Park Ferry Wharf.

Train: Direct services between Central Station and Olympic Park Station.

Saturday 29 and Sunday 30 October 2011

State History Conference, Maitland, NSW

This is the annual conference for all RAHS affiliated societies. Registrations for the Conference are almost full so if you have been delaying, get on the 'phone right now!

Some of the many highlights include the Hon Robyn Parker, MP, Minister for Environment, Minister for Heritage and Member for Maitland, who will be opening our Conference and awarding Heritage Grants to successful applicants; and keynote speaker Tim Whitford, the acclaimed amateur historian who was part of the 'missing Diggers in the Fromelles' discovery in 2010. But every part of the conference promises a treat. View the updated program and details on the RAHS website. <http://www.rahs.org.au>.

region, where they had been displaced by the Australian Agricultural Company, and taking up land covering most of the tablelands. In 1839 the government gazetted the New England District which included the tablelands but which had no northern boundary. In 1840 there were 66 pastoral licences in the District; in 1842, 34; and 1848, 132. The Darling Downs were separated from the District in 1843, defining its northern border.

The pastoral industry

In our tour, we visited three sheep stations. The first, Gostwyck, was established by Edward Gostwyck Cory, who arrived in the region soon after Sempill. He named it after his grandfather, a Devonshire gentleman. Cory divided the huge area that he had taken up into three runs, Gostwyck, Terrible Vale and Salisbury Plains. In 1834 he sold Gostwyck to William Dangar who in turn sold it to his brother Henry. Cory retained Terrible Vale, but eventually sold it to the Dangar brothers. In 1851 Henry Dangar held all his land under licence, but under the 1847 Land Act and subsequent legislation he and his family were able to buy land, and they did so on a large scale. In 1885 parts of their holdings were resumed for closer settlement, and this process continued over the years until 1959, when the remaining family holding was 12,300 acres, in two properties, one retaining the name Gostwyck, and the other, the one that we visited with the famous woolshed, named Deeargee, from letters of the words **Dangar Gostwyck**.



Woolshed roof, Gostwyck



Shearing machines, Gostwyck

The grandiose woolshed was built in 1872, to replace a modest 1851 woolshed destroyed in an arson attack, and included a distinctive octagonal shearing shed. When it was built, 75,000 sheep were being washed and shorn on the property. It was modified in 1889 when 27 Wolseley shearing machines were installed. The woolshed is still in use.



Saumarez homestead



Saumarez farm buildings

Our next sheep station visit was Saumarez, near Armidale, which dates from the 1830s, when it was established by Henry Dumarasq. On his death it was sold to H. A. Thomas who increased the estate with land purchased from the government. In 1874 it was sold to Francis White, whose son Francis John White developed it into one of the largest rural properties in the region and who built the impressive two storey 30 room homestead between 1888 and 1906. The National Trust, which now owns the property, has ensured its preservation with original furnishings. It is surrounded by a well-preserved landscaped garden, and a set of farm buildings dating from 1910 and containing 19th century tools and equipment.

The third station property we visited was Newstead, near Armidale. It was settled by Dr. Colin Anderson and his wife Mary Sinclair, who arrived from Scotland in 1839. The homestead building dates from 1841. Their son Duncan was a close friend of artist Tom Roberts. The shearing shed, its surroundings and identified local people who served as Roberts' models were the inspiration for three of his paintings, *Bailed Up* (1995), *In a Corner on the Macintyre* (1895) and *The Golden Fleece* (1894). The buildings fell into disrepair over the years but have recently been conserved by the efforts of the Historic Houses Trust, the Inverell Shire Council and local people, assisted by a NSW government grant of \$180,000.

These three stations are outstanding examples of the ones that controlled most of the land on the tablelands, making it one of the major wool-growing areas in the country. In 1918, at the time the sheep industry

reached its peak in New England, there were around 2,000,000 sheep in the region. Since then the number of sheep has declined and the number of cattle has increased.



Inside the woolshed at Newstead



Cattle sale at Glen Innes, 2011

Wheat growing and flour milling

In 1861 when the Robertson Land Acts were passed, most of the land was taken up by large sheep stations and New England was not growing enough wheat to even support the local population. There were seven small steam mills in the region, mainly on the larger stations such as Gostwyck. Under the Acts, most of New England became available for free selection in blocks of 40 to 320 acres, for purchase on generous terms, with conditions that required the land to be cleared and developed. This encouraged agriculture as opposed to grazing. By 1869 there were 15 steam mills, and the region was more than self-sufficient in wheat. McCrossin's mill at Uralla, built in 1870, was one of the largest in the region. At the time Uralla already had two flour mills. The rush of miners to the newly discovered tin fields in 1872 raised hopes that wheat had a great future in the region, but the hope was short-lived, although the mayor of Armidale claimed in 1878 that the extension of the railway would make the city the centre of a great wheat-growing district. In fact the railway did the exact opposite. It facilitated the import of wheat from South Australia. Cool climate New England wheat was inferior in milling quality to South Australian wheat, and also South Australia was introducing roller flour mills which produced better flour than the

traditional mills that used stones for grinding. The industry in New England was in decline by 1880 and in 1889 there were only eight mills operating in the region. McCrossin's mill closed in the 1890s.

The first reaper and binder reached the region in 1878, too late to save the industry. The stripper harvester followed soon after, but proved unsuited to the crops being grown in the cool climate and poor quality land of the tablelands. The land on the western slopes around Inverell proved more suited to wheat growing and the use of the stripper harvester, and wheat growing was competitive in this area until the early twentieth century. The Millennium Mill at Inverell opened in 1914 with modern equipment and its own electricity generator. Even from the time it opened it struggled to obtain sufficient wheat to operate at full capacity and it consumed practically the whole of the area's production. Nevertheless its equipment was kept up to date and in 1948 it was considered one of the most modern plants in NSW. A fire in 1949 destroyed part of the mill. The company was covered by insurance and considered rebuilding, but decided to close.

Road and Rail

The pioneers, mostly in search of grazing land, reached New England from the south, over the Moonbi Ranges. The track they took eventually became the Great North Road, extending via Armidale and Glen Innes to Tenterfield, and eventually to the Darling Downs and Brisbane. During the 1830s there were attempts to link New England with the coast, and by 1846 there were several established tracks, but for the transport of wool and supplies they never replaced the original track via the Moonbi Ranges.

Coach and mail services were established during the 1840s, and by 1860 John Gill, originally a squatter, had a profitable network of coach routes in the region. These were taken over by Cobb and Co. in 1871 and linked New England with the railway at Aberdeen, and later Tamworth. The last coach ran from Glen Innes to Tenterfield in 1886, superseded by the railway.

Tamworth was reached by rail in 1880. Even before this, there was much interest in the route the railway would take through the tablelands. Linking the state capital cities was by this time a short term goal as the state railway systems extended towards their borders. The Queensland railway from Brisbane was heading towards Warwick in the Darling Downs and it was clear that the NSW and Queensland systems would meet somewhere close to Tenterfield. The easiest route through the tablelands was via Inverell, avoiding the Moonbi Ranges. A trial survey of this route was made in 1874. A route via Armidale was not even being considered 'owing to the rough nature of the country... and (its) unproductive character'. This predictably aroused the ire of the tablelands squatters who believed that Armidale, the largest centre in the region, deserved to be on the main line, not a branch line from Inverell. Amid growing hostility, a decision was made to proceed by a route that bypassed Armidale by 8 km. and reached Tenterfield via Glen Innes. The route was changed later to pass through Armidale.

Some Inverell people wanted a railway to the coast at Grafton via Glen Innes, and this was part of a grandiose plan presented to parliament



Timber truss railway bridge on the northern line

by the colonial treasurer George Dibbs in 1884. A survey was made in 1882 confirming that the link would be a very expensive one. In 1884 a bill for a line from Grafton to Inverell passed the lower house, but was rejected in the upper house. This was partly due to a fear that such railway might benefit Queensland more than NSW.

To the south, Albury had been reached in 1880, and the Sydney-Melbourne link opened with much fanfare in 1883. The government's attention was now focused on completing the northern route, including the link between Sydney and Newcastle. The railway from Hornsby to the Hawkesbury was completed in 1887. To the north, the railway reached Glen Innes in 1884 and the line to the Queensland border at Wallangarra was completed in 1888. In 1899, weeks before railway engineer John Whitton was forced into retirement through ill health, the final link in the northern railway, the bridge over the Hawkesbury River, was opened.

Inverell finally got its railway in 1901, a branch line running eastwards from Moree. This made Inverell the longest NSW rail journey from Sydney, 509 miles, slightly further than Bourke, 503 miles. The passenger journey from Sydney took just over 24 hours, leaving Sydney at 7.20 pm and arriving in Inverell at 7.45 pm the next day.

The railway to Inverell is now closed, as is the main north line beyond Armidale. The attractive station buildings in several of the towns have been well preserved and new uses have been found for some of them.



Glen Innes railway station

Mining industries

Gold was discovered at Rocky River near Uralla in 1851; prospectors and miners from around the world soon arrived to work the alluvial deposits. Early in 1856 some rich underground deposits were discovered there and the population reached a peak of 4,500 in September of that year. Production for the year was 40,000 ounces, 22 per cent of the colony's total gold production. Ten years later the population had dwindled to 700, of whom almost half were Chinese. After this several companies hopefully invested capital, without much success, and the field was entirely abandoned by the end of the century.

In the 1850s and 1860s gold was discovered at several other places in the tablelands, notably at Bingarra where there were nearly 2,000 people at the height of activity in 1861. Smaller amounts of gold were mined at Drake and Timbarra near Tenterfield, and at Nundle, Bear Hill, Baker's Creek and nearby Hillgrove. Hillgrove, with peak production in 1889 was the most successful, yielding over 300,000 ounces of gold. Gold prospecting and mining in the region petered out after a few more years of declining production.

In 1853 the Rev. W. B. Clarke, considered an authority on minerals, reported finding tin in New England and suggested that it might be plentiful in the region. But it was not till 1872 when discoveries of alluvial tin led to a flurry of activity. Substantial amounts of tin were discovered at Vegetable Creek, now Emmaville. Thousands of Chinese and Australians camped on the creek and extracted 15,000 tons of tin. Deep shafts produced another 6,000 tons. Tin was soon discovered elsewhere in the region and in 1873 it produced more tin than any other

region in the world. John Moffat, a Scot, established a tin smelter near Emmaville. The towns of Emmaville and Tingha owed their prosperity to tin mining, all of which has now ceased.

We visited the site of the Ottery mine near Emmaville, to view the remains of mining and a tin smelter constructed in 1882. Operations ceased in 1906 following a fatal accident, but resumed in 1921 when an arsenic extraction plant was constructed and its remains could also be seen. It closed in 1929 and reopened in 1931, but closed permanently in the face of competition from imported arsenic.

Small Industries in New England

New England has no large industries other than grazing, unless you count education as an industry. If you do, the University of New England, at Armidale, is a large industry, with around 13,000 external students and 4,000 internal students, including 500 studying for PhDs. It was established in 1938 as a College of the University of Sydney and became independent in 1955.

In our tour of New England we visited a selection of interesting small industries. The first was Nundle Woollen Mill. It was established in 2001 but almost all of its machinery is old, some nearly 100 years old. The mill makes 8 ply, 12 ply and 20 ply yarn in a wide variety of colours.

Most of the machinery came from a small mill in Tamworth when it closed. Its owner had purchased much of its imported machinery from J L McGregor's mill in Geelong. The first operation at Nundle is 'opening', preparing the scoured wool for carding. The Opener at Nundle was built by Tomlinsons at Rochdale, England in 1916. The Carding Machine was built by the Platt Company in Oldham, England in 1916 and came from Geelong. It produces a fine web of fibre of constant weight and evenness called 'slubbing' ready for the next machine, the Spinning Frame. The Whiting Spinning Frame was made in America in the 1950s. It draws the fibres out the required thickness and twists them to provide strength. The Dandy Rover, built in England by Prince, Smith and Stells in 1938, has been adapted to twisting three or more threads to produce 8, 12 and 20 ply yarns. The German Hank Reeling Machine built by Croon and Lucke winds the yarn into hanks or skeins ready for sale or dyeing. After dyeing further machines wind the yarn on to cones ready for machine knitting or into balls for home knitters. The company plans to acquire and recondition further machinery for producing a variety of blended yarns.

We visited Banalasta at Bendemeer, where Rolf Blicking established



Nundle woollen mill

a 150 hectare eucalyptus plantation in 1996. He distils eucalyptus oil and also lavender oil from two hectares of lavender on the property. Also at Banalasta is the Blicking Estate winery on which the first grapes were planted in 1999. At 950 metres, it is one of the highest vineyards in Australia, one of around 40 small vineyards in the New England region. It grows a range of red and white wine grapes and markets the wine under the Blicking Estate label.

In Uralla we visited the former foundry that has just opened as a museum. It was established in 1870 by an English engineer, Henry Goddard, who had settled in Uralla after installing the machinery at



Old foundry museum at Uralla



New Phoenix Foundry at Uralla

McCrossin's Mill. The New England Foundry commenced operation in 1872. In 1876 it cast the largest bell ever made in the southern hemisphere. The bell still hangs in the belfry of St. Joseph's Catholic church in Glen Innes. The foundry was the only one between Maitland and Brisbane, and catered for the needs of the mining and milling industries as well as making most of the iron lace and columns for the region. After Goddard died, bankrupt, in 1896, Christopher Young, a German blacksmith, who had changed his name from Zung, bought the foundry machinery and relocated it to its present site in 1900. Young had been a blacksmith in Uralla since 1876 and he moved his forge to the new foundry site. At the foundry, which he named the Phoenix Foundry, Young specialised in making iron lace, and the foundry still has a large collection of the wooden patterns that he used. The iron lace business came to an abrupt end with the First World War, and after that the foundry did a variety of jobbing work. Les Young, Christopher's son, continued to run the business until 1976. After that it struggled to survive and passed through several hands. The present owner Kerry Varley purchased the buildings and all the equipment to establish the museum.

The name Phoenix Foundry was transferred in 1983 to a new foundry down the road. It is equipped with modern machinery for making bronze plaques, of which it is one of only two manufacturers in Australia. We were able to see it in operation.

In Deepwater we visited Trethewey Industries. Reg Trethewey founded the engineering company in 1977. Since then it has built over 6,000 wool presses. Now its main product is the Autobaler. This is a

machine specifically designed for automatically baling cardboard cartons for recycling. It is completely automatic and requires no operator. Empty cartons are simply tipped into the bin at the top of the machine, which compresses them into bales ready for removal and recycling. The main users are supermarkets and other establishments that have large numbers of empty cartons to dispose of. There is a range of different sized machines. They are now being exported world-wide, and the company is looking for opportunities to design balers for local manufacture in overseas countries. The company not only makes the machines but has also designed and produces the electronic hardware and software that operates them.



Trethewey Autobaler



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