

6. BRICKS AND TILES

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Brick walling is one of the few aspects of building which has been actively discussed by architectural historians in Australia, but the discussion has generally proceeded from dubious premises to totally incorrect conclusions. It may be as well to state at the outset that the brick cavity wall is by no stretch of the imagination an Australian invention, though it may well have become more important in this country than elsewhere. Conversely brick veneer construction as used in Australia, while it may not be a totally new local invention, is certainly a form distinct from that used in the United States, and is a topic of some significance.

The use of roofing tiles in Australia has been the subject of some discussion, not by architectural historians but by archaeologists, and not in general terms but in relation to the Marseilles tile in particular. The pioneering paper was by Robert Varman, and our knowledge has been expanded by Susan Bures's work on the Wunderlich Company. The present writer's contributions have so far appeared in fairly obscure contexts, but what is now presented here should greatly expand and indeed entirely supersede the previous accounts. Despite a widespread and romantic interest in so-called gargoyles, the use of terra cotta and faience has previously attracted only superficial attention, and what is offered here can only be interim and arbitrary coverage: the topic remains shrouded in a degree of mystery.

hoop iron bond

The laying of hoop iron bond brickwork to reinforce it was fairly widespread in Australia, as it was in Britain, and was to be important in the evolution of ties for cavity walling, as will appear. In 1855 Frederick Tyerman, a London architect, invented and patented an improved hoop iron bond in which the sides of the strap were notched at 298 mm [11³/₄ in] intervals, and turned alternately up and down.¹ It was patented in Victoria by the architect

1 Frederick Tyerman, broadside [consisting of a conventional one page advertisement and a two page simulated ms letter, individually addressed in matching handwriting, dated 44 Weymouth St, Portland Place, 29 December 1855. Collection of Richard Aitken, Melbourne. The broadside quotes notices in the *Practical Mechanic's Journal*, *Civil Engineer and Architect's Journal*, &c. Wyatt Papworth [ed], *The Dictionary of Architecture* (London 1853-1892), sv Hoop Iron,

Nathaniel Billing,² who must have obtained the local agency. Less successful were the architects Crouch and Wilson, who were refused a patent in 1865 for a hoop iron punched at intervals from alternate sides.³ Tyerman's bond was manufactured by the Messrs Cope of 53 Little Collins Street East,⁴ one principal of which was the parliamentarian Edward Cope, and this fact was to be crucial to an episode in Victoria in the 1860s when work on the Kew Lunatic Asylum was suspended because of accusations of poor workmanship.

William Wardell, then Chief Architect of the Public Works Department, had testified that Tyerman's hoop iron bond was 'one of the most valuable inventions of the day', and Joseph Reed thought the 'patented Hoop Iron, as a bond for Brick and Stone Walls, so greatly superior to the common Hoop Iron, that it *ought to be generally used*.'⁵ However, at the outset of the Kew controversy Sullivan, a member of the Legislative Assembly, stated that William Wardell, the Inspector-General of Public Works, had not made use of 'the patented hoop iron' in the asylums then being constructed.⁶ In response, Wardell stated that he did not believe that the advantages of using the iron would justify the extra cost, but Nathaniel Billing quoted a letter in which Wardell had previously stated that he was 'so convinced of its superiority that, unless I receive express instructions to the contrary, I shall consider myself bound to use it as the best material.' The cost, according to Billing, would be negligible in relation to a project on the scale of the Kew Asylum.⁷ As the hoop iron issue emerged into the light of day Cope refused to answer challenges that were made to his integrity, but there were substantial grounds for concern about more significant aspects of the work, and as a result the project was totally halted for a substantial time.

Tyerman's bond now disappears from the public gaze. In 1924 'Globe' galvanised hoop iron bonding was specified in the completion of the Government Offices [or 'Treasury' building], Brisbane, in pieces of 16 gauge [1.6 mm] thickness and 1½ inch [38 mm] width, at every eighth course.⁸ Most commonly brickwork was reinforced with 'Bricktor' wire mesh, which was available by the roll in Sydney and Melbourne by the time of the Great War,⁹ and by 1938 was said to be manufactured in both places. Now it had been joined by 'Exmet' expanded steel, and one of the uses of these materials was in reinforced brick lintels.¹⁰

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- cites *Builder*, 1856, advertisements, and *Civil Engineer and Architect's Journal*, XVII, p 400. See also Joseph Gwilt [revised Wyatt Papworth], *Encyclopædia of Architecture* (London 1899 [1842]) [§1899a], p 562.
- 2 Victorian patent no 226 to Nathaniel Billing, 9 June 1859; *Australian Builder*, 10 September 1859, p 285.
 - 3 No 827, not granted to Thomas James Crouch & Ralph Wilson, 30 June 1865.
 - 4 C B Mayes, *The Australian Builders' Price-Book* (Melbourne 1862), p 10.
 - 5 C B Mayes, *The Australian Builders' Price-Book* (Melbourne 1862), p 10.
 - 6 *Victorian Hansard*, session 1864-5, XI part II, p 987, 21 June 1865.
 - 7 D I McDonald, 'A Gross Want of Knowledge', *Victorian Historical Magazine*, XLIII, 168 (May 1972), pp 825-6, quoting Nathaniel Billing to the editor, *Argus*, 23 June 1865.
 - 8 'Specification, Completion of Treasury Building, Queen and George Streets, Brisbane' (typescript, 1924, copy held by the Historic Buildings Branch).
 - 9 C E Mayes, *The Australian Builders and Contractors' Price Book* (8th ed, Sydney 1914), advertisement p 11.
 - 10 C E Mayes, *The Australian Builders and Contractors' Price Book* (10th ed, Sydney 1938), p 52. It is not clear whether Bricktor was at first locally made, but it was advertised in 1919 by R Johnson, Clapham & Morris Ltd of Sydney and Melbourne: *Builder*, XXIV, 45 (12 September 1919), p 16.

brick nogging

One of the less recognised forms of construction in Australia is brick nogging - the laying of bricks between the studs of a conventional frame - and it tends to pass unnoticed because there is usually a cladding of weatherboard or other material over the face. There are many reasons why this may be done, in preference to straightforward brick construction. One is that either the available mortar or the bricks themselves are not durable. Another is that sufficiently skilled bricklayers are not available. The third is that the nogging is an afterthought, and the frame had been built, or brought in prefabricated form, before bricks were locally available. The technique was known in England as early as the fifteenth century, but became general in vernacular housing only after 1650.¹¹ Generally samel bricks or others unsuitable for facework were used and the main reason must have been insulation, but this is not necessarily the case, for it is reported that in Tidewater Virginia, where the climate is mild, nogging was used as a way of making a wooden building rat-proof.¹²

References to brick nogging occur in Sydney in the first decade of the nineteenth century,¹³ but the earliest surviving example is somewhat unusual. At 'Hadley Park', Castlereagh, the house of about 1812 has what is probably an earthfast timber frame, with a leaf of brick between the posts and a second leaf continuously around the outside, thus giving the appearance of a conventional brick wall to a building in which the original load-bearing structure was of timber.¹⁴ It is a simple two storey house with a jerkin-head roof, and is sufficiently pretentious to have a totally false chimney at one end to balance the real one at the other. Related to this building is the strongest Australian node of early brick-nogged buildings, generally of the 1820s, at nearby Richmond, New South Wales, which show family resemblances, especially the use of the jerkin-head roof form,¹⁵ and one such brick nogged house is that surviving in Windsor Street, Richmond, which dates from 1818.¹⁶ Other examples of brick nogging are the Bowman cottage at 368-370 Windsor Street, Windsor, completed by George Bowman in 1819, using the earlier frame of Constable James Blackman,¹⁷ and the former 'Bungarribee', Blacktown, built by John Campbell in 1825.¹⁸

Brick nogging was a method common enough in Van Diemen's Land for the Land Commissioners to feel it necessary in 1827 to express their scepticism. They thought that 'a Weather Boarded, Brick nogged House', though ostensibly cheaper, would ultimately prove more expensive than a solid brick one.¹⁹ There are a number of references to brick nogging in Tasmania. One example was 'Cormiston', the house bought by the Hentys in 1832²⁰ and

11 Eric Mercer, *English Vernacular Houses* (London 1975), pp 131-2.

12 P E Buchanan, 'The Eighteenth Century Frame Houses of Tidewater Virginia', in C E Peterson [ed], *Building Early America* (Radnor [Pennsylvania] 1976), p 171.

13 Peter Bridges, *Foundations of Identity* (Sydney 1995), p 14.

14 Inspection 1997, and Graham Edds & Associates, *"Hadley Park" Conservation Management Plan* (Richmond [New South Wales] 1996), p 58.

15 R I Jack, *Exploring the Hawkesbury* [2nd ed, Kenthurst, NSW, 1990 (1986)], p 142 and elsewhere.

16 Detail illustrated in Ian Evans, *The Australian Home* (Sydney 1983), p 32.

17 Helen Proudfoot, *Exploring Sydney's West* (Kenthurst [New South Wales] 1987), p 155.

18 Proudfoot, *Exploring Sydney's West*, p 73.

19 Anne McKay [ed], *Journals of the Land Commissioners of Van Diemen's Land 1826-28* (Hobart 1962), p 61.

20 Marnie Bassett, *The Hentys* (Melbourne 1954), p 231.

another was John White's store at Bothwell, claimed to date from 1837.²¹ The Master Shipwright's house at Port Arthur, of 1834, has a pit sawn frame infilled with brickwork laid fairly randomly but with broken bond in the vertical direction, and with horizontal timber slips laid in every sixth or seventh course.²² Peter Freeman surmises that these are meant to help maintain a horizontal bed, but this seems somewhat superfluous - more probably they are to provide for fixing. As the levels are uneven and the slips occur at all heights, they would be less likely to be meant for fixing joinery than for a lining such as calico or hessian, intended as a base for wallpaper.

In Launceston it appears that the builder James Bennell made something of a speciality of brick nogging. A pair of houses at 108-110 Cameron Street, is believed to date from after 1846, when Bennell acquired the site. Not only the rear walls, but the whole of the internal partitions are nogged. He built other brick nogged buildings, including Victoria Terrace, a row of seven houses at 1-13 Welman Street, Windmill Hill, East Launceston, of the 1840s-50s.²³

There are also references to brick nogging in Melbourne from 1837 onwards,²⁴ and it was obviously a common and normally unremarked technique. At Brisbane the Immigration Depot of 1857 had a brick-nogged internal partition specified to be:²⁵

half brick thick, up to the level of the wall plate; the plates are to be 4" x 3" scarfed and keyed where joined and dovetailed and spiked where they cross; studs to be 4" x 2 1/2 x 18" centres, tenoned into plates and sills, and to have properly framed crosspieces at door and window heads and sills. The studs are to be of sufficient thickness to allow of being sheeted after brick nogging.

In general, brick nogging for internal partitions was probably far more common than complete nogged buildings.²⁶

21 Frank Bolt, *Vanishing Tasmania* (Kingston [Tasmania] 1992), pp 128-9.

22 Information from Peter Freeman of Canberra, 1992.

23 Information from Mrs Helen Davies, who lives at 13 Welman St, and from Oscar Slater of Melbourne.

24 J P Fawkner is reported to have built a brick-nogged cottage in 1837, which was subsequently rented by the government as the first official post office: R D Boys, *First Years at Port Phillip* (Melbourne 1959), pp 95-6. This is presumably the same brick nogged house which he advertised to let in 1838: *Melbourne Advertiser*, 29 January 1838. Patrick Reed built a brick nogged cottage at what became Arthur's Creek, outside Melbourne, in 1844: D H Edwards, *The Diamond Valley Story* (Greensborough [Victoria] 1979), p 1. William Kelly bought one in 1854: William Kelly, *Life in Victoria in 1853 and Victoria in 1858* (London 1860), II, p 24. 'Driffield', 460 Como Parade, Mordialloc, is an example from late in the century.

25 Quoted in Donald Watson, *The Queensland House* [typescript report] (Brisbane 1991), p 53.

26 See, for example, C B Mayes, *The Australian Builders' Price-Book* (Melbourne 1862), p 16, where prices are given for nogging both on edge and on the flat.