

## Variation on a theme: The archaeology of an Australian blacksmith's shop

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*This article looks at some variations in the layout of stand-alone blacksmith shops. It is based on a study of an intact twentieth-century (1894–1987) shop in Strathbogie, Victoria. It was found that in some respects the layout of the shop varied from the expected form as proposed in previous literature and it is argued that this variation is more a matter of adaptation to local conditions rather than changes in technology.*

### INTRODUCTION

In the highlands of North Central Victoria lies the small township of Strathbogie. About halfway along the main street, on the corner of the town's only side street, a blacksmith's shop stands today where it has stood for well over a century, having been first erected on this site in 1895. The local stringybark timber slabs, which constitute the walls of the main section, come from an earlier building on another site that pre-dates the present location by at least four years. Although the building was in danger of collapsing in 1998, when the present owners purchased the property, it has now been stabilised and stands as an example of a once common industry that exists today only in a drastically changed state. To enter the building gives one the feeling of having stepped back into the past, as a fortuitous set of circumstances has preserved all the tools and equipment virtually intact and as they were in the early part of the twentieth-century.

The material on which this article is based is from research carried out as part of an honours thesis in archaeology at La Trobe University during 2000 under the supervision of Professor Tim Murray.

Protected by its inclusion on the Victorian Heritage Register, this site provides a unique opportunity to examine the archaeology of the once ubiquitous stand-alone blacksmith shop that was a feature in most towns and villages. It has been possible to examine this site, with the building, tools and equipment still in place, and compare it with previous excavations of other stand-alone blacksmith shops. This has allowed us to consider the conclusions regarding the archaeological indicators found at these sites and how these indicators can be used to interpret sites in the future.



Figure 1. The Strathbogie Blacksmith's Shop (photo by the author, 2000).

### HISTORY OF THE SITE

Europeans first occupied the Strathbogie tablelands around 1846 when a large cattle run was established. The area was opened up to closer settlement in 1876–1877 with the arrival of the first of the selectors (Halsall 1978). A township subdivision was established, and the first block sold in 1879, with several other blocks selling in the 1880s and 1890s. A Department of Lands and Survey map (not dated) shows that by the turn of the century, seven of the fifteen blocks had been sold. The first blacksmith shop was built some time before 1890 on land held under a miner's right and, after the death of the first smith, was sold and moved to the present site in 1894. Here, extensions were made to the building in several stages and the shop played an important part in the development of the area, with cart building, wheelwrighting, horse shoeing, saddlery and general blacksmithing being carried out on the premises. After one other change of ownership Albert Price purchased it in 1920.

Price continued with the wheelwrighting, farrier work and blacksmithing, but the growing popularity of the motorcar and tractor destroyed much of the work that had been the basis of the blacksmith trade in rural areas for so long. He attempted to move into motor repairs in the 1930s but was already facing competition from a specialist motor mechanic in the town. In the 1940s he returned to the trade he had been employed in before purchasing the shop and drove steam engines in saw mills in Euroa for several years. From this time, up until his death in 1987 at the age of 94, he operated the blacksmith shop on a part-time basis to supplement his income from wages work. By the time electricity reached the area in 1967 Price was seventy-four years old and semi-retired and never had electricity connected to the shop. After his death the family sold the shop and the new owner kept it and its contents intact, although the building fell into disrepair. Several of the local townspeople agitated to have the building preserved and restored and it was placed on the Victorian Heritage Register in 1997 and has since been purchased by a local farmer with the intention of opening it to the public as a tourist attraction.

### PREVIOUS ARCHAEOLOGICAL DESCRIPTIONS OF BLACKSMITH'S SHOPS

While there is a large body of work on blacksmithing (Rotenstein 1999) much of this is concerned with the technical side of the blacksmith's work and little on the layout of the shop itself. A search for material relating to Australian stand-alone blacksmith shops, as distinct from those attached to larger establishments (such as railway workshops), failed to find any examples. Also, a search for archaeological studies of blacksmith shops in Great Britain found no examples of anything more modern than Roman shops.

What could be described as the industry standard for archaeological studies of stand-alone blacksmith's shops is to be found in the work of John D. Light. Based on excavations of a Fur Trade era shop in Canada as well as with reference to modern smiths, he examined the diagnostic features that can be used in interpreting the layout of a site (Light 1984). Light's work has been uncritically adopted by archaeologists working on stand-alone blacksmiths shops.

While some researchers note variations within the layout of shops examined (Harmon 1995, Coastal Carolina Research, Inc n.d.) it appears they accept Light's diagnostic features as defining the general pattern of stand-alone shops and do not query why these differences occur.

Light proposed that the space within a shop could be divided into four main areas: the work area, the storage area, the domestic area and the refuse area.

The work area should consist of the forge itself, bellows, anvil, quenching tub, workbenches, vices, swage block and tools in general use. These elements should be fairly close to each other to allow for efficient work at minimal effort. There could also be larger work areas for wagon-making or shoeing animals.

The forge is described by Light as being made of almost any durable material such as stone or brick, a waist-high, hollow rectangular box with a chimney or fume hood at one end to extract the somewhat noxious fumes. The interior of the forge is partly filled with rubble and a fire bed of firebrick; sand or similar material being laid on it to hold the fire. Air is fed to the fire from the bellows by means of a tuyere which may either feed from the side or from underneath.

The bellows are mounted off the floor with the broad end supported by a post in the ground or suspended from the ceiling. The nozzle end is supported at the forge where the tuyere (or as it is more commonly called in Australia and England, the tue iron) enters.

The anvil, mounted on a wooden stump set into the ground, should be within easy reach of the forge to allow economy of movement. The stump should be supported from the side to keep the anvil face horizontal and may be set on material that would serve as a cushion and absorb shock. The quenching tub, usually a half-barrel, should be within easy reach of the anvil and forge.

The workbench should be set in a well-lit area, near a window, within a reasonable distance to the forge. The area should be delineated by the presence of small containers for storing acids and fluxes as well as small metal objects and iron filings dropped while working on the vice along with broken window-pane glass. The areas used for wagon-building and shoeing animals should be delineated by materials associated with these activities.

The storage area consists of the areas where new stock, reusable metal and the fuel was stored. There may be little evidence of new material in an abandoned shop, as this would have been removed at the time. Reusable metal is more likely to have survived and all stock could have been stored in one or more areas within or outside the shop. Fuel storage areas are characterised by high concentrations of charcoal, coal or coke, depending on the fuel used, and are expected to be located some distance from the forge to lessen the risk of fire.

Light suggested that it could be assumed that the smithy was a social centre as well as a workshop. Customers would have waited while work was being completed and this domestic area would be characterised by the remains of smoking pipes, gaming pieces like checkers, utensils, table ceramics and table glass. Faunal remains, as refuse from meals, may also be present.

Refuse, consisting of forge clinker, unusable scrap metal,

glass and ceramics may be located in several areas both within and without the shop. Depending on how the smith sees this refuse, it may be sorted into separate areas or mixed together. It should be clear of doors and pathways.

## HOW THE STRATHBOGIE SHOP COMPARES WITH THESE EXPECTATIONS

The distance of the anvil from the forge, the close proximity of the workbench, the storage of fuel well away from the danger of fire and the posts supporting the bellows were much as expected from Light's model. The scope of the study and the fact that much of the floor area was being used to store building materials meant that some of the other diagnostic features Light outlined were not examined during the study of this shop. The floor area around the benches was not checked for small objects nor was it checked for concentration of metal filings and scale.

There are several features that vary in some degree from the description that Light gives as standard for stand-alone blacksmith shops. The forge is constructed differently to that described by Light, being made of unlined wooden slabs on three sides with brick and stone rubble on the side closest to the fire where the tue iron enters. There is no chimney, the fumes and smoke from the forge being dispersed within the shop and through open shutters. This lack of a chimney can probably be attributed to the different fuel used in this forge compared with the Canadian example: charcoal and coke produces less noxious fumes than the black coal used by blacksmiths in Canada. There was also the water-cooled tue iron, a feature that, while common in England and in the early-twentieth-century trade literature in Australia (for example see Welch Perrin and Co 1938), does not seem to have been at all common in America and Canada. The use of timber in the structure of the forge probably reflects the adaptation of local material in an area where transport of goods was slow, difficult and costly (Hyett 2000: 60). A photograph of a farm forge in the area, taken some time in the 1920s, shows a forge built of natural blocks of local stone (Hyett 2000: 64). Another farm forge, constructed of kiln-fired bricks, visited during the course of the investigations, reflects the easier access to more durable material at this location<sup>1</sup>.

The anvil block is not set into the ground nor supported at the sides to prevent movement. Mounted on a heavy block of hardwood, the anvil is free-standing and it would appear that

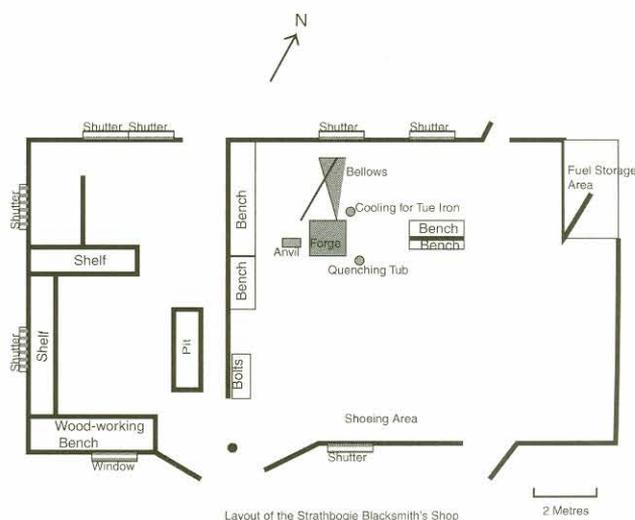


Figure 2. Layout of the Strathbogie Blacksmith's Shop.

movement while doing heavy work was not a problem (Price 2000). The use of such a block may reflect a difference in the type of timber that was available for use, as the heavy eucalypt hardwood in Australia may have no counterpart in the Canadian scene, though Light makes no mention of the type of wood used in his examples. The use of a free-standing block may not have been all that uncommon, as Hasluck describes the anvil as mounted on either a block of wood or on an iron stand, with no mention of it being set into the ground (Hasluck 1902: 13). Another, more recent, English example also places the anvil on a block of elm, once again not set into the ground (Bailey 1980: 6). It may also be a matter of personal preference of the smith, as some modern smiths prefer an anvil that can be re-positioned depending on the work they are performing. Therefore, in any investigation of a shop that is no longer intact, it may not be possible to locate the site of the anvil through the location of a posthole where the block supported the anvil.

Similarly, some of the criteria that Light proposes for locating benches are virtually non-existent in this shop. While he proposes that soil analysis for iron content is the most reliable method of determining the placing of the bench within the shop, he also proposes that this can be augmented by the presence of window-pane glass and small container glass (Light 1984: 58–59). In the Strathbogie shop only one bench is likely to provide evidence such as this. The woodworking bench in the western section is situated under the only glass-paned window in the whole building and has a variety of small glass containers holding screws, nails, bolts and washers, some of which are modern-day additions. Here one would expect a lower concentration of iron in the soil as this was mainly used for woodworking, although the vice was used to hold circular saw blades while being sharpened until a saw gulletting machine was installed in another part of the shop in later years. All the other benches are located on interior walls and there are no other glass windows in the shop. The upward opening shutters are not located above or near the vices and are some distance from the benches. The lack of glass windows in the shop is probably due to the difficulty and cost of transporting glass over the rough and difficult roads that serviced the area when the shop was built. Although glass windows were installed in the house—built at the same time—it may have been considered that the climatic conditions allowed the use of open shutters in a building that was only used during daylight hours. Only one glass jar, which contained Hardite for case hardening metal, was found near the benches in the main building, on a shelf above the bench near the forge.

#### **Storage Area**

The main storage area for reusable metal was a dump outside the building. Although Light suggests that under the bellows was a good place to store reusable metal this does not appear to be the case here. The bellows in this shop are set close to the ground with little room for storage underneath, besides which it would seem good work practice not to store pieces of metal in close proximity to such an essential and expensive item as the bellows.

#### **Fuel**

Charcoal continued to be used as a fuel at Strathbogie long after it had passed out of general use elsewhere. The production of charcoal for fuel is usually achieved by burning within a reduced atmosphere and this method, in fact, continued at the nearby settlement of Kelvin View on a commercial basis in kilns until the 1930s, the charcoal being used for fuel at the power station in Euroa (Halsall 1978: 112). However, the heavy timbering of the country, which had to be cleared to enable farming to take place, along with the type of timber and the techniques used to clear and burn the timber, meant that

there was ample charcoal available in the early days in the Strathbogie district. As the land was cleared and techniques changed with the introduction of bulldozers, capable of windrowing large heaps of timber for a hotter burn, charcoal became less prevalent for the smith to gather. By this time the smithy was no longer operating as a full-time business so less charcoal was needed. It was found that charcoal alone gave insufficient heat to work some of the steels and the mixture of some coke, purchased from one of the gas producing companies, with the charcoal was necessary (Price 2000).

#### **Domestic Area**

No domestic area as described by Light was found within the shop. He states that in general the smithy can be thought of as a social centre as well as a workshop (Light 1984: 60) and goes as far as to say that:

...if no remains of this type of activity area are found anywhere in the shop, it may safely be assumed that the smith was either excessively neat or an abstemious, anti-social, non-smoker with overweening political and religious convictions who habitually went elsewhere for meals. But then who would ask such a man to grind an axe? (Light 1984: 61)

But many did ask Price to sharpen axes, picks and mattocks up until just before his death so we must look elsewhere for an explanation as to why no such area exists here. The smith's clientele was predominantly the selectors from the farms in the area. The constant battle to make a living from the land allowed little time to sit around; there was land to be cleared and ploughed, crops to be sown, cows to be milked, kangaroos, dingoes and rabbits to be controlled and myriad other tasks involved in wresting a living from the soil. Rather than lose half a days work by the journey into town, waiting for the work to be done and then returning home, work was sent in by local tradespeople such as the mailman and the baker or with passing neighbours. If horses were to be shod, this was often done on sale days or on the days the cream was brought in to the butter factory and the horses were shod while their owners attended to other business.

#### **Refuse Areas**

There appears to be little in the way of refuse dumps on the land associated with the smithy. Some refuse has been dumped down by the creek below the property, much of it modern aluminium cans and plastic, with some car parts. Most of the land on the block was utilised in some way in the production of food. Vegetable gardens, grazing cows for milk and cropping of potatoes took up most of the land outside the immediate house area. Refuse was possibly carted off to an area set aside as a town dump, rather than disposed of on the block, as this was a common practice in small country townships in Victoria.

#### **CONCLUSIONS**

This comparison of an Australian blacksmith's shop, dating from the end of the nineteenth-century, with the study of earlier sites, suggests that there may be a wider variation in the layout and archaeology of blacksmith's shops than previously thought. This is not unexpected given the distances in time and space between the available examples. The variation in the Strathbogie case would seem to be the result of availability of local materials, difficulty of transporting materials, personal preference and economic and social conditions, rather than the changes in technology that were taking place at that time.

The difficulty and cost of transporting materials and fuel to an area may be reflected in the use of local materials as substitutes. In the Strathbogie shop the use of timber slabs to construct the forge, the continued use of charcoal as a fuel and the

lack of glass windows may, in some way, be attributed to this. This may not be the sole reason for the use of these materials, but one would have to accept it as a major contributing factor.

The Strathbogie example comes from a time when farming was just being introduced to the area and economic and social conditions would have been different from Light's example. The customers at the Fur Trade era shop studied by Light would have been subject to an entirely different set of circumstances than the farmers of Strathbogie. Coming in after several months on the trap-lines, they would be dependent on the smith making and repairing equipment that would have to function for a long time at a considerable distance from civilisation. Having little other work to occupy them at the time, they would be more inclined to use the smithy as a social centre than would the farmers who may consider it a waste of precious time that could be better spent on more necessary work. One would expect that in more established farming areas, social and economic circumstances would again be different and the smithy may once more tend to become a social centre.

This study highlights the need for further examples of stand-alone blacksmith shops to be studied before patterning such as described by Light is adopted. Further investigations of sites of different times and areas would be needed to establish whether a consistent pattern in blacksmith shops is discernable and whether the variations from Light's pattern in this study can, in fact, be credited to the factors to which I have attributed them. If so these variations in the layout and in the materials used may be useful tools in interpreting the social and economic circumstances of the time and area of the shop.

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## NOTES

- 1 This forge is located on a farm near Balmattum, below the Strathbogie Tablelands and close to the rail at Euroa. It has lain idle and virtually untouched since the beginning of the Second World War.

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