

Scouring the Clip: Boom and Burn on Woollscour Lane

ROGER D. CUMMINS

This paper is based on one presented at the Bicentennial Conference of the Australian Society for Historical Archaeology held in Sydney in 1988. One of the themes of that conference was innovation and adaptation on Australian sites, and this paper examines the transition and survival of old techniques in a developing industry. The author, who is with the Museum of Victoria, explores the wool industry in Geelong with particular reference to its noxious industries. He argues that size and versatility was the key to the survival of manual wool-processing techniques in a centralised industry. He discusses the role of manual and automatic processing systems, technological innovation, and international, political and economic factors to explain how some businesses adapted to changes in the industry, while others survived without adaptation.

INTRODUCTION

Considering that wool has been a major export commodity for over 150 years it is surprising that so little has been written of the industry's history in Australia, or of the way it operated after the Macarthur phase. Archaeologically there have only been two investigations into the wool trade, one by Graham Connah,¹ and the other by Michael Pearson.² It is perhaps the perceived lack of change that has precluded systematic historical or archaeological study. Yet the very fact that the wool-processing trade existed well into this century using centuries-old techniques would seem to be an interesting point to investigate.

The development of wool in this country began with the First Fleet and quickly blossomed when the pastoral lands beyond the Blue Mountains were found and made available for settlement. Macarthur's vision of wool as a colonial staple can be understood when he noted that Sydney was:

... a petty population established at so vast a distance from other civilised parts of the globe that it would have no prospects of succeeding except by raising as an export some raw material which could be produced with little labour, be in considerable demand and be capable of bearing the expense of a long sea voyage.³

The quickly proven record of wool as a good export made it an admirable starting commodity when settlement occurred in other parts of the continent. The industry soon became of national importance and has remained so since the 1850s.

The effect of the new importance of wool was to create a need for centralised processing areas to channel the wool to overseas markets. Geelong was one such processing town. Founded in 1838, it serviced the tablelands behind Geelong, the stations west to Hamilton and later the Western District stations. Geelong relied heavily on the flow of wool through the port, and consequently prospered and suffered when the market fluctuated, which it frequently did. Because of this reliance it is an ideal place in which to investigate the effects of a boom-and-bust economy.

WOOL IN GEELONG

As wool flowed through the city there was an equal need for the industries associated with its processing: brokers,

woolscourers, fellmongers, tanners and textile manufacturers, although the latter only appeared in Geelong in the early 1870s. Industry in Geelong was extremely interdependent; without the brokers hustling the wool-growers for custom there was little work for the contract scourers, fellmongers and tanners. There was intense competition between Geelong and Melbourne, although Geelong was always a regional centre compared to Melbourne in terms of bales offered and sold every year.

Many brokers realised the importance of maintaining the annual sales in Geelong and stressed to growers in their annual prospectuses that shipment to Geelong was better than shipment to Melbourne. One broker's circular pointed out that it was cheaper to ship buyers to Geelong than wool to Melbourne. However, many growers preferred to expend the extra cost of shipping their clip to Melbourne in the hope of recovering the transport costs in the more competitive Melbourne market. It took many years for the Geelong brokers to convince the growers that Geelong was as competitive a market as Melbourne. Another broker even negotiated with the Western District Railways to gain concession shipping rates for their growers, and from 1872 to beyond the turn of the century it was always cheaper to ship wool to Geelong than to Melbourne.⁴ Handling costs and brokerage fees were also cheaper in Geelong which led to increased business for the processing industries.

WOOL-SCOURING TECHNIQUES

The practice of washing wool to remove the impurities from a fleece has been recorded for several hundred years. There have been many variations on the task, often adapted for particular environments and requirements. An early method was to wash the wool while still on the sheep's back. However, it was found particularly in arid, dusty areas that during the drying time, usually two days, the fleece picked up paddock rubbish and acted as a magnet for dust. So the shearing and scouring times were reversed and the wool was taken from the shearing shed to the scour and washed prior to transport. Station-based scouring, like that practised at the Mount Wood Station near Tibooburra and the Saumarez Station near Armidale, had many variations largely dependent on the nature of the water supply.

An idea of the chemical process involved can be given in a brief outline. Wool fibre is covered with a protective wax

made up of fatty acids, principally cholesterol and lanosterol (the raw substance of lanolin) and water-insoluble alcohols. This wax is covered with a wool grease known as suint which is primarily made up of potassium salts and a complex mixture of organic and inorganic acids soluble in water between 43 and 54 degrees C.⁵ Because early methods of washing wool used cold water they were ineffective and only removed the sand and some vegetable matter. However, methods soon progressed and systems for washing wool in hot water were developed. The most widely practised method of hot-scouring used a large container, usually a metal shipping container cut in half, and a water heating tank located close to the scour tank. In the hot-scour alkali detergent was added to the water to make the 'liquor' and wool was dumped in after the soap had dissolved. After being agitated for a sufficient time, a period judged by the look of the wool, the bundle was rinsed. There were two methods of rinsing, either directly in the creek or using a rinsing tank construction, known as a Williams Box. This was a concrete tank usually 0.5 to 1 metre in depth which supported a wooden platform with circular holes cut into it to allow the wool to be swirled around. At Mount Wood a typical Williams Box was used which rinsed the wool in warm water, thereby helping rid the wool of any vestiges of grease. The Williams Box method was particularly valuable on station properties because the water could be recycled.⁶ To wash wool in a hot-scour, then rinse it in the creek was known as 'pot-sticking'; this type of scouring was practised at the Saumarez Station.

Once scouring on stations became a regular part of harvesting the clip it was not long before contract scourers, like shearers, travelled the pastoral region at shearing time and supervised the scouring of a station's clip. It became a recognised trade, for it was realised that different breeds

and finenesses of wool retained different amounts of foreign matter and exuded differing amounts of grease and, therefore, required varying scouring times. The expertise was in the judgement of how much of the wool wax had been removed from the fibre. Too much and the fibre became brittle and liable to break during later processing. Too little and the wool would not handle properly in processing. The judgement of these factors became a professional matter and formed the basis of the scouring trade.

The transfer of scouring from the station to the wool-processing town was caused by several factors. One of the most important was transportation. Before the advent of rail, wool was shipped by dray, camel or steamer and transport fees were charged by weight. Since the difference in weight between greasy wool and scoured wool can be as much as half the greasy weight, the advantages in scouring the clip prior to transport are evident. However, when railheads were extended into the pastoral regions the railroad companies' transport charges were by volume of wool rather than by weight. Consequently, there was little to gain by scouring the fleece at the station.

The transition to town-based scouring was also aided by better working conditions, the most important being a constant and reliable source of water. Town-based scouring became more popular with buyers because the work tended to be of better quality owing to the more controlled conditions and, gradually, increased knowledge of the properties of wool. Nevertheless, the methods remained the same. It was not until the late 1880s that mechanised scours became commercially available in Australia. By this time much of the national clip was being processed in industrial centres that could handle the wool more efficiently and with better results.

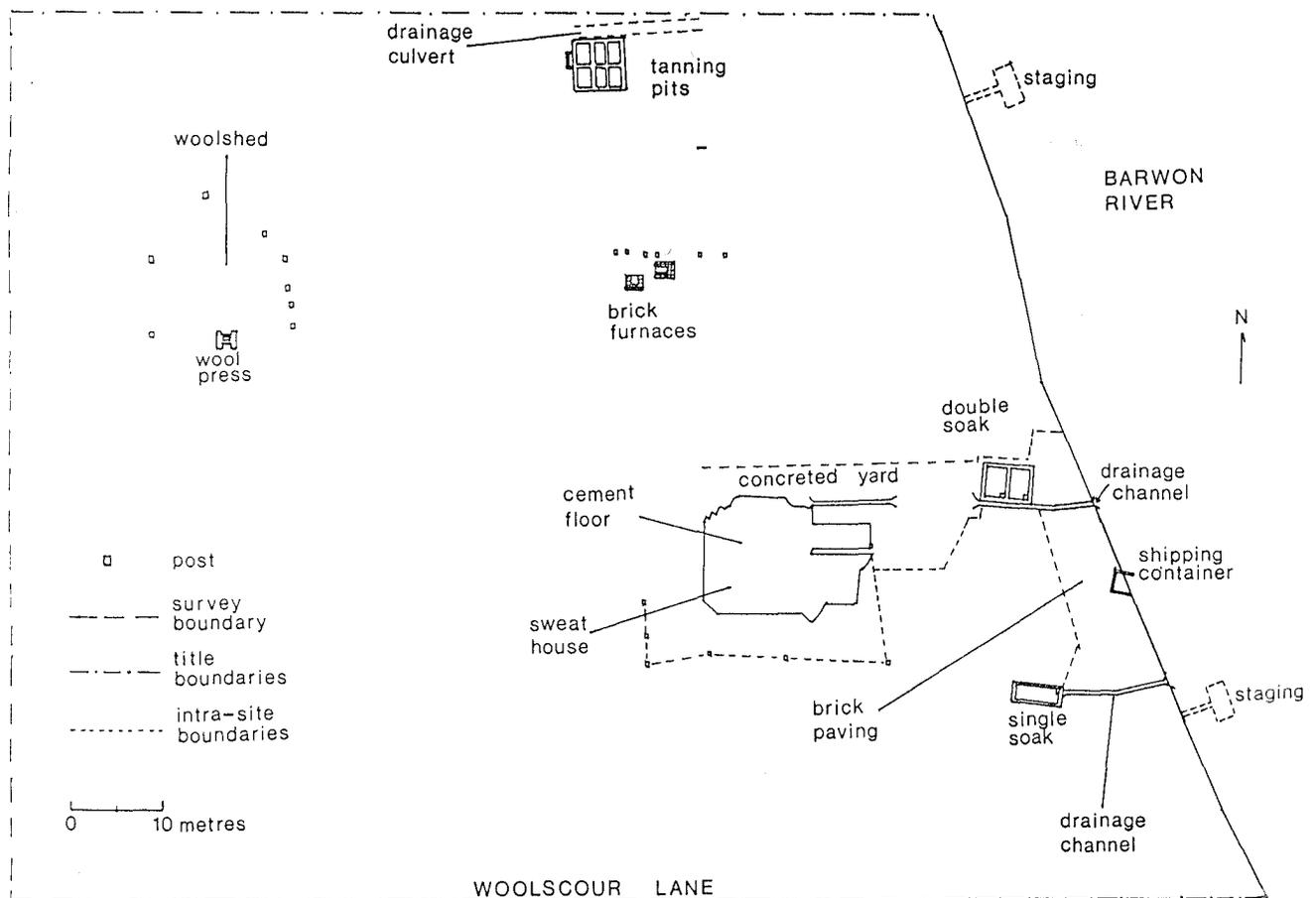


Fig. 1: Plan of the Woolscour Lane site

SCOURING IN GEELONG: ARCHAEOLOGICAL AND HISTORICAL EVIDENCE

In Geelong the Barwon River was the obvious choice on which to create an industrial centre for processing wool. Accordingly, when the industry boomed in the 1850s many small businesses began commercial operations on a part of the river below the principal town water main, in an area known as Breakwater, prescribed by regulations governing noxious industries. The case site for this paper was located in this area and began operations in 1868. It remained operational variously as a woolscour, fellmongery or tannery until 1953 when it burnt down and was not rebuilt.

A site survey and surface investigation revealed trade appliances which are the only remaining remnants of the several businesses of this type once operating on this part of the river. The area was prone to flooding and the silt levels over the site were high; consequently the vegetation was extremely dense. However, it became apparent that there had been very little modification or upgrading of the site. No evidence was found of occupation before the first woolscour was built in 1868. The historical records revealed that the Breakwater area had been subdivided by 1847 the year when the first noxious business, a candle making and tallow plant, is recorded. The earliest surviving survey map is of 1854, and shows the land subdivisions adjacent to the Barwon River on both sides. The block on which the Woolscour Lane business is located was designated Crown Land, and was probably used for grazing. However the proximity to the river and hence the risk from flooding would have been a danger to stock.

Artefacts surviving on site comprised the hot-scour tank, which was in fact a sectioned shipping container, the remains of two brick furnace stands, two soaking pits, a set of tanning pits, the base of a wool press, and several posts and post-holes. An aerial photograph taken by the Department of Survey and Mapping in 1947 revealed that there were five sheds on the property. When scaled, the shed positions closely matched the *in situ* locations of the posts and post-holes, although the scale and resolution of the photograph prohibited an exact reproduction of their measurements and placement.

The brick furnace stands are 1.5 m long, 1.3 m wide and 700 mm high, and 1.6 m long, 1.2 m wide and 300 mm high respectively. Both have an open centre and stoking hole. They are of different construction; the large one is rectangular, while the small one has a circular fire pit. There are two sets of pits, one a double and the other a single soak. The double soak is a brick construction approximately 4 m long, 3 m wide and 400 mm high with each soak containing a drainage pipe emptying into a common channel which flowed into the river. The single soak is a cement-rendered rectangular construction approximately 4 m long, 2 m wide and 600 mm high with a drainage hole and pipe in the eastern wall, which also flows down to the river. The set of tanning pits is composed of six cement-rendered compartments with recessed slits in the walls of each to support planks on which the hides were rested. A collapsed cement floor and apron and supporting joist-work indicate the site of one of the sheds. The shed at the rear of the block appears to have been a two-storey shed in the style of a woolstore with evenly spaced supporting posts (Fig. 1).

The Woolscour Lane business began operating in early 1867 as a woolscouring plant under the ownership of Foster Marshall, woolscourer by profession and notable figure of the local area. It appeared that he also concurrently practised fellmongery, for when he sold the business it was referred to in the columns of the Geelong Advertiser as '... the fellmongery establishment formerly owned by Mr

Foster Marshall'.⁵ The soaking pits, brick furnace stands, sweat house and woolshed date from this period (Fig. 1).

When Marshall sold the business in 1875 he had developed it into a pot-sticking woolscour with the necessary devices to practise fellmongery as well. The next owner, James Munday, was a tanner and made some additions to the site by erecting the set of tanning pits close to the northern boundary. He specialised in producing fine quality leathers – morocco, kid and roan – using innovative and uncommon tanning techniques.⁷ It is almost certain that he would have used the skin-soaking pits built by the previous owner for parts of the tanning process.

The most widely used method of tanning in Australia was vegetable tanning which lasted well into this century before being largely replaced by chrome tanning.⁸ Vegetable tanning using wattle bark was practised by all six tanning establishments in Geelong, although it appears that the tannery operation at Woolscour Lane explored different ways to tan leather using such items as alum, shumac, terra japonica, salt, flour and eggs.⁹ The other five tanneries were large and capable of producing 600 to 1000 hides per week, making hard leather for harness and industrial use.¹⁰ From the size of the extant features Munday's Woolscour Lane tannery could probably only produce up to 100 hides per week. However, the quality of the finished product moved one reporter to say:

'... he [James Munday] seduced the services of Mr Beardon, a most experienced man, erected a new dyehouse and set to work with such a will that on Thursday when our reporter visited the place, he found it small perhaps but certainly complete, and was shown leathers that he could hardly have imagined, had he not seen them in all their stages, had been made in the colony.'¹¹

Munday leased and eventually sold the property, and it passed through a succession of fellmongers and wooolsourers until 1953. The block of land was subdivided in 1897, creating a small parcel of land abutting the lane, and extending for 90m (297 feet) back along the laneway. Although this represented nearly half the lane frontage of the block, it was only 12m (40 feet) wide. On this small

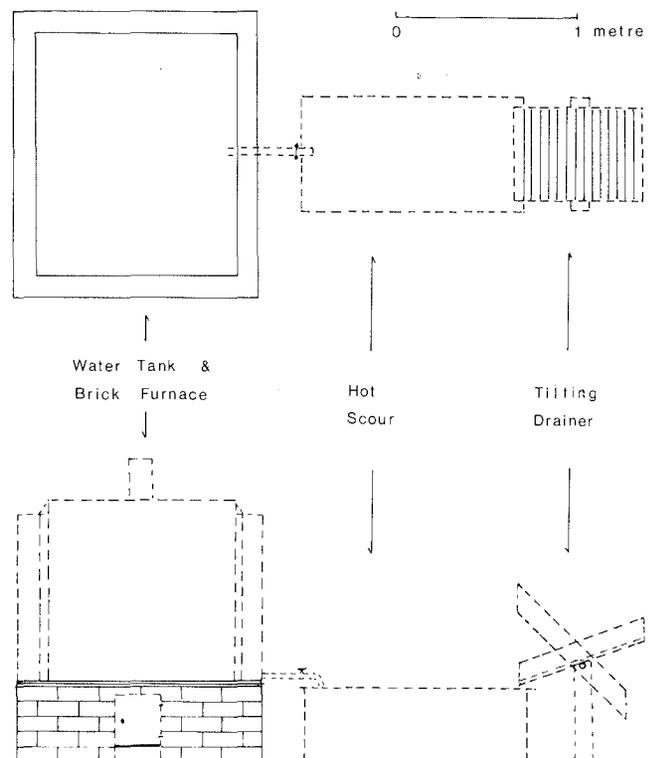


Fig. 2: Reconstructed hot-scour and drainer

block a fellmongery business was carried out until it too closed in 1953 as a result of the fire.¹²

All three trades were carried out on the same site, often concurrently, as they used the same appliances, tools and raw materials, and were found in close proximity to each other throughout Australia. This particular business was unique in Geelong as it was the only woolscouring firm to use a manual washing system well into this century.

THE BUSINESS RECONSTRUCTED

Woolscouring

From the standing remains and historical evidence it is possible to reconstruct the design of the hot-scour and the operations conducted on the site. From the broker or buyer wool arrived by truck or dray, having come down the appropriately named Woolscour Lane. The business was equipped to operate using the pot-sticking method which it retained throughout its operation.

In this system, the same previously described hot-scour arrangement, a hot-water tank and shipping container were used. The bales were opened and the wool bundled into the hot-scour at about six kilos a time. It appears that there were two hot-scours, a large and a small one. After the hot wash the wool was heaved into a tilting drainer where the run-off was allowed to run back into the tank (Fig. 2). From the drainer it was dumped into a wheelbarrow and moved to the water's edge. It is the rinsing process in this method that is peculiar to pot-sticking. The rinsing took place in the river off floating staging. A short catwalk from the riverbank opened onto a wooden platform 1.5m square, supported by several empty 200L (44-gallon) drums, like a pontoon. Lashed to the side of the platform were four or five perforated metal crates measuring 1.8m long, 700mm wide and 700mm deep. The wool was forked into the crates and rinsed using a long flat-ended pole in a swirling motion (Fig.3). When the wool was considered clean, it was forked onto the platform to drain. From there it was taken back to land and laid out to dry on hessian sacking. Alternative methods of drying used mechanical driers of varying types. It was a remarkably simple operation and obviously successful, so successful in fact, it outlasted all the other firms' operations in the area except one. At any one time until the Second World War there were at least half a dozen woolscourers in Breakwater.

Fellmongering

When the business operated as a fellmongery the skins were laid in the soaks and the pits filled with water. The water swelled the skins and made them supple and pliable. After two to 48 hours, depending on whether they were pre-dried, they were ready for sweating. In the sweat house the moist skins were draped over beams where they were allowed to decompose gradually over a period of about two days, at a temperature of about 30 degrees C (Fig. 1). The follicles of the skins expanded which enabled the wool to be brushed off without damaging the skin of wool. There was another method of separating the wool from the skin by painting the skin with a paste of sodium sulphide or calcium hydroxide (slaked lime). Although this was faster than sweating, it was not a common method as it discoloured the wool if the two came in contact, and often made the wool fibre brittle. In addition, the paste was extremely strong and burnt the hands of the workers if unprotected. Once the wool had been separated from the skins the wool became part of the woolscouring process, and the skins were either used for tanning or burnt as fuel for the hot-scours.

Tanning

When the site was used as a tannery the soaking pits used in the fellmongery process were the preliminary soaks for the hides prior to their being placed in the tanning pits at the northern end of the site. The shed that housed the sweat house was used as a preparation and currying room. Here the skins were scraped of their excess fat and hair prior to the tanning process. The excess material often was sold to tallow makers and plasterers, although whether it occurred at this site is unknown. The hides were then put into the tanning pits and immersed in whatever solution was being used at the time. The tanning process could take up to six months depending on the intended use of the leather. To ensure even tanning action the hides were shifted and re-distributed at regular intervals. When the hides were tanned they were taken back to the main shed to be curried. In this part of the process the skins were scraped to the desired thickness, oiled to make them supple and finally pummelled to make them pliable.

DISCUSSION

It was apparent that the economic changes and introduced technologies from 1850 to 1950 had not greatly affected the working operation of the site, and consequently had not been reflected in the archaeological record. The reason for the long success of the Marshall-Munday establishment was that it was a small business operating with a flexible manual system which could readily adapt to varying economic conditions. It was labour- rather than capital-intensive. For most woolscourers who used a manual washing system there was little financial outlay beyond the acquisition of land. At this business in the later years there were only half a dozen employees, and because they were paid piece rates they could be laid off when demand was low and supplemented with extra labour during the high season.

Many of the other operators in this area came after the introduction of new technologies, principally the appearance of mechanical scours, and invested in them in times of increased prosperity and market stability. However, when the boom times declined and were replaced with the depressions of the 1890s and 1930s, which reduced the amount of buying and therefore scouring, those with expensive machines were caught with idle investments. If times were particularly severe and operators could not survive by fellmongering and had to close, it was impossible to recoup the investment. By using a manual system the Woolscour Lane business could tailor its processing capacity to market condition by reducing the number of employees, and could close down in times of severe depression without the degree of cost incurred by others. The relationship between labour and machinery costs was obviously an influencing factor in the retention of a manual system.

Although businesses like the one on Woolscour Lane occupied a low niche in the overall picture of industrial Geelong, they played an important role by catering to the needs of overseas buyers and local textile mills for scoured wool. For the most part they were at the bottom end of the market, picking up the scraps of the annual clip and the occasional overseas buyer's contract. The change from being a woolscour to becoming a fellmongery, even operating as both simultaneously, could be made without significant expenditure, and provided a flexibility not available to larger establishments which had invested in mechanical scours.

The demise of so many businesses in this area resulted from a long-lived inflated payment system which operated throughout the industry in Geelong.¹³ It appears that the buyers, processors and woollen mills operated a subsidising



Fig. 3: Woolscouring on the Barwon River

system where each business in the chain of wool processing paid and passed on an inflated market price for the wool. However, in times of economic stress and tough overseas competition the market could not bear these inflated costs, and had to pay true market price, thus forcing many operators to close. In an effort to stem this demise the industry also set up an informal delayed repayment scheme. This operated at some woollen mills which closed in the 1890s. The mills received wool from the brokers or scourers, and delayed payment until they had converted some of the wool into cloth and sold it. The payment received from the sale was immediately passed on to pay the debt of the original purchase. By operating in this manner certain mills had no extra capital for improvements or expansion, and eventually went bankrupt. Businesses like the one on Woolscour Lane were able to survive because of their small size and versatility. The fact that it changed hands six times and was not up-graded either confirms the success of the manual system, or suggests that the property may have been a marginal investment made by people who had larger interests elsewhere on the Barwon River.

Although the Woolscour Lane business appeared not to have reflected many of the economic changes from an archaeological point of view, it was probably just as sensitive to both regional and global events as any of the

larger establishments because the industry was so highly interdependent. Global events such as the Franco-Prussian War, where the need for uniforms created a greater demand for Australian wool, undoubtedly increased the amount of scouring done in Geelong.¹⁴ Yet the fact that neither the positive impact of increased demand nor the negative one of economic depression can be seen in the archaeological record is a testament to the versatility of the scouring system.

CONCLUSIONS

The movement of scouring from station properties to towns was as much a result of the development of an export industry as it was of better transport. Travelling scourers became town operators working on a contract basis. The need to centralise the processing of wool prior to export resulted in the growth of towns like Geelong which flourished with the development of a regional industry. Moreover, the transition and survival of scouring from stations to towns, using the same techniques and employing manual labour, is a good indication of the value of simple processes in a boom-and-bust industry.

NOTES

1. Connah, G. 1977, 'Wool, Water and Settlement; the archaeological landscape of Saumarez Station', *Armidale and District Historical Society Journal*, 20:117-127.
2. Pearson, M. 1984, 'The excavation of the Mount Wood Woolscour, Tibooburra, New South Wales', *The Australian Journal of Historical Archaeology*, 2:38-50.
3. Cummins, R. 1987, *Scouring the Barwon: an investigation into the operation of a woolscour and fellmongery on the Barwon River, Geelong*. Unpublished B.A. Hons thesis, LaTrobe University, Bundoora, p.5.
4. Cummins, 12.1987 p. 13-14.
5. Cummins, 12.1987 p. 68-70.
6. Pearson 1984 p. 48.
7. Cummins 1987 p. 86.
8. Birmingham, J., Jack, I., Jeans, D. 1979, *Australian Pioneer Technology*, Heinemann Education, Melbourne, p.145.
9. *The Geelong Advertiser* 7 Feb 1873 p. 2-3.
10. Cummins 1987 p. 28.
11. *The Geelong Advertiser*, 7 February 1873 p.2-3.
12. Cummins 1987 p. 87-88.
13. Cummins 1987 p. 133-134.
14. Cummins 1987 p. 7-8.