

Continuity in Australian Timber Domestic Building: An Early Cottage at Burra

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In the township of Burra there survives a single example of the numerous timber cottages built in the 1840s to house the mine workforce. The cottage is significant as a rare extant example of Australian timber building techniques before the goldrushes, and the consequent economic and technological upheaval that characterised the decades from the 1850s onward. The construction of the cottage is not within either the prefabricated or the primitive traditions, both of which have been documented, but is simply an ordinary carpenter's product, demonstrating common practice in its day. The cottage is a revealing document in confirming the continuity of Australian building practice during a historical period from which very few timber buildings survive. What is most surprising is the building's near-total reliance on imported timber.

INTRODUCTION

How much we know about a class of artefacts from any period in the past is usually directly proportional to the number of artefacts of that type which survive from that period until our own time. Durability is knowledge. In the field of architectural history, the reason we generally know more about the grand and exceptional buildings from any given period in history than about the simple and commonplace ones is because the expensive ones last longer. Our knowledge of the history of building construction in Australia may seem very great, but it is in fact an incomplete and distorted knowledge, thanks to the operation of the durability principle. We know much more about public buildings than about dwelling places, although habitations have always been far more numerous. Likewise, much more has been written about the history of masonry than about timber.

In fact, the little that is known about the history of timber construction in the first seventy years of European settlement in Australia reflects architectural historians' preoccupation with the processes involved in creating two particular contrasting classes of building: those built from materials gathered close by and processed into a finished state on the building site, and those made from materials processed some distance away, and brought to the site in a finished state. Buildings of locally procured materials worked by hand are usually referred to as primitive, and in Australia the common building materials involved are bark, slab, and most forms of earth or stone rubble construction, including those which incorporate wood, and are often known by colloquial names such as wattle-and-daub or pug-and-pine.¹

At the opposite end of the industrialisation spectrum are prefabricated buildings, in which the components are manufactured to a finished state under factory conditions, usually in a place with a sophisticated economy, abundant labour and advanced industrial techniques, and transported to the building site for assembly with a minimum of labour and skill required on-site. The economic effect of prefabrication is to transfer the demand for labour from a place where it is expensive to a place where it is cheap. It is ideally suited to a colonial economy, with prefabricated buildings supplied from the metropolis to the colonies, or from more advanced to less

advanced colonies.² In Australia, there were two conspicuous episodes of widespread prefabrication in the nineteenth century. The first was during the settlement of South Australia about 1840, when the circumstances of rapid and orderly migration encouraged an influx of portable timber houses, notably those of John and Henry Manning and other London suppliers.³ The second was in the 1850s, when the Victorian goldrush promoted a much greater and more diverse trade in buildings imported through Melbourne.⁴

Yet what is missing from our current knowledge of early timber buildings is the ordinary house, neither primitive nor prefabricated in its method of construction. Given the scarcity of surviving timber buildings from the early decades of settlement, and their relative commonness from the later nineteenth century, a mythology has grown up suggesting that there was a fundamental change in construction techniques at the time of the goldrushes. In its most extreme but best known form, this was the balloon frame theory, which proposed that a radically new method of construction, the balloon frame from America, was imported into Australia from the Californian goldfields after 1851.⁵ This theory is no longer supportable, for three reasons. First, the balloon frame, an historically dubious building technique even in America, does not appear to have been in use in California during the goldrushes. Second, it cannot be shown that any such input into Australian building technology arrived from North America in the 1850s. Third, all the features of Australian timber building technique, supposedly accounted for by the balloon frame, were in fact already present in the English building tradition, and available to Australian builders before the goldrushes began.⁶

Much of this knowledge is based on inference and deduction rather than on empirical knowledge of pre-goldrush timber buildings in Australia, for little information is available in print. Miles Lewis has examined the available evidence on pre-1851 houses in the British timber tradition in Victoria, but has located very few intact buildings.⁷ Probably the most closely studied timber buildings of that era in Australia are the German buildings of the Adelaide Hills,⁸ but these belong to a separate ethnic tradition, and had little discernible influence on wider Australian practice.

In Australia and New Zealand there are several light

stud-framed buildings known to survive which shed light on building practices in the first half of the nineteenth century. Among the oldest is Kemp House at Kerikeri in the Bay of Islands, sawn from local timber in 1821–22. The stable at Belgenny Farm (NSW) dates from before 1826. In New Zealand, the Waimate mission house (1831) is of local kauri, while the early part of the Waitangi treaty house (1833) was prefabricated of hardwood in Sydney. All four of these buildings are hand-sawn. In Victoria, there are two light stud houses dating from 1843 at Woodlands, Gellibrand Hill, and at 12 Cox's Gardens, Williamstown. A third which probably dates from the 1840s is in Glenelg Street, Portland. The Woodlands house is of particular interest as it was prefabricated by Peter Thompson of London, and thus provides tangible evidence of the imported machine-cut English structural tradition.⁹ However, there is no published description of the construction details of any of these buildings, and they have yet to be allocated roles in the evolution of Australian construction techniques.

This paper takes the opportunity to examine a building which falls precisely into this gap in present knowledge. It is a timber cottage with no pretensions to architectural distinction, built in Burra in September 1849 or very shortly afterward, and still remarkably intact. It unquestionably predates the goldrushes, and is squarely within the British building tradition. It contributes to a knowledge of Australian building history, and also provides useful insights into economic and social conditions in a nascent mid-nineteenth-century mining town.

THE SITE

The town which we know today as Burra¹⁰ is situated 140 km north of Adelaide. Copper ore was discovered there in mid-1845, and production commenced at the Burra Burra mine in September of that year. The mine was operated by the South Australian Mining Association (SAMA), which also owned as freehold the nearby township of Koorunga, Australia's first company town. The Burra Burra mine was extraordinarily prosperous, yielding fifty thousand tons of copper from a rich, shallow deposit of copper carbonate before closing in 1877, and paying dividends worth eighty times the shareholders' entire capital investment, and four hundred times the working capital.¹¹

The cottage which is the subject of this paper was built at an early stage of the mine's development. It faces Commercial Street, the main thoroughfare entering Koorunga from Adelaide. The cottage is, and probably always has been, the first building on the left as one enters the town. Immediately southwest of the cottage site is a large irregularly shaped area known as the Paddock, which has never been built on, but in the early years of the mine was used for gardening and feedlots. The word 'paddock' is also a mining term for a place where ore is stored, but the meaning in this case appears to be purely agricultural.

The cottage site now seems remote from the mine, which is entered by vehicle from Market Street at a point 950 metres to the north-northwest. However, in the 1840s there was a subsidiary pedestrian route from Koorunga to the mine workings, which ran from Commercial Street diagonally behind the cottage site, crossing the intervening ridge by a gully to arrive at the workings in the vicinity of Morphet's shaft. This pathway was named Mine Walk on early maps of Burra, and still exists on the modern survey plan, although it lost its name long ago. It is likely the Walk dwindled in importance as the mine workforce shifted north from Koorunga to live in Redruth in later years. The 1846 survey of Koorunga mostly follows a conventional grid plan, but in the untidy triangle

formed by Commercial Street, the Paddock and Mine Walk, the surveyor simply drew up nine narrow allotments of varying length, lots 104-112, which remained vacant until 1849.¹²

THE HOUSING PROBLEM

Like most new mining settlements in the nineteenth century, Koorunga faced a persistent shortage of housing for the workforce. The company's parsimony, restrictive land tenure, and miners' reluctance or inability to invest, all contributed to this problem. The whole of the town lay on Section 1, Hundred of Koorunga, the Special Survey of 10 000 acres which SAMA had been obliged to take up in 1845 in order to secure the mineral rights to the Burra Burra lode, and the company refused to sell any of this land.¹³ Miners who had recently arrived in remote and inhospitable surroundings to work an unproven mineral deposit were naturally most unlikely to expend money or much labour to erect housing on company-owned land. The onus to provide accommodation thus fell on the company, but SAMA was not an organisation noted for extravagant treatment of its employees.

There was an influx of about five thousand people in Burra's first five years; in 1850 it was the largest inland town in Australia.¹⁴ The majority of the workforce and their families were housed in makeshift accommodation in close proximity to the mine, frequently in shelter they had built themselves. The company provided basic materials, and correspondence between the mine and Adelaide regularly referred to materials such as 'palings for temporary huts' to be supplied to the builder-occupants. A letter in 1846 describes in detail the arrival of one party of shaftsinkers who had built their own housing and begun work in the mine within twenty-four hours: 'Last Sunday evening arrived the eight miners... They began the next day with putting up their hut... In the afternoon they commenced labour in Stock's shaft'.¹⁵

The housing problem and the traditional skills of the miners combined to produce an unorthodox solution. A large proportion of the town's population – probably approaching two thousand people – lived in burrows or dugouts excavated in the banks of Burra Creek for a distance of several kilometres above and below the township. At the end of 1850, William Cawthorne visited Burra, and left both pictorial¹⁶ and written descriptions of the dugouts:

In passing over the bridge leading to the Smelting Works, a picturesque feature stuck upon my astonished gaze, viz., the "creek habitations"; which are nothing more or less than excavations of a small size in the banks of a rivulet, at the present time supplied with water from the engines of the mine. As far as the eye can reach down the creek, these human wombat holes are to be seen – one long hole for a door, and a small square or round one for a window; a perfect street, with above 1500 residents. Such is the force of habit, that the miner never thought of building a house, but mining one, and accordingly the Burra Creek is riddled like a honeycomb... After taking a sketch of the town, mine and smelting-works, we descended to the creek, and entered one of the holes; it was very clean and neat, in one part even an attempt at finery; very cool, but very close, as I was informed, at night, there being no ventilation. They are whitewashed inside, and sometimes outside, the most of them having paling verandahs, lean tos, &c. The chimneys are merely holes opening from the footpath above, with a tub or a few clods put round... The great secret of their selecting such a place is its being rent-free.¹⁷

Although initially popular, this experiment in housing was short-lived for obvious reasons; the dugouts were plagued by floods, and their occupation was prohibited by SAMA after catastrophic storms in June 1851, although a few individuals were reported to be still living in the creek as late as 1860.¹⁸

The South Australian Mining Association was not completely indifferent to the housing question, but afforded it a low priority in the development of the mine works, and provided accommodation to its senior officers first. Houses were built on the mine for mining captains, the accountant, the surgeon and other dignitaries, and comfortable hotel rooms were provided in Kooringa for visiting directors. Small numbers of respectable masonry cottages were built by the company from 1846 onward, first in Thames Street, and then the attached rows of Paxton Square after 1848. Most of these still stand. It is not clear who occupied these buildings, but they must have been reserved for relatively senior employees, for they could have housed no more than a small fraction of the nearly one thousand workers the mine employed by 1850.

If this seems a callous attitude, it must be understood that a mining company of the mid-nineteenth century would have distinguished sharply between its obligations toward different members of its workforce. Few would have been regarded as employees; only administrative staff, captains (managers), and skilled specialists such as assayers were paid a salary, while outright menials such as picky-boys were employed on daywork (wages). The majority of the mine's labour was performed either as tutwork (piecework for non-productive tasks such as timbering or shaftsinking) or tribute (royalty shared with the company on an agreed percentage basis by miners extracting ore) by workers who were notionally independent contractors, engaged in teams for a fixed period, usually two months at a time. Most mining companies sought to maintain the legal fiction that they were not responsible for the welfare of such people, but in practice their concern fluctuated inversely with the supply of labour; a company having difficulty attracting workers would naturally become more solicitous about living conditions.

In 1848 the company was given cause to concentrate its attention very closely on such matters, as Burra became the scene of the Australian mining industry's first major strike. This closed the mine completely from September until November, and was not fully resolved until the following January. Its causes have been given variously as a dispute over the fairness of the assay procedures to determine tribute payments, or as a move by the directors to lower wages.¹⁹ Both of these things were indeed contributing factors, but so were a host of other causes, one of which was the housing question.

The Burra strike of 1848 appears from the comfortable distance of 140 years later to be an inevitable process of adjustment as a company new to mining and a workforce new to Australia worked out the ground rules of their relationship. When we look beyond the overt financial and industrial causes, it is not surprising that in a town where most of the workforce lived in holes in the ground, housing played a significant part in that relationship. Among the subjects in the correspondence outward from the directors' office in the weeks immediately preceding the strike, the quantity, quality and cost of accommodation in Kooringa were prominent. In mid-August, directors who had visited the mine gave an unfavourable report on the state of 'cottages now in course of erection in the Township'. Complaining of 'walls neither perpendicular nor straight', they insisted that in future drawings and specifications were to be sent to Adelaide for approval

before contracts were let.²⁰ A fortnight later, they worried whether rents were too low, and specifically complained that storekeepers were operating businesses from houses rented from the company, which was undesirable 'while our working population are not sufficiently provided with habitations'. Fortunately for our knowledge today, the board opted to better understand the situation by means of a census of their assets in Kooringa: 'the Directors will require a plan of the Township with the number of the allotments and a report containing a list of the tenants of such allotments together with a Register of the Company's cottages in the Township, the kind of building, the present rent...'²¹

The housing issue remained important during the five weeks in which the situation degenerated into industrial war. When the news reached Adelaide and the company secretary wrote, his quill trembling with indignation, 'It is rumoured here that the Men have struck',²² SAMA did not hesitate to use the demand for housing as a weapon, evicting strikers from company property both on the mine and in the town.²³ And after industrial relations had returned to normal in 1849, there was no easy resolution of the housing problem. Copper production continued to increase, and during that year the Patent Copper Company built smelters near the mine, and local smelting of Burra ore commenced. Construction workers, the new smelting workforce, and the increased demand for fuel and transport all swelled Burra's population. For the first time, an alternative to company land appeared, as rival entrepreneurs responded to the demand by purchasing and subdividing land adjacent to SAMA's section, and auctions were held in the new townships of Redruth in August and Aberdeen in September.²⁴ Now SAMA had a new woe, as all this activity forced up the price of builders' labour, while the company still tried to house its workforce: 'If we cannot get the laborers at the price we have been giving we must give the same as other people. It will not be for long the Cottages will soon be finished and then you will get them cheap enough', the secretary consoled the mine superintendent on the very day of the Aberdeen auction.²⁵ The Kooringa correspondent of the Adelaide Register reported the transformation of the settlement:

The Burra Burrarians and the Kooringites seem determined to vie with us of the city in all that is attainable in colonial improvement... new buildings are continually rearing their heads; and it is said that at least a couple of hundred more are either in course of construction or likely to be so without delay; allotments of land are in continual request...²⁶

It was within weeks of this report amid the building boom of 1849 that the cottage in Commercial Street was built.

EVIDENCE FOR CONSTRUCTION DATE

The time when the cottage was built has an important bearing on the historical information it provides, and fortunately its construction date can be inferred with some precision from both pictorial and written sources. First, from visual evidence alone, it can be dated to the period between 4 April 1848 and 28 December 1850. S.T. Gill recorded the southern approaches to Kooringa in three watercolours. Two of these now held by the Art Gallery of South Australia appear to be based on the same original drawing; the topography and buildings in both are identical, with people, animals and vegetation improvised.²⁷ One of these is dated 12 April 1847. The Paddock is clearly visible in both as an area of fenced

agricultural land in the middle distance, and the allotments adjacent to it are completely devoid of buildings at that date. The third is held in the National Library of Australia, dated 4 April 1848. It shows an essentially similar scene, with more buildings in the background, and the crops in the Paddock grown higher. There are still no buildings on the northwest side of Commercial Street.²⁸

During William Cawthorne's visit to Burra on 28 December 1850 he made several sketches, including one which depicted much the same scene as Gill's from a similar viewpoint.²⁹ The Paddock by that time was occupied by small-scale crops, probably vegetables, and yarded stock. Many more buildings were visible in the township of Kooringa, and most notably a row of seven or eight cottages had appeared on allotments 103-112. Unfortunately Cawthorne's free watercolour sketch in the Mitchell Library gives insufficient detail to determine with certainty that the cottage now on lot 104 is one of those he depicted, but it does establish that buildings of similar form and scale were built on the land by late 1850.

There is further visual evidence that the land where the cottage stands remained vacant for a considerable time after 1848. The early extant survey plan of Kooringa, made for the SAMA directors to clarify the tenancy situation, shows the buildings erected by some time in the second half of 1849. Normally it might have been expected that the directors' command would have been promptly complied with, and that the map could be assumed to have been completed early in the year. However, with the great strike intervening, there were undoubtedly other matters weighing on the minds of the staff at the mine for some months, and no such assumption is justified. Titled 'Rough Plan and Sketch of the Township of Kooringa The Property of the South Australian Mining Association 1849', the plan shows allotment boundaries and delineates in shaded outline the locations of buildings. On the southeast side of Commercial Street their distribution accords closely with Cawthorne's scene in 1850. But on the northeast side, only one building is shown on the narrow allotments by the Paddock; it straddles lots 110-111 and is annotated 'Ryan'. The name 'Woodbury' appears on lot 104, although no building is shown there at that date. Thus the combined pictorial evidence points to a construction date for the cottage in 1849 or 1850.

This date range is even further narrowed by the letterbooks of the South Australian Mining Association, which as we have seen describe a building campaign underway in the later months of 1849. In mid-August the company secretary wrote to the Burra management complaining that the Clerk of Works 'has been prevented from completing Cottages in the Paddock and repairs to Cottages in the Township... from the want of a few Stores', and directing that he 'be supplied with such stores as he may require for the Cottages and other buildings'.³⁰ Early in September, the company secretary instructed the accountant in Burra: 'The allotments fronting the Hotel in the Main Street are to be let at three pounds... The allotments in the Paddock at two pounds... You can now let them to respectable applicants but no man should have more than two allotments.'³¹

Two weeks later, the Kooringa newspaper correspondent reported: 'The houses being built by the "Company" are advancing towards completion, and will give some relief, but very many more are required.'³² Another week after that, on 29 September, 'P. Woodberry', whose name had been written on an empty allotment on the Rough Plan and Sketch, commenced paying SAMA three pounds per year rent for allotment 104.³³ Modern oral tradition in Burra says Woodbury or

Woodberry was the company's caretaker at the Paddock, which would accord with the provision of a cottage for him at that location, and with the fact that the land appears to have been earmarked for him before the cottage was built, but no contemporary documentary record of his identity has been found.

The most likely explanation of all the evidence is that the cottage was completed in the second half of September 1849, if it was built by the company and then rented to Woodbury, which was the usual arrangement. Alternatively, if Woodbury rented a vacant lot and then built his own house on it, which is highly unlikely, the cottage was probably built immediately after September 1849. It was certainly built by the end of 1850, when Cawthorne depicted a row of completed cottages, and every allotment adjacent to the Paddock was shown by the rent records to be tenanted. These records also help to narrow the date range for the plan: J. Ryan, the tenant who is shown as having a cottage on lots 110-111 on the Rough Plan and Sketch, had commenced paying rent for his two allotments on 24 June 1849; the plan therefore probably shows the situation between late June and late September 1849.

THE COTTAGE

The cottage, located at 39 Commercial Street, Burra, was closely inspected by Peter Bell and Parry Kostoglou on 8 February 1989. It faces southeast toward the street, well back from it, and is built largely on lot 104, but slightly overlaps the allotment boundary onto what is now lot 103, which was shown as a Reserve on the Rough Plan and Sketch in 1849. The building is a little over seven metres by ten metres in plan, consisting of five rooms, built in three phases of construction.

The oldest and, for the purposes of this paper most interesting, section of the cottage is built of timber and constitutes the two front rooms, an area 7.4 m wide and 3.7 m deep, or a little more than 12 by 24 feet overall. The form of the original cottage, with two rooms side by side constituting the floor plan, is a very common one, with English rural antecedents.³⁴ To the rear of the timber section and approximately equal to it in area are two rooms of rough masonry added subsequently. The third and most rudimentary phase of construction is the fifth room which extends the masonry rear section to one side.

The timber section is raised slightly above ground on low square timber stumps. The external walls are framed with studs 110 by 35 mm in section, spaced at about 540 mm centres, braced in places with light timber diagonals 70 by 40 mm in section, let into either the inner or the outer face of the studs, seemingly at random. The studs are mortised into both top and bottom plates, and nailed through the tenons. The internal partition has studs 100 by 40 mm in section spaced at about 460 mm centres. The walls are clad externally with 150 mm wide feather-edged weatherboards, nailed at both top and bottom. All walls were lined internally with lath and plaster which has fallen or been removed from large areas, exposing the underlying structure. The corners are unusual; they are framed with 110 by 75 mm posts, larger in section than the common studs, but not square as one would expect them to be. Internally a cleat has had to be used to extend the corner post sufficiently to provide a surface in line with the common studs to receive the laths.

The timber section of the cottage has a hipped roof clad with shingles, still in position and now covered by corrugated iron, and is ceiled with calico. There is a stone fireplace in the rear wall of the slightly larger room, and a door and two windows set conventionally although asymmetrically in the facade. There is no indication that

the cottage ever had a front verandah. Decoration is minimal: a four-panel front door with a fixed skylight glazed in a lozenge motif, two casement windows, each leaf of which has a single pane in its lower half and four in the upper half, and very simple planed mouldings on skirtings, stops and door surrounds.

The original section of the cottage gives mixed messages. Despite its simplicity, it demonstrates some pretensions in its plaster lining, the joinery of its openings and its false-tongued floorboards. Yet these are belied by its calico ceiling and its hasty and in places eccentric construction; on the top plate of the internal wall can be seen evidence of where the carpenter marked out mortices for the studs, and commenced to chisel some out, then abandoned that layout for the existing spacing. The builders were skilled, but they were working under pressure and they made mistakes. They were also short of some materials; there are no square corner posts in the building, nor lining boards of any kind, and the external corner stops are of two different profiles.

The two masonry rooms directly to the rear have been added later, and are of very rough construction. They can both be supposed to have been built at the one time, as the rear wall appears to be continuous, and door and window openings throughout this section of the building have common dimensions. In common with many early buildings in Burra, these rooms have no masonry lintels; the door and window openings extend upward to the timber wallplate. The floor is a concrete slab, and the roof is supported by a frame of round timber posts, embedded in a wall of stone rubble and mud, roughly rendered with concrete. The masonry probably contributes very little structurally to the building, and could be regarded as infill to a timber frame. The roof of the rear section is a low-pitched skillion of sawn timber, shingled and later covered with iron. Mud appears to have been applied, presumably as an insulating material, between the shingles and the corrugated iron sheets. One room is ceiled with calico. The other has a kitchen fireplace which now houses a wood stove, back-to-back with the fireplace in the front room and sharing its chimney. That room is ceiled under the shingles with ripple iron, marked 'Blackwall First Quality'.³⁵

The sideways extension, probably built as a wash-house, is even cruder in construction. The walls appear to be partly of concrete cast *in situ*, but this impression is probably created by later heavy-handed repair work to construction of rubble and mud. The floor is paved with bricks laid on edge, and the skillion roof is of unlined iron on a round timber frame. The room has a strange small fireplace or wash copper stand in one corner with a squat chimney, and a tiny opening in the front wall, more spyhole than window. There is nothing to suggest this room is of any great age.

Masonry extensions to a timber cottage may perhaps require a comment to counter the facile assumption that timber extensions to masonry are the usual order of things. This tends to follow from the cultural belief that masonry is a superior building material, and the first-hand observation that extensions are frequently of a cheaper, and therefore inferior material.³⁶ It is certainly not the case in this cottage. The later use of masonry simply suggests that as time passed, the economy of Burra had cooled. In Australia, people generally built in timber when local labour was expensive, and in masonry when it was cheap.

THE TIMBER FRAME

The construction of the cottage is industrial but not prefabricated. The stone and mud in the walls, the round

timber in the wash-house roof frame, and possibly the roof shingles, are from the cottage's immediate surroundings and are thus within the primitive building tradition. All other elements of the cottage were manufactured by industrial processes a long way from Burra.

The nails used in the cottage, although varying in size, all appear to be Ewbank's patent wrought nails, which are consistent with the date 1849.³⁷ The front door, fanlight and two casement windows are standard stock from a joinery, but there is no other work like them visible in Burra today. The timber in the cottage has all been cut by a circular saw of large diameter and the mouldings have also been through a planing mill, neither of which was available in Burra in 1849, for the supply of sawn timber was a vexed matter in correspondence between the mine and Adelaide. Therefore all of these building components were taken to Burra in more or less their present state from a place with a more highly industrialised economy.

There is direct and somewhat surprising corroboration of this when the timber species present in the cottage are identified. The external weatherboards and internal skirting boards are spruce or *Picea* species, common to both North America and Europe. The wall studs are southern yellow pine or *Pinus strobus* from the eastern seaboard of North America, and the braces connecting the studs are Baltic pine or *Pinus silvestris* from northern Europe and Asia.³⁸ The mere fact of importation is less unexpected than the diversity of origins; four pieces of timber from the cottage, selected for no more compelling reasons than ease of sampling with minimal damage to the building's fabric, proved to be derived from at least two and possibly three places in widely separated parts of the northern hemisphere.

Some hypotheses can be proposed for the supply of this exotic timber. First, there are no good reasons why the various components of the cottage would have been deliberately crafted from such a range of wood because of any properties inherent in the material itself. The uses of the timbers involved would be very nearly interchangeable, at least in roles as undemanding as those presented by this cottage. So the builders did not order these specific timbers for this building, but instead, were apparently drawing on a stock of sawn and planed softwood imported from various parts of the northern hemisphere, and available in Burra for general construction purposes.

A little can be deduced about how the timber probably reached Burra. A few weeks before the cottage site was rented, SAMA had accepted a competitive tender from Messrs Monteith & Co. in Adelaide for the supply of timber.³⁹ Both firewood and mine timber were described separately in the company's papers, and neither was supplied from Adelaide, so this was certainly a reference to building timber. Monteith & Co. had a timber yard in Hindley Street, Adelaide, and a month before winning the SAMA tender they had taken out an uncharacteristically prominent newspaper advertisement, suggesting they had just received a shipment of timber. The advertisement appeared only once:

Timber on sale

Wholesale and Retail, consisting of :- Quartering, Joists, Battens, Boards, 5 and 6 feet Paling, Shingles and Laths, at reduced prices...⁴⁰

It is tempting to suppose that this was a newly arrived timber consignment, a large proportion of which the Monteiths succeeded in selling promptly to SAMA for their cottage building campaign. How it arrived in Adelaide is more problematical. Newspaper advertisements on one day in early August 1849 boasted

of over 600 000 superficial feet of timber available for sale in just three of Adelaide's timberyards, and seven vessels can be identified in these advertisements and the shipping columns as arriving in Port Adelaide with substantial cargoes of timber in the preceding month.⁴¹

Here, however, the thread we have been following from the cottage in Koorlinga back to the pine forests of the North Atlantic comes seriously unravelled, for none of the seven ships had arrived from overseas. Their last ports of call were all in the Australian colonies: three from Launceston and two each from Hobart and Sydney.⁴² Two of their incoming cargoes were specifically identified as Tasmanian, but in general the timber's place of origin was not stated. Whether the Burra timber was sawn at its source or in Adelaide is likewise unclear, for timber such as cedar was being imported both as logs and as boards.⁴³

Nevertheless, this information permits the hypotheses formulated in Burra to be expanded. That such a variety of imported timber had become mixed up together, that probably none of it had made its first Australian landfall in Adelaide, and that the whole process of its arrival and distribution went completely unremarked by everybody involved, all suggest that a considerable quantity of such building materials was in commercial circulation throughout the British colonies in the mid-nineteenth century as a matter of daily routine. That it could be sold without comment alongside timber shipped from Launceston further suggests that the price differential between the two products must have been very slight, despite the enormous disparity in their distances travelled.

The construction of the cottage, with its light sawn studs of uniform dimensions, lightly braced, mortised into top and bottom plates, and clad with weatherboards, demonstrates techniques which were widely distributed throughout the English-speaking world in the nineteenth century. Similar building techniques were in use in the southeastern counties of England by the late eighteenth century, relying on an imported supply of sawn Scandinavian softwood.⁴⁴ This general method of timber construction was adopted as orthodox practice throughout much of Australia by about the 1870s, and remained in common use until well into the twentieth century. The extensive use of carpented joints, and notably the mortising of studs into the plates, clearly distinguishes this building tradition from the American balloon frame.⁴⁵

While the evidence of industrial sawing and planing establishes that the cottage's timber was milled somewhere other than Burra, the building is clearly not prefabricated. The visibly manual and very rough carpentry of joints and tenons, the improvised corner posts, the mistake in laying out and chiselling mortices, all point to on-site fabrication. So too, do the irregular spacing of studs, the asymmetry of the floor plan, and the odd assortment of timber sizes, such as the two differing sets of studs. This is all a far cry from the tidy-mindedness normally evident in nineteenth-century prefabrication.

The little that is known about other pre-goldrush sawn timber buildings in Australia is quite consistent with the evidence of this cottage. Certainly illustrations of buildings with similar forms and cladding are common, although little can be deduced about their framing. Lewis has described Lonsdale's cottage, shipped from Sydney to Melbourne in 1837, as a building very similar in construction, basing this on documentary sources and the few surviving fragments of its fabric.⁴⁶

CONCLUSION

There are limits to the conclusions that can be based on a single building, but the Burra cottage does provide evidence that points in certain directions. First is the

evidence it provides of continuity in building practice. Certain key characteristics of the timber frame in this cottage can be shown to date back at least several decades in Britain, and they also closely resemble what was to become orthodox practice in Australia in the decades to come, and persist until well into the twentieth century. Nothing that the building tells us about Australian construction techniques was previously unknown, but it enables us confidently to push the known tradition further back in time.

This evidence of continuity undermines the belief that fundamental change was effected in Australian building practice by the goldrushes. The American balloon frame theory recedes further in probability when it is seen that an example of what was subsequently adopted as standard Australian construction predates any Californian impact on Australia. Instead, in conforming to English tradition, the cottage reinforces the European origins of Australian timber building techniques.

The American connection appears unexpectedly in the materials, not the methods. Two aspects of the use of American timber in the cottage are surprising in the Australian context: the early date, and the origins of the timber species from the east coast, not the west. Whereas in later decades there was a flourishing trade in timber, especially oregon and redwood, from the west coast ports to Australia, this early importation of timber seems simply to have tapped the North Atlantic trade, receiving softwood from both shores indiscriminately. However, the use of American timber did not in this case presuppose the use of American building methods.

The cottage is also a useful reminder about the nature of early settlement in isolated locations, and especially the rapid and uncertain growth that characterises mining settlement. An inspection of the town of Burra today might very well give the impression that the majority of the town's early habitations were of masonry, for these are the ones which survive in greatest numbers. The durability principle conceals the most common forms of housing from our scrutiny, and accentuates the rarer forms. However, this cottage, in conjunction with the documentary record, assists in correcting the misleading evidence of the extant houses.

The construction of the cottage was done hastily and under adverse circumstances brought about by material shortages; both the choice of materials and the construction details speak eloquently about housing shortage, difficulty in obtaining supplies, expensive labour, haste and muddle. The provision of such housing in such haste is also evidence of the aftermath of the great Burra strike a few months earlier, and a mining company trying to lift its game to attract and hold the labour necessary for expansion. The cottage is a characteristic product of the economy of the mining frontier.

Some common assumptions are brought into question by this cottage. The theory of ethnic determinism, implying that because a large proportion of the Burra miners were from Cornwall, they must have built Cornish houses, cannot be supported on the evidence of the cottage. It has no feature whatever which can be attributed to a Cornish origin. Nor does geographical determinism seem to offer anything useful. Nothing about the design or construction of the original building derives from the local terrain or climate, although elements of the later extensions certainly do so.

In fact, the most striking thing about the cottage is its universal nature, rather than any attribute peculiar to Burra, or even to Australia. Assembled out of industrial materials brought from around the world, and built in a form common to low-income housing everywhere that

Europeans settled, the cottage is a small monument to the workings of nineteenth-century colonialism.

NOTES

1. See Lewis 1977; Cox & Freeland 1969.
2. Herbert 1978.
3. Herbert 1984.
4. Lewis 1985a.
5. Freeland 1968:117.
6. Bell 1983.
7. Lewis 1985c; 1988.
8. Young 1981.
9. I am grateful for information from Aidan Challis, Jane Lennon, Clive Lucas, Henry Okraglik, James Broadbent, David Reynolds and Howard Tanner.
10. The name Burra has been in use only since 1940 to describe the town; it was previously a coalescence of townships, the foremost of which was Kooringa.
11. Auhl 1986.
12. Rough Plan and Sketch 1849.
13. Auhl 1986:33-41.
14. Blainey 1969:111.
15. Ferdinand von Sommer to Henry Ayers, 7/1/1846, Mortlock BRG 22/60, Box 1, 80/38-39.
16. Watercolour sketches, 'Kooringa, South Australia 1850' and 'Burra Creek 1850', Mitchell Library, reproduced in Auhl 1986:118,125.
17. 'Journal of a tour in the north', South Australian Register 13/1/1851, 3.
18. See 'The Creek Dwellers', Auhl 1986:123-133. Numerous collapsed dugout sites are still visible in the banks of Burra Creek; no archaeological research has been done there, although four have been excavated and conjecturally rebuilt by the National Trust.
19. For the 1848 strike generally, see Auhl 1986:92-100. The links between this event and the revolutionary uprisings in Europe in the preceding months remain to be investigated.
20. Henry Ayers to Thomas Burr, 12/8/1848, Mortlock BRG 22/4. If any drawings and specifications were ever sent to Adelaide they do not survive today among the company records.
21. Henry Ayers to Thomas Burr, 26/8/1848, Mortlock BRG 22/4. This instruction resulted in the Rough Plan and Sketch a year later.
22. Henry Ayers to Thomas Burr, 2/10/1848, Mortlock BRG 22/4.
23. Auhl 1986:99.
24. *South Australian Register* 5/9/1849, 2; 19/9/1849, 2.
25. Henry Ayers to Henry Roach, 15/9/1849, Mortlock BRG 22/4.
26. *South Australian Register* 22/8/1849, 3.
27. Reproduced Auhl & Marfleet 1975:75,81.
28. 'Kooringa the Burra Burra Town', National Library NK 155.
29. Cawthorne gives an exact date for his sketches in 'Journal of a tour in the north', South Australian Register 13/1/1851, 3.
30. Henry Ayers to Henry Roach, 18/8/1849, Mortlock BRG 22/4.
31. Henry Ayers to William Challenor, 8/9/1849, Mortlock BRG 22/4.
32. *South Australian Register* 22/9/1849, 3.

33. List of Rents Due, attached to letter from Henry Ayers to William Challenor, 15/11/1851, Mortlock BRG 22/4.
34. Barley 1961:49-50.
35. The Blackwall brandname remained in use from the 1840s to about 1910.
36. Lawrence 1985.
37. Varman 1987:111.
38. Ilic, personal communication.
39. Directors' minutes, 7/9/1849, Mortlock BRG 22/2.
40. *South Australian Register* 11/8/1849, 1.
41. Advertisements of Taylor, Longhurst & Stewart's yards, South Australian Register 1/8/1849; timber per the *Dorset, Flora, Halcyon, David Malcolm, Emma, Phantom, and Margaret Brock*.
42. *South Australian Register* 30/6/1849--1/8/1849.
43. *South Australian Register* 1/8/1849, 1.
44. Bell 1983:57-60.
45. Field 1942:6.
46. Lewis 1985c.

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BRG 22/2 Minute Books of the Directors 1845-1852

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Sydney Morning Herald

Pictorial Collections

Art Gallery of South Australia, Adelaide

Mitchell Library, Sydney

National Library of Australia, Canberra

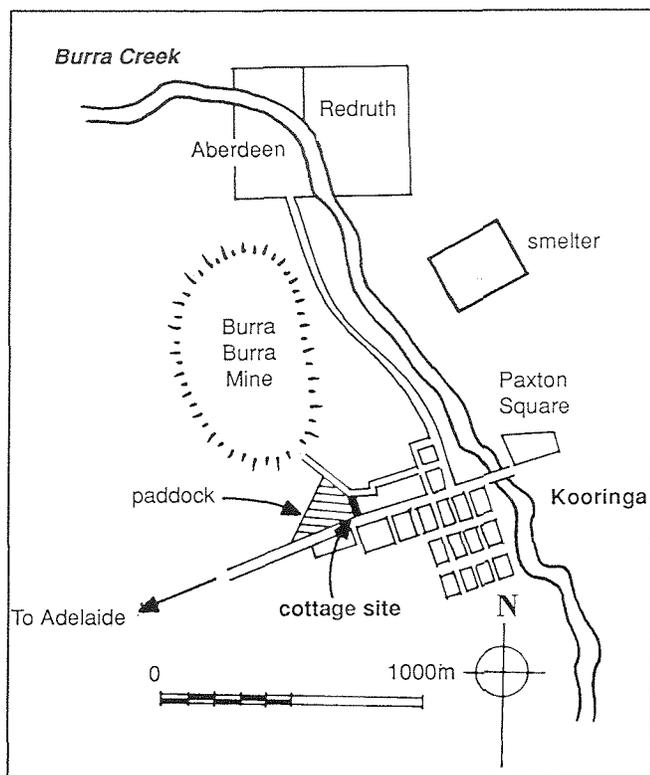


Fig. 1: Burra 1849.

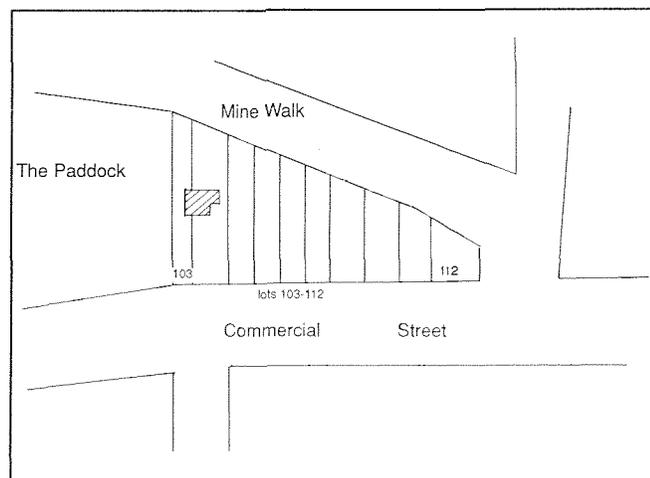


Fig. 2: Immediate surroundings of the cottage.

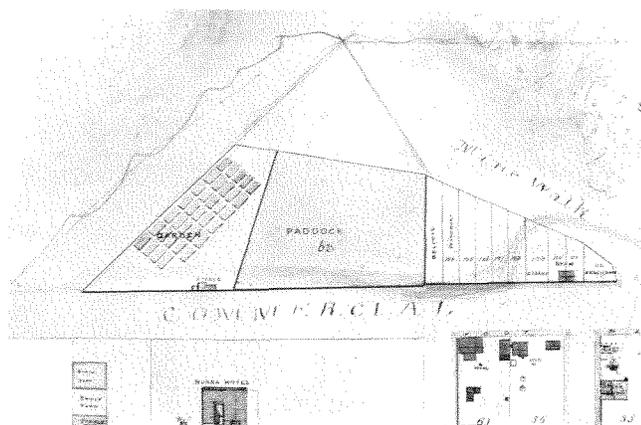


Fig. 3: Detail of a Rough Plan and Sketch 1849 (Mortlock Library).

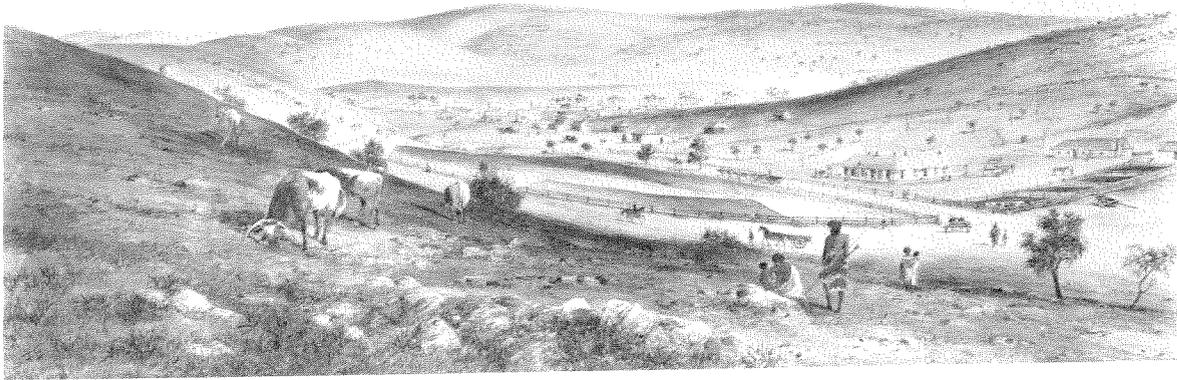


Fig. 4: (above) S.T. Gill, Australia 1818–1880, Kooringa, the Burra Burra Township, April 12th 1847, watercolour on paper (Art Gallery of South Australia). Compare the painting with a photograph (at right) taken from Gill's view point in 1992; the cottage is partly obscured today by trees at centre.

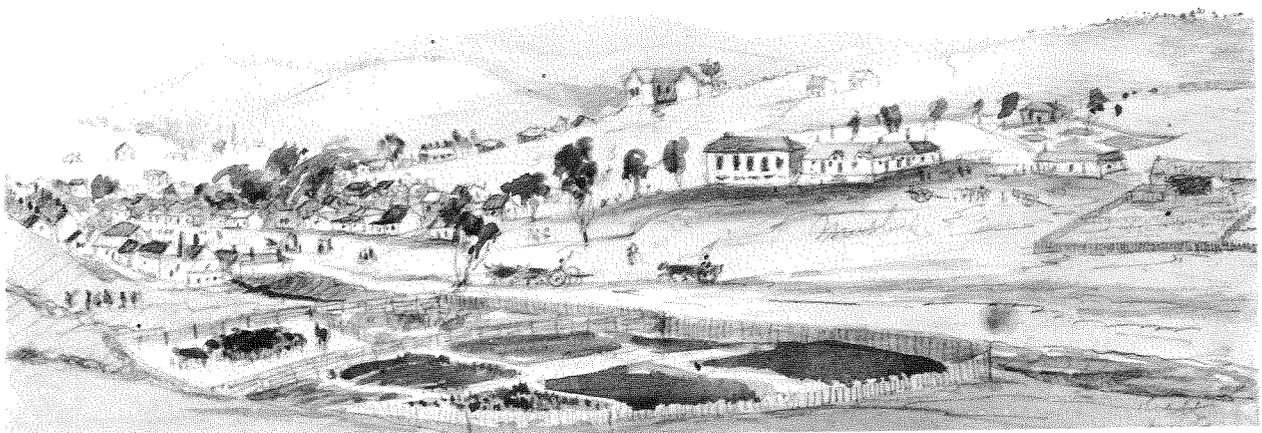


Fig. 5: W.A. Cawthorne, Kooringa, South Australia, 1850 (Mitchell Library, Sydney).



Fig. 6: Timber cottage, 39 Commercial Street, Burra.

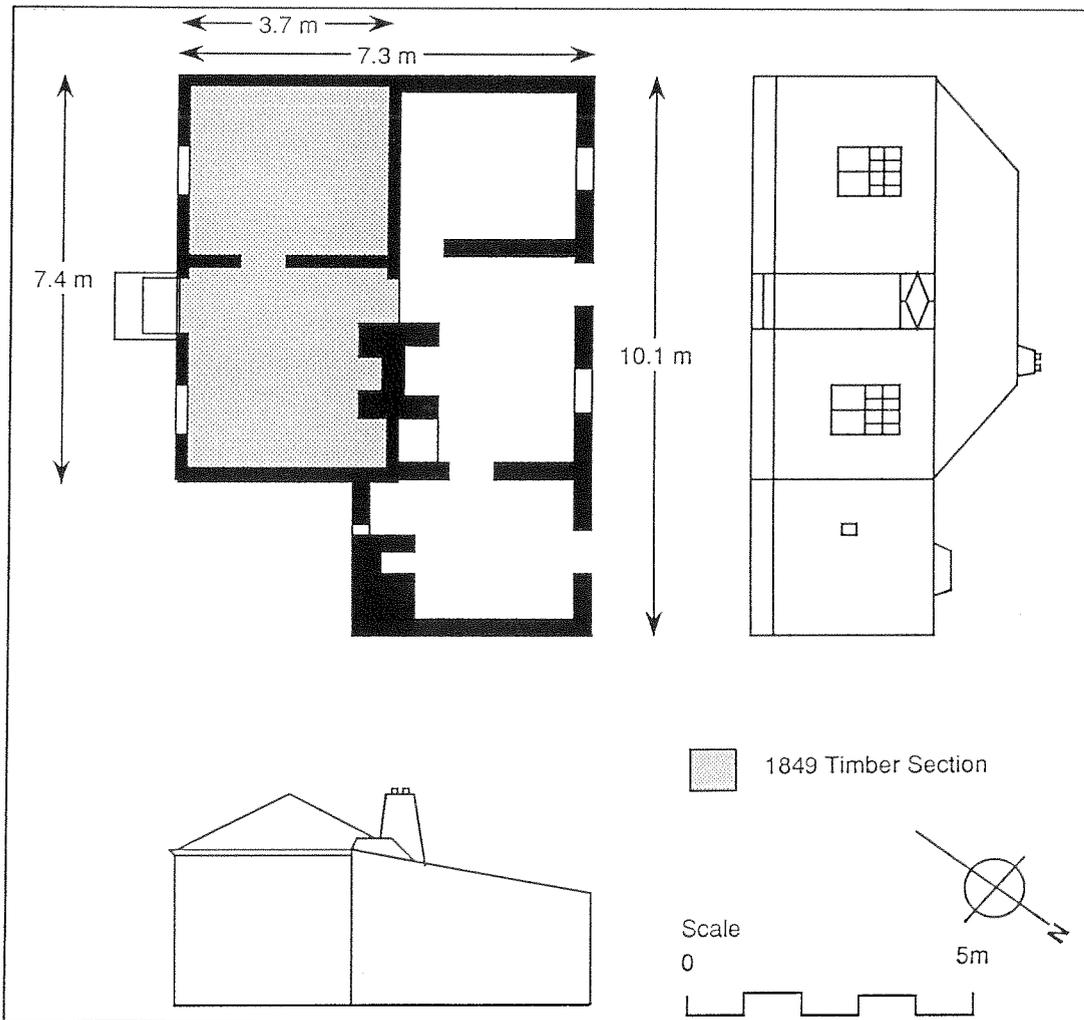


Fig. 7: Timber Cottage, 39 Commercial Street, Burra. Shaded area is 1849 timber section.