

4.01 *Wattle and Daub*

watting

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prefabrication

watting

Of all the hybrid forms wattle and daub is the best known, at least by repute, and it was used in the earliest days of Sydney Cove.¹ Watting - that is, the weaving of flexible twigs like basketwork - was also used in New South Wales without any daub, and this is at least as old a tradition in Europe. One of the earliest known examples appears to be the Abbot's Way in Somerset, an early neolithic trackway of about 2500 BC, made of round timbers and planks of alder and other woods, apparently wattled together, and laid over marshland to create a sound surface.²

Meanwhile watting continued in use for paving and other purposes. At the Jorvik site in York, of Viking date, ordinary footpaths of watting are believed to have been laid up what would otherwise have been slippery slopes. It seems possible that this is a misinterpretation of wattle fences or retaining walls, quite widely used in European cultures,³ and by the Vikings themselves in the presumed eleventh century settlement at l'Ause-aux-Meadows, Canada.⁴ In Ireland post and wattle structures were used in the early Christian period, and watting (not necessarily with daub, it seems) was in such wide use by 1705 that the parliament was obliged to prohibit the use of certain watting timbers, so as to arrest the decline of the forests.⁵ Sheds and granaries with walls of unplastered watting are traditional also in Rumania and other parts of eastern Europe, while Arthur and Witney illustrate (but do not identify or date) such a structure in western Canada - a large piggery with horizontal twigs wattled around the structural poles, no daub or other finish, and a thatched roof.⁶

In the nineteenth century watting was still widely used in Britain for hurdles, or portable panels for purposes such as enclosing stock. In Australia hurdles were used extensively in the great period of grazing expansion of about 1820 to 1850, when land

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- 1 Morton Herman, *The Early Australian Architects* (Sydney 1954), p 6, Freeland, *Architecture in Australia*, p 12, describes what he believes to be a typical building of the earliest settlement in New South Wales. No sources are given, and the account seems unreliable in that some of the detail is drawn from Alexander Harris's description of a slab building forty years later: *Settlers and Convicts*, p 42. This is a pity, as the slab building is substantially an Australian development, and therefore not at all a good indication of the methods likely to have been used by the first settlers.
 - 2 J M Coles, 'Archæology, Drainage and Politics in the Somerset Levels', *Journal of the Royal Society of Arts*, CXXXI, 5320 [March 1983]. pp 205-6.
 - 3 Examples can be seen as fences, and supporting the sides of ditches, at the Szabadtéri Néprajzi Múzeum (Hungarian Open Air Museum), Szentendre, Hungary.
 - 4 Where such fences have been reconstructed, one presumes upon substantial evidence.
 - 5 Alan Gailey, *Rural Houses of the North of Ireland* (Edinburgh 1984), pp 17, 42-3.
 - 6 Eric Arthur & Dudley Witney, *The Barn* (New York 1988 [1972]), p 10.

was unfenced, and sheep had to be clustered together at night for security:⁷ It is probable that wattling was used in many of these hurdles. Certainly it was used sometimes for permanent fencing. In Van Diemen's Land ditches were sometimes formed with wattle fences on top of earth banks.⁸ A 'wattle fence' was specified for the officers' quarters, Melbourne, in 1846,⁹ and at the McCrae family's house at Arthur's Seat, Victoria, where in 1845 'Tuck and Lanty began driving poles for the new garden fence - & then drove 3 loads of Tea-tree sticks for wattling it with'.¹⁰ A late nineteenth century photograph of the Lakes Entrance Hotel shows a substantial pair of parallel wattle fences bounding the cultivated garden in front of the building,¹¹ and at 'Til Til' station on the Lower Darling in 1885, basket fences were being made from tree branches woven between upright poles.¹²

In early Australian buildings panels of wattling were sometimes used to close window openings, and a convict wrote home from Sydney in the first year of settlement of the miserable huts with windows filled with 'lattices of twigs'.¹³ In the 1820s the verandah of the government hut at Wallis Creek [Maitland] was temporarily enclosed with panels of wattle to allow a police contingent to bivouac there (the hut itself being occupied already by the Ogilvie family.¹⁴ in the Moreton Bay [Brisbane] area in 1824 runaway convicts had built a sort of antecedent of the bough shed - a shed consisting mainly of a wattled roof supported on eight posts, measuring 7.2 by 1.8 metres, with the wattling partly thatched over with gum tree branches.¹⁵ In Sydney even chimneys were made of wattling, leading in 1842 to the issue of a warning about the risk of fire.¹⁶

origins of wattle and daub

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- 7 William Gardner illustrates circular hurdles used to protect sheep from dingoes at night. G N Griffiths, *Some Northern Homes of N.S.W.* (Sydney 1954), p 124
- 8 David Burn, *A Picture of Van Diemen's Land* (Hobart 1973 [1840-41]), p 181.
- 9 Specified by the Clerk of Works for the Officers' Quarters, straddling the line of what was later Little Collins Street between King and Spencer Streets: Henry Ginn, 'Sketch of the Officers Quarters Melbourne', 20 November 1846 [NSW Archives, 2/8477 Public Works, Port Phillip Establishment Plans 1846-7].
- 10 Brenda Niall, *Georgiana* (Melbourne 1994), p 288, and watercolour by Georgiana McCrae, pl 26.
- 11 Kleesattel [photographer] 18, 'McDonald's Lakes Entrance Hotel', State Library of Victoria LTA 145.
- 12 Peter Freeman, *The Homestead: a Riverina Anthology* (Melbourne 1982), p 70, quoting the Til Til station diary.
- 13 *Historical Records of New South Wales*, I, part II, p 747, quoted in John Archer, *Building a Nation* (Sydney 1987), p 28; or *Historical Records of New South Wales*, II, appendix I, British Museum Papers, pp 746-9, as quoted in Helen Heney [ed], *Dear Fanny* (Rushcutters' Bay [New South Wales] 1985, p 1.
- 14 George Farwell, *Squatter's Castle* (Melbourne 1973), p 54.
- 15 Allan Cunningham, Journal 1822-31, S29, New South Wales Archives Office, 9 July 1827, 'Report of Observations made during the progress of a late Tour between Liverpool Plains and Moreton Bay', quoted in Ian Evans et al, *The Queensland House: History and Conservation* (Mullumbimby [New South Wales 2001), p 11.
- 16 *Sydney Gazette*, March 1804, quoted in John Archer, *Building a Nation* (Sydney 1987), p 32.

Wattle and daub is said to have been used as a building material at Middle Stone Age sites as far apart as Belgium and Palestine,¹⁷ though writers use the terms so vaguely that such claims must be treated with caution. Remains discovered three hundred metres down in the Black Sea have been claimed to be those of a rectangular structure from about 7500 BC, constructed of 'traditional Black Sea' wattle and daub, or wooden branches and sticks embedded in clay¹⁸ - in other words, probably not wattle and daub at all. The remains of some of the earliest British wattle and daub buildings have been found in Somerset, in a lake village at Meare, near Glastonbury, of about 200 BC.¹⁹ Wattle and daub has been used in modern times in cultures from Japan to Africa,²⁰ and in Lucknow, India, W B Griffin found in the 1930s a vernacular construction 'used everywhere in the villages', consisting of 'bamboo framework with woven cane lathing and mud and cow dung plastering both sides, all white-washed in tints.' He himself tried to use 'bamboo, jaffrey [basket], and clay,' but met considerable resistance from building contractors.²¹

Wattle and daub was also a form of construction known to the Romans,²² and since Roman times had been indigenous to many parts of Britain: as the stud and mud of Leicestershire; the clam, staff and daub of Lancashire; the freeth or vreath of the West; the rad and dab or raddle and daub of Cheshire; and the rice and stower of the North.²³ The typical English method consisted of vertical rods of hazel sprung into prepared grooves in the framing, between which thinner rods were woven in and out horizontally to form a basketwork, and both sides of the basketwork daubed with a mixture of clay, water and straw, sometimes with cow dung. In East Anglia the vertical hazel sticks, known as 'rizzes' or 'razors', were left with their bark on and no horizontals were used.²⁴

The method was current elsewhere in Europe as well, and in France a late eighteenth century description of how to build a cheap beehive reads:²⁵

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- 17 Pedro Guedes, *The Macmillan Encyclopedia of Architecture and Technological Change* (London 1979), p 16.
- 18 *Age* [Melbourne], 14 September 2000, p 12, quoting the *Los Angeles Times*.
- 19 Trudy West, *The Timber-Frame House in England* (Newton Abbot [Devonshire] no date), p 14.
- 20 James Walton, *African Village* (Pretoria 1956), pp 45-7, pls 76, 105.
- 21 W B Griffin to M M Griffin, 17 March 1936, and W B Griffin to G W Griffin, 12 July 1936, nos 86a & 132a in *The Magic of America*, quoted in Paul Kruty & P E Sprague, *Two American Architects in India: Walter B. Griffin and Marion M. Griffin 1935-1937* (Urbana-Champaign [Illinois] 1997), p 18.
- 22 Pliny the Elder (Caius Plinius Secundus), *Natural History*, book xxxv, ch. xlvi; the reference is to partition walls built of hurdles coated with clay. Vitruvius (Marcus Vitruvius Pollio) makes some disparaging remarks about 'wattling' ('craticii'), referring to a method using plaster, as being highly inflammable and liable to cracking as the wattles absorbed water from the wet plaster, and expanded, then subsequently dried, and shrank; *De Architectura*, book ii, ch. viii, 20.
- 23 Olive Cook, *English Cottages and Farmhouses* (London 1954), p 14. Papworth, *Dictionary of Architecture*, svv Wattle and Dab, Rad and Dab, Tapia, &c. In Ireland a wickerwork of furze 'watlin' or little timber was used as a support beneath roofing thatch. A T Lucas, *Furze* (no place [Ireland] 1960), p 133, quoting H F Hore in *Journal of the Royal Society of Antiquaries of Ireland*, VIII (1862-3), p 60. For wattle and daub in England see especially Innocent, *Development of English Building Construction*, pp 126-134, who refers also to Bankart, *Art of the Plasterer*, pp 56 ff.
- 24 Cook, *English Cottages and Farmhouses*, p 14.
- 25 F P Rozier [ed], *Cours Complet d'Agriculture* (10 vols, Paris 1793-1800), I, p 56.

Pour faire les murs des côtés et du devant, en enfonce quelques morceaux de bois dans la terre à la distance d'un pied et demi environ, et les tenant aussi élevés que les poteaux qui soutiennent l'édifice: pour les mieux fixer et les rendre plus solides, on en met deux ou trois en travers, Qu'on cloue aux poteaux: en entrelace ces bois avec des branches de saules ou de tout autre bois, et on applique extérieurement de la terre grasse battue avec de l'eau, pour en faire une espèce de mortier; au défaut du terre glaise on emploie la terre commune, qu'on mêle avec un peu de chaux, pour qu'elle lie mieux.

[To make the side and front wall you drive pieces of wood into the ground about one-and-a-half feet apart, making them the same height as the main posts of the structure: to fix them better and more soundly you put two or three crossways, and nail these to the posts: you interlace into these timbers branches of willow or any other wood, and apply to the outer face a coating of clayey soil beaten up with water to make a sort of mortar; failing clay earth you can use ordinary earth mixed with a little chalk to make it bind better.]

From France wattle and daub reached Québec, where it was known as *gasparde*,²⁶ though the term does not seem to be used in France itself.

The technique would have been known to nearly all British colonists, often directly from their own experience at home, but more especially from emigrants' handbooks. *Mann's Emigrants Guide to Australia* advised in 1849:²⁷

The most usual style of knocking up a house is that called wattle and dab. Strong uprights of wood are driven into the ground, and long narrow sticks are then woven across these, like the twigs of a wicker basket. Moist clay, or earth, well mixed up with chopped hay or straw, is then plastered over this, and finished off with a trowel. The whole is then white-washed inside and out ...

In 1820 wattle and daub was being used for buildings at Bathurst, South Africa, and in 1824 wattle and daub was used for the first British building at Port Natal.²⁸ It appears that the *Acacia* is called the wattle in South Africa for the same reason²⁹ as in Australia, for it is of course well-known that the Australian *Acacia* acquired the name 'wattle' because of its usefulness for the purpose of wattling.³⁰

Although the term is sometimes misused there,³¹ the traditional form of wattle and daub was certainly known in New Zealand, where it was used in building the mission stations of Kerikeri and Paihia. At Kerikeri, the second mission to be established, a house occupied in 1835 by a Mr Baker was said to be wattled, while the chapel was described as being of lath and plaster. At Paihia, the third mission, the Williams family in 1823 replaced their raupo hut with a permanent house, the sides of which

26 Arthur & Witney, *The Barn*, p 117.

27 *Mann's Emigrants Guide to Australia* (London 1849), p 23, cited in Michael Pearson, *Notebook on Earth Buildings*, p 31.

28 Brian Kearney, *Architecture in Natal* (Cape Town 1973), p 1.

29 So I have been informed by Dr George Gibbons of Sydney.

30 See, for example, E Sorenson, *Life in the Australian Backblocks* (London 1911), p 28.

31 Allen uses it of a pole and pug building: M L D Allen, 'A Renaissance of Earth as a Building Material in New Zealand' (MArch, University of Auckland, 1991), p 57.

were 'formed of a sort of basket work and covered with mud to a considerable thickness, the external surface being plaster'.³² According to Peter Shaw the basketwork would be woven of kareao, or supplejack, and the daub was mixed with wiwi, or tussock grass.³³ Another wattle and daub building was the three-roomed Government House at Port Nicholson, as described in 1840.³⁴ At New Plymouth in 1841 Henry Weekes had a chimney 'made of supple-jacks woven in basket fashion round slight posts and the interstices filled with clay'.³⁵ It appears that internal partitions of wattle and daub survive at Esk Head homestead, North Canterbury, of 1863, though the outside walls - as mentioned above - are of cob.³⁶

wattle and daub in Australia

The method was so well-known to English settlers that mud buildings of any sort tend to be referred to as wattle and daub,³⁷ and unspecific references must be treated with the greatest reserve. However, Arthur Phillip himself refers unequivocally to huts built for convicts at Sydney in the first months of settlement, with 'upright posts wattled with slight twigs, and plastered with clay'.³⁸ The boat-builder Daniel Paine wrote that 'other houses in general are built of Posts stuck in the ground at convenient distances to support Wattles and plastered both inside and out'.³⁹ It may not always be safe to assume that wattles were plastered at all. Despite Daniel Paine's references elsewhere to what is clearly wattle and daub construction, he described two 'sleeping rooms' at the bottom of his garden simply as 'Wattle and Thatch'. It has been inferred, from a reference by David Collins to roofs covered in clay,⁴⁰ that wattle and daub was being used even for this purpose in the first days of Sydney.⁴¹ The inference is not warranted: there are many ways in which clay might have been used, of which wattle and daub is certainly one of the least probable, and the simplest reading of Collins is that these roofs (which quickly proved defective) were of thatch covered with clay.

Watkin Tench refers in November 1790 to the thirty-two houses built by the government at Parramatta as being 'built of wattles plaistered with clay, and thatched',⁴² and David Collins similarly describes them as being of 'wattles and

32 S Northcote-Bade, *Colonial Furniture in New Zealand* (Wellington 1971), p 17.

33 Peter Shaw, *New Zealand Architecture* (Auckland 1991), p 15.

34 Shaw, *New Zealand Architecture* (Auckland 1991), pp 15-16.

35 Henry Weekes, quoted in John Hale [ed], *Settlers* (London 1950), p 312.

36 Shaw, *New Zealand Architecture*, p 20.

37 For example 'Rusticus' (W S Chauncy), writing in 1855, so describes a palisade and pug structure, while Howard Pearce, in 1978, uses the term in describing a smooth faced building which is clearly of other construction. This is quite apart from the general misnaming in New South Wales of pole and pug structures. 'Rusticus', *How to Settle in Victoria* (Melbourne 1855), p 20; Howard Pearce, *Homesteads of the Stony Desert* (Adelaide 1978), p 23.

38 Arthur Phillip, *Voyage of Governor Phillip to Botany Bay* (London, 1789), p 145.

39 Daniel Paine [ed R J B Knight & A Frost], *The Journal of Daniel Paine 1794-1797* (Sydney 1983), p 33.

40 David Collins (ed Maria Collins, James Collier), *An Account of the English Colony in New South Wales* (Christchurch 1910 [2 vols, London, 1798 & 1802, 1804]), p 188.

41 Morton Herman, *The Early Australian Architects and Their Work* (), p 6, cited by Alfred Barbara, 'Terra Cotta in Sydney Architecture 1788-1914' (2 vols, BArch, University of New South Wales, no date [1970]), p 211.

42 Watkin Tench (ed L F Fitzhardinge), *Sydney's First Four Years* (Sydney 1969 [1961; London 1789 & 1793]), p 195.

plaster'.⁴³ The Reverend Richard Johnson's first church, built in Sydney in 1793, was wattled, but J S Hassall's description does not imply wattle and daub:⁴⁴

It was built of wattle, not the tree we know by that name, but a sort of Christmas bush, *callicoma serratifolia*, and cabbage palms. The interstices between the slender tree-trunks were filled in with a kind of plaster, and the roof was thatched.

This tells us that the *Callicoma* or black wattle was used, but suggests that the infill was in the form of pieces of trunk - possibly of the cabbage palm - rather than of wattling, or woven twigs. However we must prefer Collins's contemporary description of the building as being 'constructed of strong posts, wattles, and plaster'.⁴⁵ This is confirmed by Johnson's estimate of the costs, prepared at the time, which includes £4.10.0 paid to 'wattlers and plaisterer'.⁴⁶

There are a few reference to wattle and daub after this time, in the Hunter Valley area of New South Wales, where Henry Dangar's field book of 1822-3 mentions a 'wattle and frame' barn, and two 'wattle and plaster' cottages.⁴⁷ Various wattle and daub or wattle and plaster buildings are mentioned at Wallis Creek (Maitland) in the early 1820s,⁴⁸ and Peter Cunningham, who spent time in the same district, also refers to 'wattle and plaster' as a typical material for a settler's first house.⁴⁹ Ted Howard has claimed that the oldest surviving wattle and daub building is one at Bathurst built in about 1830, but he does not identify it, and the assertion must be viewed with suspicion.⁵⁰

In Tasmania the first huts at Hobart Town were of this construction, if we are to believe J B Walker's highly circumstantial description of the long rods of wattle, and the clay and loam mortar mixed with chopped wiry grass as a substitute for hair.⁵¹ Otherwise, however, this construction seems rare in Tasmania, for there are only modern references, unsubstantiated by any detail. Dennis Jeans identifies Lieutenant Lord's house in Hobart as an example,⁵² and E G Robertson refers to a cottage on Charles Rowcroft's property 'Norwood', on the Clyde, in which he was living in

43 Collins, *Account of the English Colony*, p 92.

44 J S Hassall, *In Old Australia: Records and Reminiscences from 1794* [Brisbane 1902], p 145.

45 David Collins [ed Maria Collins, James Collier], *An Account of the English Colony in New South Wales* (Christchurch 1910 [London]), p 23.

46 Johnson to Dundas, 3 September 1793, *Historical Records of Australia*, II, p 66, quoted in Irving, 'Early Australian Architecture', p 414.

47 R M Deamer, 'Houses Erected on Original Land Grants in the Lower Hunter, Paterson and Williams River Valleys between 1800-1850 (MARCH, University of Newcastle, 1971), p 35, ref Henry Dangar, 'Field Book and Notes', Mitchell Library.

48 W A Wood, *Down in the Valley* (Sydney 1972), pp 19, 23, 57, cited in Michael Pearson, *Notebook on Earth Buildings*, p 21.

49 Peter Cunningham, *Two Years in New South Wales* (2 vols, London 1827), II, p 161.

50 Ted Howard, 'Earth Building in Australia - a Vista', *Owner-Building and Earth Architecture* (Melbourne 1984), p 55.

51 J B Walker, *Early Tasmania* (Hobart 1963), p 71, quoted in John Archer, *Building a Nation* (Sydney 1987), p 32.

52 Dennis Jeans 'The Building Industry: Materials and Styles', in Judy Birmingham, Ian Jack & Dennis Jeans, *Industrial Archaeology in Australia: Rural Industry* (Richmond, Victoria, 1983), p 100.

1822.⁵³ It is doubtful whether the construction was used at all in South Australia, as such references as there are inexplicit and unsubstantiated.⁵⁴

In Western Australia a fragment of wattle and daub from before 1832 remains at the Patrick Taylor cottage in Albany. In Perth, A H Stone's 'Alpha Cottage' was described as being of wattle and daub, and was given an impeccable finish ruled as ashlar masonry, which can be seen in a photograph of 1863.⁵⁵ The Bussells used wattle and daub for the walls of their two storey homestead at 'Cattle Chosen' in 1834.⁵⁶ J R Wollaston cut wattles for his church at Picton in 1852,⁵⁷ and other buildings at the Australind settlement were also wattled and daubed. Lawrence's Wayside Inn [or Morgan's Inn], Picton, has been claimed to be⁵⁸ and the material is said to survive in the core structure of John Barron's house 'Twanga' or 'Tarwonga' (also Tarwonga Inn) near Arthur River, which dates from the 1870s.⁵⁹

In Melbourne Fawkner referred to 'wattling between posts' in the construction of his own house, but other reports indicate that the building was of weatherboard, or broad paling, or sods - that is, of almost anything but wattle and daub: it may be that internal partitions were of wattle and daub, or that wattling was done as key for conventional plastering. By 1837 Thomas Napier is said to have built his house in Collins Street - one of the more pretentious dwellings in the settlement - of wattle and daub with a rush thatched roof.⁶⁰ George Russell gives a very circumstantial account of how the ti-tree, which grew in abundance on both sides of the Yarra, downstream from Melbourne, was used for the purpose:

The trees were cut into the required lengths, one end of the spar was placed on [?]in the ground (each spar being kept several inches apart from the other), and the small branches of ti-tree or wattles were interwoven between the spars something like basket-work. A thick coating of clay was thrown on both sides and smoothed over, and after drying it got a coat of whitewash. When carefully done it looked clean and neat and was very comfortable. It was called the 'wattle-and-dab' style of building. The roof was generally thatched with long grass from the marshy grounds, or with paling from Tasmania.

Russell claimed that the majority of Melbourne buildings during the first two or three years were built in this way.⁶¹ Otherwise, however, only the loosest descriptions of

53 E G Robertson, *Early Buildings of Southern Tasmania* (2 vols, Middle Park [Victoria] 1970), II, p 295.

54 Elaine Lawson, 'Padthaway', in John Moore et al, *Historic Homesteads of Australia. Volume Two* (Stanmore [NSW] 1976), p 288.

55 Battye Library, reproduced in John Archer, *Building a Nation* (Sydney 1987), p 47.

56 E O G Shann, *Cattle Chosen* (Facsimile, Nedlands [WA] 1978 [London 1926]), p 66.

57 A Burton [ed], *Wollaston's Picton Journal* (Nedlands [WA] 1975) p 92,

58 Ian Molyneux, 1990, has advised that it is of wattle and daub, but Charles Staples states that the external walls are of slabs, and that Leschenault House is the only example of wattle and daub known to him.

59 Original information from Paul Tvermoes, Faculty of Architecture, Melbourne University, 1996. Tvermoes believed the building to date from the 1830s, but information from Alice ? of Hocking Planning and Architecture, Subiaco, is that Barron built the house after settling there in the 1870s.

60 F J Wilkin, *Baptists in Victoria: Our First Century 1838-1938* (Melbourne 1939), p 9.

61 P L Brown [ed], *The Narrative of George Russell, with Russelliana and Selected Papers* (London 1935), p 133.

the town suggest that wattle and daub was used in Melbourne proper, though three such buildings were listed in the St Kilda rate book for 1859.⁶²

'Garryowen', however, describes the method in enough detail to suggest that he really was familiar with it in the local context.⁶³

... the size of the required 'premises' was to be marked, and stakes or posts to be driven into the ground a few feet apart: these were then connected with interwoven twigs of gum, wattle or ti-tree, like rough wickerwork. The next stage was to 'daub' well on both sides with kneaded clay, and so puddled, when bakes in the sun, the walls became weatherproof. After roofing of bark, reeds, or shingle was attached, if there were the addenda of a brick chimney, and a dash of whitewash externally, the habitation or store, as the case may be, was considered complete.

John McKimmie of Bundoora, north of Melbourne, spoke of a daub made from clay and cow dung, the same mixture as was used for flooring.⁶⁴

Again, although the method must have been pretty widely used in country areas,⁶⁵ only four surviving examples have been identified in Victoria, and it must be presumed to have been much rarer than other forms of mud building. 'Tarwin Meadows' homestead, though it has been moved from its original site, has some claim to being the earliest, as it is alleged to date from 1842. It is now in the Coal Creek Museum in Gippsland, and it appears that a substantial amount of the wattle and daub has survived the move.⁶⁶ Gardiner's farmhouse on French Island, is a wattle and daub building of about 1850, which will be discussed below.

Another surviving if fragmentary example is an outbuilding behind the house 'Millbank' in Grant Street, Bacchus Marsh, showing only one panel of mud with crude wattling visible through the surface, and thought to date from 1855. Yet another, at Blairgowrie, can be dated with reasonable confidence to the 1860s.⁶⁷ I formerly believed the oldest surviving example of wattle and daub in Victoria to be the house 'Hawthorn Bank' one and a half kilometres from Alberton. It stands near the corner of Reeve's special survey of 1841, and on that basis Jane Lennon, its discoverer, attributed it to the 1840s. I no longer see any force in this attribution, and I think the cottage is better seen in the context of the land selection period in Gippsland, but notwithstanding this it is a very good example. Panels of true wattling are visible between round posts, and the surviving daub includes animal hair which must have

62 J B Cooper, *The History of St Kilda* (2 vols, Melbourne 1931), I, p 242.

63 'Garryowen' [Edmund Finn], *The Chronicles of Early Melbourne 1835 to 1852* (2 vols, Melbourne 1888), I, p 8. See *Mann's Emigrant's Guide to Australia*, p 27, for a similar description.

64 Len Kenna, *In the Beginning there was the Land* (Bundoora [Victoria] 1988), p 34, referring to a McKimmie family history, apparently in private ownership.

65 There is definite evidence that wattle and daub was used at Sorrento and at Whroo, south of Rushworth.

66 Information from Julie Rixon of Melbourne, 1992. Research on the house has been undertaken by Nancy McMicking, of the family that owned it. It was moved in 1973.

67 25 Godfrey Street, Blairgowrie. A Lands Department map which probably dates from 1864 shows a structure elsewhere in the vicinity, but the site was sold in that year and it is probable that the present cottage dates from soon afterwards.

been part of the mix. To form the wattling round stakes have been nailed up the vertical sides of each panel, so that the wattles brace in against them from either side. Such a system would scarcely have been possible before the mid-nineteenth century, for, unlike the traditional groove, it depends upon the availability of reasonably cheap nails.

There can be little doubt that wattle and daub would have been used in Victoria fairly extensively during the period of land selection, when every known and many unknown methods of construction were pressed into service, and there seems to have been a small concentration of such buildings on the Mornington Peninsula, south-east of Melbourne, though Watts Cottage at Sorrento is the only example which has been properly authenticated. Other examples survived at least into recent times, including one at Tyabb, still standing in the 1970s,⁶⁸ indeed there are a number of surviving structures of types such as pole and pug, which have points in common with wattle and daub.

prefabrication

The outbuildings of 'Leschenault House' at Bunbury, Western Australia, are of wattle and daub within a frame which seems to have been prefabricated elsewhere for the purpose. They are thought likely to date from about 1846-50,⁶⁹ and consist of sawn frames joined with Ewbank nails, infilled with wattle and daub, and clad externally in weatherboard. The framing timbers appear to be all of jarrah, some at least of them mill sawn, and with the top and bottom plates neatly drilled to receive the end of a vertical pole at the centre of each panel of wattling. At the sides of the panel poles are nailed to the sides of the studs, in the manner of cleats, so that the wattling braces against them from either side in the same manner as the Victorian examples already discussed. In at least one case the hole occurs where it is not required, because the panel contains a doorway, and this strongly suggests that the plates were turned out on a systematic basis rather than prepared for their specific location.⁷⁰ The woven lattice is reportedly of wattle, or possibly of peppermint.⁷¹ If all of this is correct, the frames must have been made in a West Australian location with a sawmill, and almost certainly with water access for transport. However, it is not known that there was any mechanical sawmill in the colony at so early a date.

The wattle and daub house on French Island in Westernport Bay, seems to have been built by John and William Gardiner, at a date similar to the buildings at Leschenault: while it can be no earlier than the date of the Gardiners' squatting licence, 1847, it need not be much later, and most probably pre-dates their application to purchase the

68 At the south-west corner of Grayden's Road and Coolart Road: information from John Murphy of Kyneton, 1992.

69 Ian Molyneux and Associates, *Leschenault Homestead' Conservation Plan* (2 vols, Fremantle [Western Australia] 1996), p 174.

70 All this is based on my own fairly hurried inspection in 1997.

71 R McK Campbell, *Leschenault House - Conservation. Preliminary Report* (Fremantle [Western Australia] 1985), pp 1, 4. It is not clear whether the wire nails might have been part of later work, such as the overlaying of weatherboards on the surface.

site under pre-emptive right in January 1854.⁷² It is of round posts and split timbers, with wattled panels of the same type as at Leschenault. An analysis of plant material in the daub has identified twenty species, including some which are introduced, thus tending to support a later date. These are soft broom [*Bromus mollis*], sowbane [*Chenopodium murale*], black nightshade [*Solanum nigrum*], chickweed [*Stellaria media*] and Monterey cypress [*Cupressus macrocarpa*].⁷³ However the daub which has been analysed is from the standing portion of the building, now known to be the later part, and this explains the evidence of introduced species in it.

The collapsed portion of the building was cleared and recorded by a rescue expedition led by Dr Peter Coutts, then Director of the Victoria Archaeological Survey. The purpose of the expedition was to jack back into the vertical and to stabilise the standing portion, which was done with remarkable success. This collapsed part of the building was also of wattle and daub, but it was framed in sawn timber, morticed and tenoned, and almost certainly prefabricated elsewhere. Furthermore it was the original building, being fully framed on four sides, whilst the more primitive and still surviving adzed timber structure was an addition. The prefabricated frame had a single hole drilled in the top and bottom plate at the centre of each panel, to take a vertical rod, just as at Leschenault.

That this frame was imported to the site is beyond doubt. But the likelihood of its being imported from Melbourne or elsewhere in Victoria is slight, for at the time those centres were themselves importing much of their building timber from overseas, and some complete prefabricated buildings. One of the sources of timber was Western Australia, and it seems as likely as not that this was the source of the frame of this building. Identification of the timber would be required to establish this conclusively, but if it is true, then it would strongly suggest the same maker as the frames at Leschenault.

A third building containing evidence of this construction is the homestead on Churchill Island, Westernport Bay. This is a house thought to date from the 1870s, but in its roof space, nailed on rather casually as bracing, are sawn plates with the characteristic alternating round holes and mortices. These timbers look too fresh to have been recycled from an earlier wattle and daub building, and it is difficult to see that there would have been enough spare timber at the French Island site to supply them. It therefore seems likely that they were for an intended building, probably on Churchill Island itself, which was not constructed. Such a proposal would be unlikely to date from earlier than 1855.

72 R V Billis & A S Kenyon, *Pastoral Pioneers of Victoria* (Melbourne 1932), svv Gardner [*sic*], French Island; Nimmo & Goode, *Notes on French Island* (National Trust of Australia (Victoria) Junior Group Landscape Section, mimeograph, no date). Billis & Kenyon use the spellings Gardner and Gardiner, while Nimmo & Goode use Gairdner. It appears that the application for a pre-emptive right made reference to a homestead and improvements: indeed, as a pre-emptive right was granted for a bona fide homestead site it was quite usual, if there was no house on the best part of the run, to build one for the sake of securing the land. An early date for this building is supported by the presence amongst the debris of a large number of bricks resembling those of the Corinella settlement, and probably removed from that site.

73 Identification by Dr Beth Gott of the Botany Department, Monash University. The cypress especially would have required substantial time to get established.