

10.01a Climatic Devices

- a the detached kitchen**
- b the underground room**
- c screens & walls**
- d insulating roofs**

a. the detached kitchen

The use of the verandah, like some other aspects of design, derives as much from a perception that the Australian colonies are tropical as from the reality - hence its relative prevalence even in Tasmania, in a climate little different from the milder parts of Britain. In the same way, it was commonly thought appropriate that the kitchen should be detached from the body of the house. There was good reason in Britain as in Australia to have a well ventilated or an open connecting route, so as to isolate cooking smells from the reception rooms, but the complete separation of the kitchen was designed to reduce the effect of its heat, and was not normally done in Britain. Thus Ellis Bent wrote in 1810 that while Government House, Sydney, was inconvenient, 'the Offices, Kitchen etc which in this country are always detached are roomy and very convenient'.¹ Even in the fairly separate design tradition of Western Australia the detached kitchen was at first the norm, as at 'Old Blythewood' homestead south of Pinjarra, of about 1840.² The tradition was continued, especially in settlers' houses to the north of the colony. It was then taken up in houses provided by government for the police in the 1890s, and designed by G T Poole.³

T W Maslen asserted in 1830 that 'the smell of the kitchen in a warm climate, besides many other inconveniences, makes it absolutely necessary to have it in a detached building.' It ought to consist of two rooms with a terraced roof and a narrow verandah around, placed at one of the angles of the house so as not to block any of the views, but touching the verandah for the convenient delivery of food.⁴ Though Maslen was purportedly advising Australian settlers, he wrote entirely on the basis of his own Indian experience, which perhaps underlines the fact that the detached kitchen was seen as a tropical form, and Australia as a tropical country. But so far as the bulk of settlement goes it is not, and only in Queensland did a detached or semi-detached kitchen remain common into the twentieth century.

T V Blomfield, a settler in the Hunter Valley, explained in the 1820s that the kitchen must be detached from the house on account of the heat.⁵ James Thompson was one

¹ Ellis Bent to his mother, 4 March 1810, Ellis Bent letter book, Bent papers, NLA 195, folder 2, p 78, quoted Broadbent, *op cit*, I, 56.

² Ian Molyneux, *Looking Around Perth* (East Fremantle [Western Australia] 1981), p 106.

³ Ray Oldham, *George Temple-Poole* (Nedlands [WA] 1980), pp 12-13.

⁴ T W Maslen, *The Friend of Australia* (London 1830), p 274.

⁵ T V Blomfield to his family in England, 2 June 1825, 'Memoirs of the Blomfield Family', Mitchell Library, quoted in R M Deamer, 'Houses Erected on Original Land Grants in the

of the few other early colonists to say why detached or semi-detached kitchens were used:

not only on account of the heat, but also to cut off all communication with the convict servants, and to avoid the smells, and the flies, which are very troublesome in summer: yet it is necessary that the kitchen and all other out-buildings should be connected with the house by covered ways; for it rains here so tremendously, or rather spouts, that it is impossible to move in it without being thoroughly wetted.⁶

Later, fire was to become an important factor, especially in country areas where the kitchen might be thatched, and the whole of the buildings might be of timber and combustible materials. Precisely the same considerations applied in Natal, Africa, and to some extent on the Cape, where kitchens were commonly detached for reasons of both fire and heat, but particularly so when they were thatched. The practice continued in later slate-roofed houses, and Kearney surmises that it was due to distrust of the Zulu cook boys.⁷ Analogous considerations might apply in Australia. At Andrew Lang's property in the Hunter Valley, the kitchen was inhabited by the convict servant and his wife,⁸ which may have been a cogent reason for isolating it. In Queensland William Coote was of the view that

The whole apartment [kitchen] should be isolated as much as possible ... There is less danger of loss of life in the event of fire ... in some houses it is so placed as to distribute its odorous vapour, by means of its connection with the entrance hall, throughout every room ... it is always a hot room, and often ... badly ventilated. It should have special attention paid to its ventilation ...⁹

In urban Australian situations fire was less of an issue. Donald Watson comments that the first kitchens in Brisbane were attached, and concludes (I think rashly) that 'the detached form does not ... pre-date kitchen wings'.¹⁰ The evidence is otherwise. In almost every one of the government built houses and cottages in Brisbane, wherever a kitchen is shown at all on the drawings of 1838-40, it is detached. This is true of the commandant's cottage, commissariat clerk's cottage, chaplain's quarters, and foreman of works quarters.¹¹ At 'Newstead House', of 1846, there was a kitchen

Lower Hunter, Paterson and William River Valleys between 1800-1850' (MARCH, University of Newcastle, 1971), p 44.

⁶ J[ames] Thompson, letter of 10 August 1833, in *Architectural Magazine*, I (December 1834), p 377.

⁷ Brian Kearney, *Architecture in Natal* (Cape Town 1973), p 17.

⁸ J D Lang, *An Historical and Statistical Account of New South Wales* (2 vols, London 1834), II, p 123.

⁹ Ian Evans et al, *The Queensland House: History and Conservation* (Mullumbimby [New South Wales] 2001), p 25, quoting William Coote in *Transactions of the Philosophical Society of Queensland*, I (1859-82), unpaginated, John Oxley Library.

¹⁰ Donald Watson, 'The Queensland House' [typescript report] (Brisbane 1981), p 12.4.

¹¹ J G Steel, *Brisbane Town in Convict Days 1824-1842* (St Lucia [Queensland] 1975), figs 19, 38, 47, 105. A partial exception is the superintendent of agriculturalist's quarters at Eagle Farm, fig 55, where there is a separate but linked kitchen block.

within the main structure, but nearby was also 'a detached cooking place, where we can cook in hot weather and so keep all the fires out of the house'.¹² One is tempted to interpret this as an early instance of an Australian barbecue, but the context seems to suggest that there was some sort of rudimentary building.

It is true, however, that the kitchens at Elizabeth Bay House and 'Lindesay' in Sydney, were in the basement. Indeed the same was true at 'Newstead House', where the arrangement took advantage of the slope in the ground, which was further built up on three sides to give the appearance of a single storey house. However it was cut away at the front to reveal the basement level, containing the kitchen, entry passage and servant's room, behind which, occupying the full area of the building, were the pantry and two very large cellars, lit only by gratings from above.¹³ The house 'Tintern', in the Melbourne suburb of Toorak, is a plate iron building prefabricated by W & P McLellan of Glasgow in about 1854.¹⁴ The *Glasgow Commonwealth* described the house as having a kitchen built behind the house 'outside, as is usual in all warm climates'.¹⁵ However, in the event, the house was put up under the architectural supervision of A L Smith,¹⁶ and the kitchen was not built separately, but as a brick basement storey, letting onto a sunken area. At T C Cole's 'Twyford' in Hawthorn, built before 1864, the kitchen and all the storerooms were underground. To prevent damp in these spaces a passage of the same width as the verandah was built around the periphery of this part of the building, and not only kept the rooms dry but allowed the air to circulate freely.¹⁷ As late as 1868 the kitchen at 'Rippon Lea' was again placed in the basement.

b. the underground room

Whether the idea of an underground room (other than a kitchen or other service room) was a specifically local response is not clear. The first local example was probably that of J B Graham's 'Prospect House' at Prospect, South Australia. The house was built in 1846-7, and not long afterwards was described as having an 'underground room', distinct from and in addition to the general cellarage.¹⁸ It sounds as though this were a summer living room such as was used later throughout much of the hot inland of Australia. Prospect House had many unusual features, amongst which the flat roof (discussed below) is probably the result of Indian or South African influence,

¹² Patrick Leslie to his father, 10 April 1846, quoted in Clem Lack, *Newstead House* (Brisbane, no date), p 6.

¹³ Patrick Leslie's sketch plan, reproduced in Lack, *Newstead House*, p 7.

¹⁴ 'Our house has not arrived yet. Mr Moss wishes us to put it down on a piece of ground belonging to him at Prahran, but Wm. has not fixed yet.' Mrs Westgarth to her mother, 9 March 1855, in 'Three Westgarth Letters', *La Trobe Library Journal*, II, 9 (October 1971), p 108.

¹⁵ Quoted in the *Builder*, XII, 619 (16 December 1854), p 642. Westgarth married while in Britain and returned with his wife in October 1854: see Rachel Henning to Henrietta Boyce, 14 August 1854, in David Adams [ed], *The Letters of Rachel Henning* (Harmondsworth [Middlesex] 1969), p 20.

¹⁶ *Argus*, 10 January 1857, p 4: the house, which is offered for sale because Westgarth is leaving for England, is said to have been 'Erected by Mr Architect Smith'.

¹⁷ *Australasian*, 19 August 1876, p 250.

¹⁸ A A Lendon, 'The Story of Graham's Castle' (1933), in the Mortlock Library, PRG 128/12/8, quoted in a letter from Andrew Klenke, 8 April 1994.

but whether the underground room was derived from elsewhere is not apparent, for such rooms were to appear in many other parts of Australia.

Even in the temperate climate of Melbourne 'Shrublands' in Camberwell by 1876 had in the basement 'two large cool rooms, same size as dining and drawing room [both 8.4 x 5.3 m], with windows looking into the garden, forming most comfortable summer rooms.'¹⁹ A large house at Ballarat, built by an Irishman in 1887, had what a modern report describes as an 'underground summer house with bluestone walls used for entertaining', and incorporating a wine cellar.²⁰ Underground rooms used as living and dining areas were more commonly found in hot inland locations, such as at 'Czar Lodge', Hay, in 1879,²¹ and indeed in most of the homesteads in south-western Queensland. A house at Mildura had an underground sitting room, which was retained when the house was rebuilt in 1890, following a fire.²² In the same town the W B Chaffey house, 'Rio Vista', even had an underground ballroom. It was little used for the purpose, but that was due Chaffey's financial difficulties. In miners' houses built at Broken Hill from the 1890s it was common to include a stone-walled sleepout below floor level for the use of miners working night shifts.²³

c. screens & walls

The way in which a portion of the verandah might be screened off, to create a semi-outdoor room or *piazza*, is discussed more fully below. But verandah screening of various forms was known before this more specific concept emerged. Trelliswork had been made fashionable in Britain especially by Humphry Repton, and was therefore an option almost from the beginning of European settlement in Australia. Moveable framed screen panels were occasionally used, but are not well documented. An instance of these may have at 'Glengallan' homestead on the Darling Downs, Queensland, a house which has been tentatively attributed to three architects - Charles Balding, who may have designed it; Thomas Wood, who may have supervised the building in 1867; and Richard Suter, who may have brought it to completion after Balding's departure from the colony.²⁴ It has a surrounding verandah and balcony, in the ground floor of which there are fixed sections of louvres above head height, divided into four panels across the width between verandah posts. In the space below this there may have been similar but moveable sections, possibly three to the height of the opening, and able to be raised in some way using grooved tracks at the sides as

¹⁹ *Argus*, 9 November 1876, p 2.

²⁰ *Argus*, 9 November 1876, p 2.

²¹ M L Gardam, *The Bishop's Lodge* (Hay [NSW] 1993), p 10, quoting *Riverine Grazier*, 2 April 1879, p 2.

²² *Mildura Cultivator*, 10 February 1894, quoted in Andrew C Ward & Associates, "*Rio Vista*" *Conservation Analysis* (no place, 1988), p 177.

²³ Geoff Ashley, 'Two Centuries of Western NSW Dwellings', in Peter Freeman & Judy Vulker [eds], *The Australian Dwelling* (Red Hill [ACT] 1992), p 81.

²⁴ Watson & McKay, *Queensland Architects*, pp 14, 185, 215.

guides. However it is also possible that some quite different form of blind ran in these tracks, or that panels were simply placed into them by hand when required.²⁵

The use of double glazing, in the sense of two glazed sashes, one outside the other, is a long tradition in northern Europe to deal with the cold, but it is interesting to find it making a tentative appearance in Australia purportedly as a measure against both heat and cold. This was in the Hon William Campbell's house in Spring Street Melbourne, built in 1877 to the design of Oakden, Addison & Kemp. Once again, the real motivation may have been to use a comfortingly familiar European form, but it was said in a description five years after the construction date, that there were 'windows with double sashes for warmth in winter, coolness in summer.'²⁶ The Australian Club building of 1878 had windows to Little Collins Street, each with a fixed sash on the outside and an inward opening casement inside, which look as though they may be original

Hollow walling, as we have already seen, was at first used in Europe for ice houses and cool rooms for the sake of insulation, and in the former case to provide a means of draining off water. Hollow walling was likewise used in Australia for dairies and cool stores, and it was only when water penetration became the issue that the early hollow building methods were superseded by truly separate leaves of brick linked only with metal ties. An exceptional example seems to have been the house 'Tivoli' in Melbourne where, according to the later account of Jessie Eddington, a daughter of the family, each partition was 'a double wall with an air channel of a foot wide and during the heat of summer the benefit was immeasurable.'²⁷ Why it should have been so effective is not at all clear.

The meat house at 'Gulf Station', Victoria, is built of slabs, but has a completely detached panel of boarding at one end to protect the wall from the west sun. At 'South Yethong' in the Riverina of New South Wales, there is an octagonal hollow-walled structure which is apparently a meat house, though it doubles as an ornamental garden building in the gazebo tradition. The inner walls are of palisade slab construction, the outer of horizontal logs running into slotted posts, giving way at the top to a panel of trelliswork. This panel is far larger than could possibly be required to ventilate the void, so its purpose must be principally decorative. Internally the ceiling has a mesh vent above which there appears to be a damper or flap which can be raised or lowered by means of a cord, so as to open or close the vent.²⁸

²⁵ [Fiona Gardiner], *Glengallan Homestead* (Warwick [Queensland] no date). A photograph taken in 1980 shows loose panels resting in the verandah at ground level, but they be the fixed panels from elsewhere in the verandah, and therefore no indication whatever of what really filled these spaces. The problem is that the grooves are single, and do not appear to continue up behind the fixed top panel, so that upward sliding panels are more or less impossible. It would perhaps be feasible that the sections were hinged together and rose in a zig-zag fashion, with only central pivots moving in the groove, but a photograph of 1897 shows nothing at all in the space.

²⁶ *Argus*, 21 January 1882, p 2.

²⁷ RHSV Box 132/9, quoted by Kerry Jordan.

²⁸ Inspected January 2000.

d. insulating roofs

The double roof as a means of insulating dairies and underground and semi-underground cool stores in Australia (to be discussed below) may well have had European precedents, as did the double roof for specialised purposes such as powder magazines. But the double roof as used for buildings generally in Australia is a conscious attempt to cope with hot climate. The idea of a double roof occurs commonly in the form of a tent with a fly over, in this case more specifically designed as a waterproofing rather than an insulating measure. However, from at least the 1860s there were examples (some discussed above) of a brush roof replacing the fly, presumably as a deliberate defence against the heat. Independently of this, perhaps, the idea may have come to us from India. In 1865 portable wooden buildings were advertised in the *Bombay Builder* as having double skin walls and roof.²⁹ In 1868 Andrew Handyside & Co of Derby, who supplied prefabricated buildings for India and elsewhere, explained that for hot countries 'where a single roof of iron would be unendurable' they produced a double one with an air space between.³⁰ In one Melbourne suburban house the roof frame was sarked with a one inch [25 mm] layer of boarding, but instead of the slates being nailed directly to this, battens were placed on top, creating a hollow space explicitly designed to keep the house cool.³¹

An alternative approach, or a complementary one, was to use a ventilating roof monitor. A 'Planter's or Overseer's Iron House', advertised by Francis Morton & Co in 1873, had a roof monitor with louvred sides for the full length of the ridge, which is not an exclusively tropical form, for it appears in industrial buildings and railway sheds in Britain, as also in Australia. However this was not all, for Morton had 'an improved plan to secure the necessary coolness, and comfort of the occupants', which seems to have included a double roof and a ventilated plinth.³²

The two ideas, the double roof and the monitor, are again combined in the Cable Station at Broome, Western Australia, of 1889. This is partly of teak, and said to have been prefabricated in Singapore, but all the ironwork is British. The roof trusses, said to be of steel (but perhaps of wrought iron), have the top chord doubled to support two layers of purlins and corrugated iron roofing with a 75 mm space between, and this space is ventilated by means of a louvred monitor at the ridge³³. By the 1890s this double or parasol roof system had been taken up in government buildings which were prefabricated for use in the north-west, such as hospitals,³⁴ and even for the standard model of post office.³⁵ The practice has continued in the region to the present day.

²⁹ Philip Davies, *Splendours of the Raj* (London 1985), p 110.

³⁰ Andrew Handyside & Co, *Works in Iron* (London 1868), pp 41-2.

³¹ *Argus*, 27 March 1886, p 2.

³² King, *The Bungalow*, pp 191, 199, ref Francis Morton, *Catalogue of Portable Buildings*, 1873, Liverpool Public Library.

³³ R McK Campbell, *The Broome Cable Station Courthouse. An Interim Conservation Report* (Fremantle [Western Australia] 1990), pp 3, 5.

³⁴ Ingrid van Bremen, 'The New Architecture of the Gold Boom' (PhD, University of Western Australia, 1990), p 144.

³⁵ 'Standard Drawing for Portable Post Office, drawing no 2' (6410), 29 October 1897, Battye Library: reference copy kindly supplied by Ingrid van Bremen.

Likewise in Queensland in 1890 the architects Tunbridge and Tunbridge created a double roof at E H T Plant's house at Charters Towers (later Thornburgh College). A layer of Willesden paper (a material to be discussed below) was installed some distance below the sheeting, and air was admitted through fine wire netting at the eaves and exhausted at the ridge.³⁶ In 1895 the *New South Wales Agricultural Gazette* recommended a similar arrangement, using glazed calico, hessian or stiff paper below the rafters, and a space of at least 100 mm, through which air from the eaves would pass up as it became hotter, and would escape from the ridge.³⁷

The concept became more explicit in the twentieth century. The Explosives Magazine at Port Adelaide, of 1903, has a hipped double roof, with the upper surface continued out as a broad eave, or effectively a verandah. A louvred ventilating monitor extends along the ridge, and opens into the main volume below, not into the roof space.³⁸ In J R Saville's design of 1924 for the cottage at Home Hill State Farm, Queensland, the living quarters (but not the detached service block) have an ordinary pitched roof with a rather similar oversailing parasol roof, like the fly of a tent.³⁹ Balwant Saini illustrates a fairly modern cottage at Mount Isa which has a completely separate parasol roof structure with its own posts, and extending past the walls of the inner dwelling at both the sides and the ends.⁴⁰ By the 1940s the double roof was being used by the Northern Territory's official architect, Beni Burnett, as will appear below.

³⁶ *Northern Miner*, 21 February 1890, kindly drawn to my attention by Stephen Murray.

³⁷ *New South Wales Agricultural Gazette*, V (1895), p 206, as advised by Deborah Kemp, 1998.

³⁸ Drawing supplied by Peter Donovan, 1991.

³⁹ J R Saville, Inspector of Works, Townsville, 'Home Hill State Farm Cottage' (drawing, undated, c 1924), Queensland University of Technology, School of Architecture, Interior and Industrial Design Archive.

⁴⁰ Balwant Saini, *The Australian House* (Sydney 1982), p 12.