

6.08 Tiles & Terra Cotta

- a. paving tiles**
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a. paving tiles

Chinese paving tiles had been imported to Melbourne in 1856, and were available both in 'fancy' types and in a plain red variety suited to kitchen and dairy floors.¹ Large soft red terra cotta tiles are often found in these locations, without it being possible to tell whether they are imported or locally made,² but in some cases sale advertisements refer specifically to Chinese tiles in locations such as a washhouse,³ cellar or dairy.⁴ Chinese tiles were also reported to have been used in the dairy of Edward Wilson's 'Arundel' model farm, Tullamarine.⁵ Size also may be a way of distinguishing between them, for in 1862 Chinese tiles were said to be fifteen inches [375 mm] square and weigh twenty-four pounds [10.9 kg], while locally made (Melbourne) tiles were nine or twelve inches [225 or 300 mm] square, weighing seven or fourteen pounds [3.2 or 6.4 kg].⁶ Tiles measuring 370 mm square - that is the Chinese size, as near as may be - have been found in the laundry and dairy of 'The Briars', Mornington, Victoria.⁷

Local paving tiles are more varied than the Chinese imports. In South Australia George Shearing's works at Hindmarsh were advertising as early as November 1839 'A great assortment of Paving Tiles, Paid [?plain] and Ridged Roofing Tiles made to order'. Shortly afterwards Thomas Ferguson advertised that he could supply paving tiles in any quantity. In 1851 paving tile manufacture began at a Salisbury brickyard,⁸ by 1856 manufacture had begun at George and William Shearing's Hindmarsh

¹ *Australian Builder*, 17 (26 June 1856), p 137.

² In Victoria at 'Como', South Yarra, and 'The Briars', Mornington, and the twelve inch size at 'Carranballac' in the supposedly 1841 cookhouse.

³ The house is 'Glenfern', St Kilda, and the advertisement refers to Chinese tiles on the washhouse floor: *Argus*, 27 October 1860, p 2.

⁴ For example, a combined cellar and dairy at John de Pass's house, St Kilda (built in 1859): *Argus*, 28 September 1861, p 2.

⁵ *Farmers' Journal and Gardeners' Chronicle*, 4 July 1863, p 424, as advised by Deborah Kemp.

⁶ C B Mayes, *The Australian Builders' Price-Book* (Melbourne 1862), p xxxii.

⁷ Inspected 2003; also Allom, Lovell, Sanderson Pty Ltd, *The Briars'. Conservation Analysis Report* (Melbourne 1984), p 71.

⁸ Noris Ioannou, *Ceramics in South Australia 1836-1986: from Folk to Studio Pottery* (Netley [South Australia] 1986), p 75.

Pottery,⁹ which supplied earthenware tiles for a fireproof floor in Bailey & Stanley's malt house, in 1873.¹⁰ By the 1860s there were at least six local makers,¹¹ and at later dates other potteries also produced floor tiles, including those of Piercy & Davis¹² and of J H Trewenack at Magill, the latter from 1887,¹³ but it was not until towards 1900 that tessellated tiles were made in the colony, as will be discussed below.

There were at least half a dozen paving tile makers in Melbourne towards 1860, for it seems that, much as in South Australia, every pottery which made products such as drainpipes also produced tiles, and some of the brickmakers did as well. Some of the best are those of the brickmaker John Glew of Phillipstown, which are branded 'J GLEW', and measure 12 x 12 x 3 inches [300 x 300 x 75 mm].¹⁴ In 1879 'Hoffman's patent pavers' were being specified in Melbourne,¹⁵ but no examples have been identified. Gemmell illustrates a range of New South Wales tiles, most of which seem to be late - Adamstown Steam Brick Co; Bowtell; T Field; Goodlet & Smith; Gulson (Goulburn); and H Downton (Excelsior Works, Croydon).¹⁶

Oblong paving tiles with a diamond pattern of grooves on the surface are common in Sydney, but not elsewhere in Australia. They are of local manufacture, but are apparently the same as the 'chequered' floor tiles made by Thomas Peake of London from at least the 1850s,¹⁷ and certainly the same as the chequered paving for stables later made by Wheatly & Co of Newcastle, England,¹⁸ and the Buckley Brick & Tile Co made a slightly smaller brick with diagonal chequers.¹⁹ At Newcastle, Australia, the Hughes Pottery and Brickworks began making these tiles before 1868,²⁰ and in Sydney Goodlet & Smith did so by 1890.²¹ Another English type was Candy's 'Olympia' buff vitrified stable paving brick, of standard brick size, with two longitudinal grooves in the face.²² A third English type, 'Musgrave's Stable-Flooring Bricks', was textured with six raised squares on the surface of each,²³ and a similar

⁹ Ioannou, *Ceramics in South Australia*, p 86.

¹⁰ E & R Jensen, *Colonial Architecture in South Australia* (Adelaide 1980), p 473, ref *South Australian Register*, 8 January 1873.

¹¹ Ioannou, *Ceramics in South Australia*, p 75.

¹² Ioannou, *Ceramics in South Australia*, p 78.

¹³ Ioannou, *Ceramics in South Australia*, p 64.

¹⁴ Found at the Clement Hodgkinson house, 157 Hotham St, East Melbourne, of 1861.

¹⁵ G R Johnson, 'Bill of Quantities Metropolitan Meat Market, Bank, Hotel, and Two Shops, &c' (Melbourne 1879), p 6

¹⁶ Warwick Gemmell, *And So We Graft from Six to Six* (North Ryde [New South Wales] 1986), p 40.

¹⁷ *Builder* [UK], XI, 528 (19 March 1853), p 192. According to Peter Clegg et al, *List of Tilemakers and Makers of Architectural Ceramics* (Stafford [Staffordshire] 1998 [1985]), sv, Peake established his works at Tunstall in the 1820s. His son J N Peake took over in 1858, after the latter's death in 1905 the firm was still operating.

¹⁸ J E Sears [ed], *The Contractors,' Merchants,' and Estate Managers' Compendium and Catalogue* (15th ed, London 1901), p 70. Clegg, *List of Tilemakers*, sv, quotes an advertisement for Wheatly & Co's Springfield Potteries at Newcastle from Sears's *Compendium* of 1892.

¹⁹ J T Rea, *How to Estimate: being the Analysis of Builders' Prices* (London 1904 [1902]), p xxxi.

²⁰ Gemmell, *And So We Graft from Six to Six*, pp 40, 77.

²¹ Goodlet & Smith, *Goodlet & Smith, Sydney* [brochure] (Sydney 1890), no page.

²² Rea, *How to Estimate*, p 135; John Leaning, *Building Specifications* (London 1901), p 419.

²³ E S Eyland, Francis Lightbody, & R S Burn, *Working Drawings & Designs Architecture and Building* (Edinburgh no date [c 1863]), 'Outline of Agricultural Architecture', p 16; R S Burn, *Modern Building and Architecture* (London, no date [c 1870]), p 179.

pattern with four raised panels was made by the Buckley Brick & Tile Co.²⁴ Most of these types were categorised as blue Staffordshire paving bricks, but there was also a 'yellow adamantine clinker' measuring 6 x 1³/₄ inches [150 x 44 mm] with only one raised panel, which becomes simply a small brick with bevelled edges.²⁵ None of these have been reported in Australia either in the original or in a local imitation, but bevel edge bricks of a normal face size are found in the stables at 'Carranballac', Victoria'.²⁶

A Chinese import, far more elaborate and specialised than the paving tiles discussed above, was the coloured and glazed balustrading used by E L Bateman at 'Heronswood', Victoria, and probably elsewhere. They resembled some shown at the Great Exhibition, and when Bateman chose them for this building (he later mentioned them in a letter)²⁷ he was working for or in association with the architects Reed & Barnes. It may well be that the same panels were used to surround the flat roof of 'Rajpootana', St Kilda. The architect is not known, but Reed & Barnes are candidates, as the bricks were the same as those used in their Independent Church, Collins Street. The parapet at Rajpootana is described as consisting of 'piers and railing constructed of Chinese porcelain tiles, of amazing cheapness, which produce an unaccustomed but excellent effect'.²⁸ Similar tiles were used as balustrading at the house 'Potsdam' in Hunter's Hill, Sydney, of 1876.²⁹

The boundary between paving tiles in general and tessellated tiles in particular were not always clear, but it is appropriate to mention here the floor tiles of the German manufacturer Villeroy & Boch, of Mettlach and elsewhere. At the Great Exhibition of 1851 they displayed only bowls, jugs and china ornaments,³⁰ but their business seems to have evolved in next three decades, and at the Melbourne International Exhibition of 1880-81 they showed a range of products including architectural terra cotta, floor and wall mosaics, and chamott-clay stoves.³¹ They were awarded a gold medal more particularly, it appears, for their non-architectural products, described as porcelain, Wedgwood and terra cotta ware.³² But they had a Melbourne agent, Theo Meyer,³³ and in the former conservatory of 'Labassa', Melbourne, are flooring tiles bearing the company's brand and presumably original to the building, of about 1890.³⁴

²⁴ Rea, *How to Estimate*, p xxxi; see also Leaning, *Building Specifications*, p 419.

²⁵ Leaning, *Building Specifications*, p 419.

²⁶ Inspected November 2000.

²⁷ Information from Anne Neale, 1994.

²⁸ Leaning, *Building Specifications*, p 419.

²⁹ James Broadbent, 'A Survey of Colonial Imports', in *India, China, Australia: Trade and Society 1788-1850* (Sydney 2003), p 153.

³⁰ London, Great Exhibition of the Works of Industry of all Nations, 1851, *Official Descriptive and Illustrated Catalogue* (3 vols, London 1851), III, p 1071.

³¹ Melbourne International Exhibition, 1880, *Official Catalogue of the Exhibits* (2 vols, Melbourne 1880), II, p 133.

³² Melbourne International Exhibition, 1880-1881, *Official Record* (Melbourne 1882), pp 240, 558.

³³ Melbourne Exhibition 1880, *Catalogue*, p 133.

³⁴ Information from Simon Reeves, 2002.

They also supplied the ornate tiled counter of a butcher's shop at Toowoomba, Queensland, of the 1880s.³⁵

b. moulded terra cotta

Terra cotta, a mixture of clay and sand shaped in moulds for various purposes, had been reintroduced into England early in the eighteenth century³⁶ by Worlidge and others,³⁷ and in 1722 a factory was established at Lambeth by Richard Holt and Thomas Ripley,³⁸ and Holt took out two relevant patents in that year.³⁹ The material contained lead ore, which distinguishes it from the later Coade stone.⁴⁰ The partners called the material 'artificial stone' and were quite successful, but the manufacture ceased soon after Holt's death. Meanwhile some terra cotta was made at Southwark - not far away from Lambeth - by the architect Batty Langley. He competed vigorously with Holt, who referred to him as a person 'who knowed how to elude and set aside any patent whatsoever'.⁴¹ He died in 1851, and the business ceased.⁴² Next Daniel Pincot began experimenting in the 1760s at his works in Goulston Square, and was advertising his artificial stone in January 1767,⁴³ achieving full production by 1770.⁴⁴ Pincot advertised a full range of 'figures, busts, tablets, friezes', &c.⁴⁵ By this time, however, he had already moved across the river to Narrow Wall and another manufacturer, George Davy, was producing artificial stone at Goulston Square, until 1771, when the business failed.⁴⁶ Another maker, Bridges, is heard of briefly in the 1770s, but likewise failed in 1775.⁴⁷

³⁵ Lynn Pearson, 'In the Latest London Style: Decorative Tile and Terracotta Exports by British Manufacturers, 1840-1940', in Malcolm Dunkeld et al, *Proceedings of the Second International Congress on Construction History* (3 vols, Cambridge 2006), III, p 2435, ref L Irvine, 'Tile Hunting in the Antipodes', *Glazed Expressions*, 35 (1997), pp 6-8.

³⁶ 1750, according to James Pulham in the *Builder*, V, 207 (23 January 1847) p 37, but this is clearly too late: *vide infra*.

³⁷ G S Howard et al, *The New Royal Encyclopaedia Londinensis* (London, in parts from c 1785), sv Brick. Worlidge was quoted in *The Country Purchaser, or Builder's Dictionary*, of 1814, discussing earthenware water pipes successfully used at Portsmouth, and chimney grates and fire backs made by Sir John Winter of Charing Cross, and advocating the manufacture of door and window frames (surrounds): ref Pincot, *infra*.

³⁸ Pedro Guedes, *The Macmillan Encyclopedia of Architecture and Technological Change* (London 1979), p 247.

³⁹ Nos 447, of 31 May 1722, 448 of 13 June 1722, cited by Alison Kelly, *Mrs Coade's Stone* (Upton-upon-Severn [Worcestershire] 1990), p 36. See also p 55.

⁴⁰ Kelly, *Mrs Coade's Stone*, p 32, cites the full description by Holt, as published in the *Transactions of the English Ceramic Society*, XXI, part 3, plates 126-9.

⁴¹ Kelly, *Mrs Coade's Stone*, p 32. Daniel Pincot, *Essay on the Origin, Nature, Uses, and Properties, of Artificial Stone* (London 1770), p 47 refers to Langley's products, 'particularly some bustos, said to be tolerably executed'.

⁴² Pincot, *Essay on Artificial Stone*, p 47.

⁴³ Kelly, *Mrs Coade's Stone*, p 32. Pincot, *Essay on Artificial Stone*, p 10, mentions having exhibited some of his products at about this time in the New Auction Room, Pall Mall, now [1770] the Royal Academy.

⁴⁴ Pincot, *Essay on Artificial Stone*, passim.

⁴⁵ Stratton, *The Terracotta Revival*, p 47.

⁴⁶ Kelly, *Mrs Coade's Stone*, p 33.

⁴⁷ Kelly, *Mrs Coade's Stone*, p 34.

In 1769 Eleanor Coade, formerly of Lyme Regis, with her daughter, another Eleanor Coade, established a more famous and successful factory at Lambeth.⁴⁸ According to one account it was Holt's old premises that the Coades took over in 1769,⁴⁹ but this has been refuted.⁵⁰ In fact Coade took over Pincot's works at King's Arm Stairs, and actually employed him until a dispute arose between them in 1771.⁵¹ Coade also bought Bridges's former works in 1775 and ran a second factory there until 1778, when she sold the equipment. However this did not secure her a monopoly, as other makers were to emerge.⁵² If this means the actual premises of Pincot, and implies that he had ceased trading, then it seems improbable, and the Holt theory is to be preferred. According to another account one Julia Coade established a factory at Lambeth in about 1790,⁵³ but, if this is correct, it may simply represent another generation of the family establishing on a new site.

Mrs Coade - Eleanor Coade senior - died in 1796, and in 1799 her cousin John Sealy, who had been employed in the factory since at least 1792, became a partner with Eleanor junior.⁵⁴ Sealy died in 1813, and Eleanor Coade engaged a distant relative, William Croggon, to manage the factory, though he never became a partner, and upon Coade's death in 1821 was disappointed to find that he had not inherited the business,⁵⁵ which he then purchased in his own right. Croggon became bankrupt in 1833 and died in 1835, whereupon his younger son, Thomas John Croggon, refounded the firm as Croggon (1835) and Co. Croggon concentrated on other products, and little more Coade stone was produced, though some was marketed up to 1843, when the moulds were sold off.⁵⁶

Coade stone was a high quality product made by using a flux, and firing the work at a temperature of 1,100°C.⁵⁷ It consisted of a particular sort of clay, mixed with crushed stone bottle-ware, flint and other ingredients, worked to the consistency of modeller's clay, pressed into plaster moulds, and baked in a pottery kiln.⁵⁸ The inclusion of previously burnt material in powder form substantially reduced the shrinkage of the product during drying and firing,⁵⁹ and this was one of the major attributes of Coade stone. In 1771 Mrs Coade engaged as superintendent John Bacon,

⁴⁸ Kelly, *Mrs Coade's Stone*, p 23. George Coade, husband of Eleanor senior, had been bankrupted, and then died, that same year. It was the daughter who was the moving force in the new business. However, according to Elliott, *Technics and Architecture*, p 52, the factory had been established by George and Eleanor Coade prior to his death, which occurred only in 1770.

⁴⁹ Guedes, *The Macmillan Encyclopedia*, p 247.

⁵⁰ Kelly, *Mrs Coade's Stone*, p 32, has shown that Holt was on the river front, whilst Coade was some way inland.

⁵¹ Kelly, *Mrs Coade's Stone*, pp 32, 34, 38.

⁵² Kelly, *Mrs Coade's Stone*, pp 34, 43-5.

⁵³ *Builder*, VIII, 386 (29 June 1850), p 304, giving the name as 'Coode'.

⁵⁴ Kelly, *Mrs Coade's Stone*, p 46. The 'Seeley' of Austin & Seely, makers of a cement-based artificial stone, qv, must be assumed to be a different person. See also J C Loudon, *Encyclopædia of Cottage, Farm and Villa Architecture* (London 1853 [1833]), [§ 1972], p 987.

⁵⁵ Kelly, *Mrs Coade's Stone*, p 49, citing J E Ruck, 'Regency Coade, a Study of the Coade Record Books 1813-1821', *Architectural History*, 1968, pp 34-56.

⁵⁶ Kelly, *Mrs Coade's Stone*, p 50.

⁵⁷ Guedes, *The Macmillan Encyclopedia*, p 247. See also C D Elliott, *Technics and Architecture* (Cambridge [Massachusetts] 1992), pp 52-3; and Kelly, *Mrs Coade's Stone*, p 56.

⁵⁸ Robson, *The Mason's Practical Guide*, p 16.

⁵⁹ Kelly, *Mrs Coade's Stone*, p 57.

a skilled modeller and sculptor who is credited with the bulk of the Coade designs produced almost until his death in 1799.⁶⁰ It was used for a frieze in the cornice of Buckingham Palace,⁶¹ and very successfully for all sorts of exterior architectural features and for some interior ones, one of the most remarkable being a full statue of George III at Weymouth.⁶²

In Australia the newly arrived convict architect Francis Greenway was sufficiently familiar the material to propose for Ultimo House, in 1814, 'a figure of a vestal with a lamp, large as life, to be done out of Parramatta stone or modelled in clay and baked similar to Coade's artificial stone, with appropriate decorations in bas-relief down the staircase.'⁶³ In the following year Greenway experimented in New South Wales with the manufacture of an artificial stone 'similar to Code's, superior to any stone yet found in the colony for building'.⁶⁴ It is thought that the chimneypieces at Old Government House, Parramatta, may actually be of Coade stone.

Though definite examples cannot be named, it is likely that Australia received more of the products of the next generation of makers, represented especially by Mark Blanchard and J M Blashfield. Blanchard had worked for the Coade business in its declining years, probably bought some of the moulds, and by 1850 had works in Westminster Road. Blashfield was a marble importer and cement and scagliola manufacturer, who turned to terra cotta manufacture after seeing Blanchard's prize-winning display at the Great Exhibition,⁶⁵ and is also said to have bought some of the former Coade moulds.⁶⁶ One of Blashfield's products, modelled by the sculptor John Bell, was a 2.8 metre high statue representing Australia.⁶⁷ By this time the term 'artificial stone' more commonly referred to cement-based products rather than baked clays, and these are discussed below.

In Australia, despite Greenway's ambitions, nothing approaching Coade stone was ever made. The early manufacture of what might be called terra cotta was at the level of tiles and drainpipes, which took place from the very first weeks, but more finely moulded architectural terra cotta work came much later. It is claimed to have been first produced in Sydney in 1860,⁶⁸ and in Melbourne Henry A Cawkwell of Gardiner [Malvern] must have begun manufacture at about the same time, for at the 1861 exhibition he showed Gothic terra cotta tracery and window architraves, in addition to such common goods as agricultural drainpipes, flooring tiles, and gutter bricks and

⁶⁰ Kelly, *Mrs Coade's Stone*, pp 40-47.

⁶¹ Robson, *The Mason's Practical Guide*, p 16.

⁶² David Hamilton, *The Thames and Hudson Manual of Architectural Ceramics* (London 1978), p 72.

⁶³ James Broadbent, *The Australian Colonial House* (Sydney 1997), p 87.

⁶⁴ M H Ellis, *Francis Greenway: his Life and Times* (Sydney 1953 [1949]), p 29, ref Colonial Secretary In-Letters, New South Wales (Mitchell Library), no 13, p 80, 8 April 1815. Also p 27, ref the Greenway Papers, A1451, Sotheby Letters, 'A', Greenway to Macquarie, 27 July 1814, and Greenway in the *Australian*, 20 January 1825, quoting this letter.

⁶⁵ Stratton, *The Terracotta Revival*, pp 49-50.

⁶⁶ Kelly, *Mrs Coade's Stone*, p 51, quoting Rupert Gunnis, *Dictionary of British Sculptors 1660-1851* (1953), sv Blashfield.

⁶⁷ Stratton, *The Terracotta Revival*, p 49.

⁶⁸ Freeland, p 193, quoted Dockrill, I, p 123.

tiles.⁶⁹ Cawkwell again showed terra cotta work at the 1866-7 exhibition,⁷⁰ and in 1871 he expanded what had formerly been a one-man business, and went into the manufacture of mosaic and encaustic tiles.⁷¹

Common terra cotta was of course manufactured in all the colonies. Pipes were being made in Sydney by W Clure before the end of 1804,⁷² but these are more likely to have been tobacco pipes than drainpipes.⁷³ By 1826 Leek's pottery at Brickfields produced a range of coarse earthenware products,⁷⁴ but the manufacture of drain and sewer pipes will be discussed in more detail in connection with sanitation. Luke Nolan, of the Gilbrook Pottery in the Melbourne suburb of Brunswick, showed drainpipes and domestic pottery of various sorts at the 1875 Exhibition, as well as a patent damp-proof course which will be mentioned below.⁷⁵ In 1880 the pottery exhibited products including fountains and a vase, and Nolan separately showed earthenware and terracotta manufactures;⁷⁶ while in 1888 Nolan gained a first award for his glazed stoneware, drainpipes &c.⁷⁷ In South Australia, the South Australian Pottery of Piercy & Davis, near Magill, by 1869 produced not only pottery vessels, tiles, and pipes, but moulded items such as chimney pots, and in one instance 'a neat little fountain' of terra cotta.⁷⁸ By 1877 the short-lived firm of Hanold & Schintler, in the same district, were more ambitious, advertising 'Mantelpieces, Corner Stones, Key Stones, trusses ... Fountains ... any Design of Dressing for Gentlemen's Residences...'.⁷⁹ Warwick Gemmell illustrates edging tiles, made towards the turn of the century by J Bowtell of Sydney, Lynn Gulson of Albury, Francis Gulson of Goulburn, and Hughes of Burwood and Newcastle.⁸⁰ Later manufacturers of decorative terra cotta will be discussed below.

The English firm of Doulton and Company were active exporters to Australia and established a Melbourne agency under the style of 'J Doulton and Company', which imported from the parent.⁸¹ Their products included glazed stoneware drainpipes and terra cotta chimney 'tops' [pots],⁸² but were later more varied. In 1880 their designer John Broad modelled a large terra cotta group intended for Brisbane, and fountains by

⁶⁹ *Catalogue of the Victorian Exhibition, 1861* (Melbourne 1861), p 198.

⁷⁰ *Official Record of the Intercolonial Exhibition of Australasia, 1866-67* (Melbourne 1867), p 56.

⁷¹ Sutherland, *Victoria and its Metropolis*, II, p 596.

⁷² *Sydney Gazette*, 23 December 1804, p 4.

⁷³ So Jervis interprets a later advertisement by 'Cluer': James Jervis, 'Notes and Queries', *Journal and Proceedings of the Royal Australian Historical Society*, XLI, 5 (1955), p 247.

⁷⁴ Jervis, 'Notes and Queries', p 248.

⁷⁵ Victorian Intercolonial Exhibition, Melbourne, 1875, *Official Catalogue of Exhibits* (Melbourne 1875), p 16.

⁷⁶ Melbourne International Exhibition, 1880, *Official Catalogue of Exhibits* (2 vols, Melbourne 1880), I, p 40; Melbourne International Exhibition, 1880-1881, *Official Record* (Melbourne 1882), p 648.

⁷⁷ Melbourne, Centennial International Exhibition 1888-1889, *Official Record* (Melbourne 1890), p 747.

⁷⁸ Jensen, *Colonial Architecture in South Australia*, p 365; Ioannou, *Ceramics in South Australia*, p 78.

⁷⁹ Ioannou, *Ceramics in South Australia*, p 80, quoting the *South Australian Register*, 14 July 1877.

⁸⁰ Gemmell, *And So We Graft from Six to Six*, p 41.

⁸¹ C B Mayes, *The Victorian Contractors' and Builders' Price-Book* (Melbourne 1859), p viii.

⁸² *Australian Builder*, 1860-1, advertisements, *passim*.

Doultons were installed at the Joanna Walker Convalescent Hospital and the Royal Prince Alfred Hospital, Sydney, of 1894 and 1911, Sydney, at Narrandera, NSW, in 1922, and at Fremantle.⁸³ The Doulton sanitary ware that still survives in older buildings is also of later dates.

c. tessellated tiles

'Tessellated tiling' is an oxymoron, but in nineteenth century use the term means tiles of a high quality, achieved by dry pressing, which sought to emulate the best medieval floor tiles, and which came in a variety of shapes and colours, from which complex patterns could be built up. The more elaborate of them were 'encaustic' or 'inlaid' tiles, bearing designs of contrasting colour. Samuel Wright who took out a patent for their manufacture in 1830,⁸⁴ and in 1833 Wright's tiles were praised in Loudon's *Encyclopædia of Cottage, Farm, and Villa Architecture*.⁸⁵ However they do not appear to have been a commercial success, and in about 1835 Wright sold his equipment and stock in hand to Herbert Minton, potter of Stoke-upon-Trent, and negotiated royalty agreements not only with Minton but with another manufacturer, Walter Chamberlain.⁸⁶ Chamberlain may have begun manufacture as early as 1836-7,⁸⁷ but Minton, who was more concerned to achieve perfect results, was slower. By 1841 Minton was able to undertake a major commission for the restoration of the pavement of Temple Church, London, using twenty-four patterns based mainly upon examples in the Chapter House of Westminster Abbey.⁸⁸

Such tiles became commercially viable only in the early 1840s after the Birmingham engineer Richard Prosser developed a system of pressing pulverised felspar and clay between steel discs to reduce it to a quarter of its original volume. This produced a very hard and compact material, which was at first used in the manufacture of buttons.⁸⁹ In Wright's system the body of the encaustic tile was made by pressing a thick clay in a mould, so formed as to create an indentation where the inlaid pattern was to be. A clay of a contrasting colour and a softer consistency, more like honey, was poured into the indentation. The surface was scraped to leave a clean division between the two, and the tile was baked.⁹⁰ By 1844 Wright's patent was due to expire, and he sought and obtained an extension of seven years, which he then sold outright in equal shares to Herbert Minton and to Fleming St John, of Chamberlain &

⁸³ Lynn Pearson, 'In the Latest London Style: Decorative Tile and Terracotta Exports by British Manufacturers, 1840-1940', in Malcolm Dunkeld et al, *Proceedings of the Second International Congress on Construction History* (3 vols, Cambridge 2006), III, p 2436.

⁸⁴ No 5890, of 26 October 1830, according to Clegg, *List of Tilemakers*, sv.

⁸⁵ J C Loudon, *An Encyclopædia of Cottage, Farm, and Villa Architecture and Furniture* (London 1846 [1833]), pp 1012-3, ¶ 2008.

⁸⁶ Kenneth Beulah & Hans van Lemmen, *Church Tiles of the Nineteenth Century* (Princes Risborough [Buckinghamshire] 2001 [1987]), p 19. See also Alun Graves, *Tiles and Tilework of Europe* (London 2002), p 112.

⁸⁷ Graves, *Tiles and Tilework*, p 114.

⁸⁸ Beulah & van Lemmen, *Church Tiles of the Nineteenth Century*, p 14.

⁸⁹ *Mechanic's Magazine*, XXXVIII, 1024 (25 March 1843), p 255. Prosser's patent was no 8548 of 17 June 1840: Clegg, *List of Tilemakers*, sv.

⁹⁰ *Penny Magazine*, February 1843, p 80.

Co, Worcester.⁹¹ St John was one of the two new managers of Chamberlains, which had recently absorbed another established porcelain manufacturer, Flight, Barr & Barr. In the same year Chamberlains issued their first catalogue of seventy-four tile designs, but they ceased manufacture four years later, and in 1850 sold their equipment to John Hornby Maw,⁹² who was to become Minton's main rival.

The major recognition of the new tiles came when Charles Barry recommended that they be used for the flooring of the new Houses of Parliament at Westminster,⁹³ and these were supplied by both Minton and Chamberlain. In 1859 Minton's business at Stoke upon Trent became Minton & Hollins, and it subsequently spawned a cluster of derivative businesses run by Minton relatives and/or Hollins.⁹⁴ The brand MINTON & CO / PATENT / STOKE UPON TRENT continued to be used on existing patterns, but most of the newer and smaller tiles now introduced, which were four inches [100 mm] square and proportionately thinner, were branded MINTON HOLLINS & CO.⁹⁵ Tessellated and encaustic tiles for flooring and paving were imported to Australia in large quantities from these English manufacturers, especially Minton and Maw, who moved to Brosely in 1860.⁹⁶

Some of the first Minton tiles in Australia were those used at the Church of St John the Baptist, Buckland, Tasmania, in about 1847.⁹⁷ In 1855 Herbert Minton made a personal gift of encaustic tiles to a church at Geelong, and soon afterwards Minton tiles were used in the Lady Chapel of St Francis's Church, Melbourne. They were used at St Andrew's Anglican Cathedral, Sydney, in about 1867,⁹⁸ 'Werribee Park', Victoria, in 1874-7, and Parliament House, Brisbane, in 1888.⁹⁹ The circular design of Minton tiles laid in the vestibule of Parliament House, Melbourne, in 1877, was the company's most important commission in Australia.¹⁰⁰ The brand

MINTON & CO
PATENT
STOKE UPON TRENT

appears on fireplace tiles at 'Rupertswood', Victoria as late as 1875. A number of Minton patent tiles have been recovered from the cargo in the wreck of the *Loch Ard*

⁹¹ Graves, *Tiles and Tilework*, p 114; Beulah & van Lemmen, *Church Tiles of the Nineteenth Century*, p 20; Clegg, *List of Tilemakers*, sv Wright.

⁹² Beulah & van Lemmen, *Church Tiles of the Nineteenth Century*, pp 12-13, 23-4.

⁹³ *Mechanic's Magazine*, XXXIX, 1039 (8 July 1843), pp 29-30.

⁹⁴ J & B Austwick, *The Decorated Tile* (Don Mills [Ontario] 1980), pp 48-52.

⁹⁵ Beulah & van Lemmen, *Church Tiles of the Nineteenth Century*, p 17.

⁹⁶ Graves, *Tiles and Tilework*, p 112; Clegg, *List of Tilemakers*, sv.

⁹⁷ G M Moore, 'Antipodean Gothic' (2 vols, MA, University of Melbourne 1984), quoted in Ben Coughlan, 'Tessellated and Encaustic Floor Tiles', *History of Building Construction*, University of Melbourne 1995, no page.

⁹⁸ Pearson, 'In the Latest London Style', p 2433, ref Irvine, 'Tiler Hunting in the Antipodes', pp 6-8.

⁹⁹ Pearson, 'In the Latest London Style', p 2434. Pearson also cites St Dominic's Priory Chapel, North Adelaide, of 1892.

¹⁰⁰ Pearson, 'In the Latest London Style', p 2434, ref J Jones, *Minton: the first Two Hundred Years of Design and Production* (Shrewsbury 1993). See also George Tibbits, 'Parliament House Melbourne', in John Moore et al, *Historic Public Buildings of Australia* (North Melbourne 1971), pp 162-3.

in Victoria, of 1877,¹⁰¹ and by this time they formed part of the regular stock of McEwen's in Melbourne,¹⁰² who were soon advertising themselves as agents for Minton Hollins & Co.¹⁰³

Maws provided the tiles to floor the Provincial Council Chambers at Canterbury, New Zealand, in 1864-5.¹⁰⁴ A good local example of Maw's is the hall of 'Kolor' homestead near Penshurst, Victoria, of about 1867-8, where, rather unusually, one tile is branded in raised relief on the upper face. The wording

MAW & CO
BROSELEY

is also unusual, for most of the firm's tiles were now branded 'Brenhall Works, Brosely', and the name 'Brenhall Works' was retained even after their next move, to Jackfield, near Ironbridge in Shropshire, in 1883.¹⁰⁵ One of the most prominent uses of their tiles was in the renovations of the Melbourne Town Hall in 1887.¹⁰⁶ Maws' tiles were also used at the E S & A Bank and the Commercial Bank of Australia headquarters buildings in Melbourne of 1883 and 1891 respectively;¹⁰⁷ St Patrick's and St Paul's Cathedrals, Melbourne; Parliament House, Perth, in 1902-4; and St Peter's church, Maitland, in 1904.¹⁰⁸ In 1888 Maws showed tiles for floors, walls and fireplaces at the Centennial Exhibition in Melbourne. They were awarded a first order of merit, and the jury commented that their 'encaustic, mosaic, incised, lustered, intaglio and embossed tiles [deserved] high praise for solidity of substance, richness and variety of colour, smoothness of surface, and beauty of decoration'.¹⁰⁹

Other makers' products arrived in smaller quantities. William Godwin had set up his first factory at Lugwardine, near Hereford, in 1851, making only bricks, quarry tiles and drainpipes, but in the following year he was joined by his brother Henry, who had worked for Maw, and they began to produce encaustic floor tiles. In 1863 a new factory was opened at Withington.¹¹⁰ Godwin supplied the tiles for the nave and chancel of St Peter's Cathedral, Armidale, New South Wales, built to the design of J H Hunt in 1870-5,¹¹¹ and for the reredos of Hunt's St Paul's Church of England,

¹⁰¹ Now in the collection of Edward Manifold, 'Wiridgil', Camperdown.

¹⁰² Charles Mayes, *The Australian Builders' Price-Book* (3rd ed, Melbourne 1877), advertisements p vii.

¹⁰³ Melbourne Exhibition 1880-1881, *Official Record*, advertisements p xxiv. The advertisement referred only to Minton's tiles, but the firm exhibited as Minton, Hollins & Co: *ibid*, p 270

¹⁰⁴ John Wilson, *Canterbury Provincial Council Buildings* (Christchurch 1991), p 30. A number of Maw patterns were shown at about this time at the Paris Exposition, and are illustrated in S C Hall [ed], Paris, Exposition Universelle 1867, *The Illustrated Catalogue of the Universal Exhibition published with the Art Journal* (London 1868), p 30.

¹⁰⁵ Centennial International Exhibition 1888-1889, *Official Record* (Melbourne 1890), p 746.

¹⁰⁶ *Australasian Builder & Contractor's News*, 3 September 1887, p 268.

¹⁰⁷ Pearson, 'In the Latest London Style', p 2435.

¹⁰⁸ Pearson, 'In the Latest London Style', p 2434.

¹⁰⁹ Centennial International Exhibition 1888-1889, *Official Record* (Melbourne 1890), p 746.

¹¹⁰ Austwick, *The Decorated Tile*, p 75. See also Clegg, *List of Tilemakers*, sv.

¹¹¹ Peter Reynolds & Joy Hughes, 'Private Practice: Works 1869-1904', in Peter Reynolds, Lesley Muir & Joy Hughes [eds], *John Horbury Hunt: Radical Architect 1838-1904* (no place [Sydney] 2002), p 57. Company details from *Official Record*, *infra*.

Murrurundi, of 1872-3.¹¹² In 1878 Henry left to start his own company, and William took in his son, as Godwin & Son.¹¹³ The company exhibited its tiles at Melbourne in 1888-9.¹¹⁴

Maws move to Jackfield in 1883 had been to take advantage of the clay deposits already being exploited by Hargreaves & Craven, and then from 1872 by Craven Dunnill & Co.¹¹⁵ At 'Mount Rothwell', Victoria, of about 1872-3, there are tessellated verandah tiles bearing the two separate brands

DUNNILL & CO
JACKFIELD

and

CRAVEN & CO
RO 212

This perhaps suggests that there was a period when the two companies were in some way linked, at least for marketing purposes, but were not yet fully merged. Other tiles at the same location bear the brand of the subsequent partnership:

CRAVEN
DUNNILL & CO
JACKFIELD
SALOP.

Craven Dunnill & Co exhibited their encaustic tiles at Sydney in 1879,¹¹⁶ and their 'encaustic and geometrical' tiles at Melbourne in 1880.¹¹⁷ They were still advertising in England in 1904.¹¹⁸

Webb's of Worcester, a little-known works believed to have operated in the period 1870-1900, made the tiles used in the verandah of 'Milton Hall', North Melbourne, in 1884,¹¹⁹ and Webbs Worcester Tileries Co exhibited at Melbourne in 1888-9.¹²⁰ The Campbell Brick & Tile Company, one of the Minton offshoots,¹²¹ exhibited in

¹¹² Reynolds & Hughes, 'Private Practice', p 60.

¹¹³ Austwick, *The Decorated Tile*, p 75. See also Clegg, *List of Tilemakers*, sv.

¹¹⁴ Centennial Exhibition 1888-9, *Official Record*, pp 443, 747.

¹¹⁵ Austwick gives 1871 as the date for the foundation of Craven Dunnill, but Clegg, *List of Tilemakers*, sv, cites Godden and Lockett, both of whom give 1872.

¹¹⁶ Sydney International Exhibition 1879, *Official Catalogue of the British Section* (London 1879), p 92.

¹¹⁷ Melbourne Exhibition 1880, *Catalogue*, p 269. See Graves, *Tiles and Tilework*, p 120, for an illustration of their tiles in the floor of the Crown Liquor Saloon, Belfast, and p 128 for their use in hearth designs.

¹¹⁸ Rea, *How to Estimate*, p xxviii.

¹¹⁹ Guy Murphy, *At Home on Hotham Hill* (North Melbourne 2004), p 56. Murphy does not specify the exact form of the brand, but three are illustrated in Jill & Brian Austwick, *The Decorated Tile: an Illustrated History of English Tile-Making and Design* (London 1980), p 144: 'Webbs Worcestershire Tileries Co Limited Worcester', 'Henry C. Webb, Worcester', and 'Webbs Tileries'.

¹²⁰ Melbourne, Centennial Exhibition 1888-9, *Official Record*, p 443.

¹²¹ One of Herbert Minton's nephews, Colin Minton Campbell, had been admitted as a partner in 1849, and after Minton's death in 1858 Hollins and Campbell continued in business. Another nephew, Robert Minton Taylor, became a partner in 1867, but left in 1868 to establish his own

Melbourne in 1880.¹²² In 1882 it became the Campbell Tile Company,¹²³ and tiles of the latter are found in the verandah of 'Yooralbyn', Melbourne, branded:¹²⁴

THE CAMPBELL TILE COMPANY
STOKE UPON TRENT: PATENT

Similarly, the Empire Building in Collins Street, Melbourne, of 1888, had a vestibule floored in encaustic tiles manufactured by the Campbell Brick and Tile Company, and 'specially imported'.¹²⁵

Australian makers emerged in due course. The Sydney Patent Tile Company was able to supply encaustic tiles for the vestibule of Government House, Sydney, in 1877.¹²⁶ In 1871 Henry Cawkwell of Malvern, Melbourne, expanded what had formerly been a one-man business, and went into the manufacture of mosaic and encaustic tile,¹²⁷ exhibiting the latter in 1875.¹²⁸ He produced tessellated tiles generally until his business collapsed in 1893,¹²⁹ supplying even homesteads in western Victoria.¹³⁰ However it was Cawkwell's protégé, E E Walker, who was first to develop an intercolonial business, the history of which has been researched by Marie Moore. Edgar Edwardes Walker was born in January 1862 and apprenticed to Cawkwell when he was about twelve years old. His ability was such that tiles made by him, and included in Cawkwell's display at the Melbourne International Exhibition, attracted the attention of five businessmen who were interested in starting a works of their own. The Australasian Brick, Pipe and Tessellated Tile Company was set up in November 1885 with Walker as both manager and secretary, and a site containing suitable clays was acquired at Mitcham, near Melbourne. Commercial production of bricks, garden edgings, garden gutter tiles and agricultural pipes began in June 1886, whilst the equipment was still being assembled for making tessellated tiles. By May of 1887 a full range of tessellated tiles was being advertised.¹³¹ In 1890 these tiles were specified for the Commercial Bank of Australia headquarters in Melbourne.¹³²

business. The original company was broken up in 1868, with Hollins running the tile business as Minton, Hollins & Co, and Campbell the china business, as Mintons Tile Works, manufacturing wall tiles. Campbell bought out Taylor in 1874 and formed the Minton Brick & Tile Co which, following litigation over the name, became the Campbell Brick and Tile Co, owned by Campbell and run by Taylor. Austwick, *The Decorated Tile*, pp 48-50. See also Clegg, *List of Tilemakers*, svv.

¹²² Melbourne Exhibition 1880, *Catalogue*, p 269.

¹²³ Beulah & van Lemmen, *Church Tiles of the Nineteenth Century*, p 20.

¹²⁴ Information from Tanya Hancock, 1997.

¹²⁵ Alexander Sutherland [ed], *Victoria and its Metropolis* (2 vols, Melbourne 1888), II, pp 583/5.

¹²⁶ Robert Griffin & Ann Toy, *Government House Sydney* (Sydney 2000), p 17.

¹²⁷ Sutherland, *Victoria and its Metropolis*, II, p 596.

¹²⁸ Victorian Intercolonial Exhibition, Melbourne, 1875, *Official Catalogue of Exhibits* (Melbourne 1875), p 15.

¹²⁹ G M Moore, 'Antipodean Gothic' (2 vols, MA, University of Melbourne 1984), I, p 205.

¹³⁰ At 'Purrumbete' in 1883 there were complaints about the Cawkwell tiling, but they related to the laying rather than to the product itself, and they were satisfactorily resolved: W G Manifold, *The Wished-For-Land* (Camperdown [Victoria] 1986), p 206.

¹³¹ Moore, 'Antipodean Gothic', I, pp 206-212.

¹³² G W Blackburn, 'The Commercial Bank of Australia Limited New Premises, &c' [bill of quantities] (Melbourne 1890), p 13.

Walker was very much a product of Cawkwell, taking on many of Cawkwell's former employees, ordering machinery with which he had become familiar whilst working for Cawkwell (from William Boulton of Burslem), and promoting his product as identical to or equal to Cawkwell's. He was also on friendly terms with the directors of the Minton Hollins Tile Company in England, and imported floor tiles from Maws, and wall tiles from Richards and Bootes. His colourants were mostly imported through Harrison & Son, who were agents for many overseas producers, and he took advice in relation to wall tiles from T H Harrington of the Harrington Tile Co of Tunstall, Stoke-on-Trent, who acted as his consultant for many years.

In South Australia Trewenack's Magill Pottery had a machine for pressing tessellated tiles by 1905,¹³³ and other South Australian potteries also introduced the dry dust process, depending upon high pressure, at about this time. Trewenack's company passed to Hugh McCallum in about 1920, but the shareholders included A A Brice, a principal in the rival Longwood Tessellated Tile Company. This was formed in about 1914 to take over the tile works in the Adelaide Hills which had been operated by Robert Davis from 1902 to about 1912. The new enterprise was controlled by Brice, who had been a shareholder in the earlier company, and it concentrated on tessellated tiles, which were produced, as Noris Ioannou describes, by a Pullen and Mann's power press, producing a thousand octagonal tiles a day, and by five hand presses. The colours were pale buff, red and black, in addition to a bluish-grey tile produced by reburning the buff in a reducing atmosphere, but it does not appear that any encaustic tiles were made. This company continued until 1942, but by 1946 the production of tessellated tiles had effectively ceased in South Australia, due principally to the introduction of terrazzo and other cement-based products.¹³⁴

d. wall tiles

Decorative glazed tiles for bathroom walls, fireplace reveals, hearths, &c, were invariably imported from Britain until the 1890s. The sources were firms such as Mintons, a good example of whose tiles, bearing a chestnut leaf design, is found in the hall fireplace at Abercrombie House, Bathurst, New South Wales, of 1870-8.¹³⁵ Exterior polychromatic wall tiling was confined almost entirely to commercial buildings, in consequence of which very little has survived. Farmer's store in Sydney, 'Victoria House', was built in 1873 with 'bright coloured mural tiles from Worcester, England'¹³⁶ on the façade. Elsewhere external wall tiling was sometimes used to improve the light penetration in wells.

Local makers, having first entered the field of tessellated and encaustic tile manufacture, by the 1890s, began producing wall and other tiles. The Australian Tessellated Tile Company established an agency in Sydney in 1894, and in 1895 produced its first glazed ceramic wall tiles. In that year the company was re-formed as the Australian Tessellated Tile Co Ltd, as bricks were no longer an interest. The company survived the depression of the 1890s partly because it cleverly captured a

¹³³ Ioannou, *Ceramics in South Australia*, p 75, quoting the *Magill Comet*, September 1905, p 2.

¹³⁴ Ioannou, *Ceramics in South Australia*, p 76.

¹³⁵ Inspected 2002.

¹³⁶ H M Franklyn, *A Glance at Australia in 1880* (Melbourne 1881), p 347.

share of the expanding market in sewerage pipes at this period, and it went on to diversify into ceramic mosaic pavements, glazed and coloured enamelled wall and hearth tiles, faience, terra cotta work, roofing tiles, ridging finials and terra cotta roof ornaments, urinal stalls and some other sanitary ware, swimming pool gutters, commemorative plaques, majolica tiles, tiles with transfers on them, decorative bathroom tiles, tiles bearing kangaroos and emus, and so on. The tessellated tiles were supplied to large numbers of churches, sometimes to patterns designed for them by architects such as A A Fritsch.

The Tessellated Tile Company enjoyed something close to a monopoly on government work in Victoria because of the policy of preference to local industry, and to a large degree in New South Wales, despite the development of rivals in Fowlers and Bakewells. Amongst its more distinctive work was the Art Deco tiling of Coles Cafeteria, Bourke Street, Melbourne, and this period, the 1920s, was perhaps its heyday. In the 1930s there was an upsurge in the importation of Japanese, English and German tiles, and ceramic tile bodies from Johnsons, Richards and Pilkingtons, but the company gained a respite from the cessation of imports between 1939 and about 1946, due to the war. After the war the company never regained the initiative: it went public in 1952, was subsequently acquired by Rocla pipes, and finally was wound up.¹³⁷

e. mosaic

Mosaic was far less widely used than encaustic tiling, but was available in modern versions such as the 'Roman Mosaic Pavement' of W B Simpson & Son, London.¹³⁸ Some mosaic tiles were imported from Maws, as previously indicated, and probably from Josiah Wedgwood & Sons.¹³⁹ At 'Vaucluse House', Sydney, there are numbers of tiles about 150 mm square, combined with mosaic tiles in geometric patterns: these are said - probably erroneously - to be by a Neapolitan ceramicist, Tobias Strino, and there are others of the type at 'Craigend' and elsewhere.¹⁴⁰ Some mosaic by Villeroy & Boch of Mettnich, Germany, has been located in the conservatory of 'Labassa', Melbourne.¹⁴¹

Some mosaic tiles were manufactured locally. Angelo Tornaghi of Sydney made 'Geometrical, Mosaic, and plain tiles for pavement' from clay at Enfield. The quality was said to be equal to the best imported tiles and the price lower, and the jury at the Sydney Exhibition of 1870 found them:

¹³⁷ G M Moore, 'Antipodean Gothic' (2 vols, MA, University of Melbourne 1984), I, pp 206-212.

¹³⁸ *Building News*, 20 April 1888, p xii.

¹³⁹ *Building News*, 20 April 1888, p xxvi.

¹⁴⁰ Interpretative material at the site, seen 2005, refers to the maker as Tobias Strino of Naples, but this seems to have sprung from the fact that tiles on the wall screening the kitchen stove are branded 'Fabricca di Strino', apparently referring to the town of Strino in northern Italy: Daniel Thomas, 'Vaucluse House Sydney', John Moore et al, *Historic Houses of Australia* (North Melbourne 1974), p 62.

¹⁴¹ Identified in 2002 by Simon Reeves, who has also found references to Villeroy & Boch tiles in a church in New Zealand and a hospital in the USA.

of remarkable merit, being a Colonial manufacture, combining with a durable material geometrical accuracy and artistic design in form and colour, forming a floor material well adapted to halls, passages, and verandahs, for houses in this Colony.¹⁴²

These, however, were not encaustic tiles - that is, those having a design created by contrasting clay colours within the individual tile. At the Centennial Exhibition of 1888-9 Henry Cawkwell of Malvern, Melbourne, was commended by the jury for his 'mosaic tiles' and awarded a first order of merit - but in the list of awards they are referred to as 'encaustic flooring tiles',¹⁴³ which accords much better with what we know of this maker.

In 1880 the British architect J P Seddon, in his unsuccessful competition entry for the E S & A Bank in Melbourne, proposed cladding the building in 'Rust's glass mosaic' within a framework of rose-coloured terra cotta. Seddon had previously designed Rust's London factory with a cladding of this material.¹⁴⁴ In the bank as executed, to W W Wardell's design, the cladding is stone. At the C B Fairfax house in Double Bay, of 1887, mosaic tiles were supplied by Burke & Co, which was presumably a British rather than a colonial firm.¹⁴⁵ In the twentieth century mosaic work was done by many of the same local companies as terrazzo, which will be discussed below. One of these was De Marco Brothers, who in 1925 completed the mosaic entrance areas of the E S & A Bank and the Queensland National Bank, both in Collins Street, Melbourne.¹⁴⁶

f. tile hanging

Tile hanging on external walls was a result of the influence of the English Queen Anne Revival. The fashion first seems to have appeared in Australia in about 1882 at Sir George Verdon's 'Alton', Mount Macedon, Victoria.¹⁴⁷ These tiles were reportedly made at Malvern, which suggests the works of Henry Cawkwell, and had manganese added 'to produce a tender red in harmony with the surroundings'. In 1885 Percy Oakden advocated tile hanging as a picturesque device 'admirably adapted for our climate [and] almost unknown in these colonies'.¹⁴⁸ The 'almost' indicates that he knew of a local example, probably Alton, and this exposes as somewhat disingenuous the claim made in 1889 by his firm, Oakden Addison & Kemp, that they had used the material 'in an extensive manner for the first time in the colony' at their house for Dr

¹⁴² *Industrial Progress of New South Wales*, p 83.

¹⁴³ Centennial International Exhibition, Melbourne 1888-9, *Official Record* (Melbourne 1890), pp 746-7.

¹⁴⁴ Michael Darby, *John Pollard Seddon* (London 1983), p 99, ref *British Architect*, 9 January 1880.

¹⁴⁵ *Australasian Builder & Contractor's News*, 10 September 1887, p 286.

¹⁴⁶ *Australian Home Builder*, 15 October 1925, p 8.

¹⁴⁷ 'Hortensis' [William Sangster] in the *Australasian*, 17 January 1885, quoted in Nigel Lewis & Associates, *Alton and Hascombe, Alton Road, Mount Macedon* (mimeographed report, South Yarra [Victoria] 1986), p 21.

¹⁴⁸ Terry & Oakden, *What to Build and How to Build It* (Melbourne 1885), p 7.

Rowan, also at Mount Macedon. In this instance the tiles were imported from England.¹⁴⁹

In New South Wales tile hanging appears in 1885-6 at 'Caerleon', Bellevue Hill, as a result of Harry Kent's original plans being dressed up by the fashionable London architect Maurice Adams.¹⁵⁰ Hung tiles had little impact in Western Australia, where an example at 18 Agett Road Claremont, as late as about 1905 is described by Michael Beasley as rare.¹⁵¹

g. decorative terra cotta

Architectural terra cotta was revived in Italy by Andrea Boni, and by 1860 his company had manufactured complete façades for a number of buildings. He won a prize at the World's Fair in New York,¹⁵² and was probably the spur for the activity which followed in the United States, where manufacture is said to have begun in the 1860s, though it is likely that this refers to single tiles and panels rather than to any comprehensive system of cladding.

The Chicago Terra Cotta Company, established in 1869, provided materials for rebuilding Chicago after the fire of 1871, and when the architect Sanford Loring became president of the company its range of architectural products was expanded, and a branch was opened in Boston. In 1875 the Chicago company failed, and the Northwest, or Northwestern Terra Cotta Company was formed by its former employees and took over much of its clientele.¹⁵³ The Northwestern appears to have been responsible for the facing of the Guaranty Building, Buffalo, and in Chicago the Railway Exchange Building, the Schlesinger & Meyer building (later the Carson, Pirie, Scott & Co store) and the atrium of the Rookery.¹⁵⁴ An Australian report cited other important examples of terra cotta cladding as George B Post's Produce Exchange Building, New York, of 1882; the Long Island Historical Society Building; and the Madison Square Garden Building of 1889. The colour range at this stage was limited to red, buff and salmon red,¹⁵⁵ suggesting that these were self-coloured and unglazed. It would seem that individual unglazed terra cotta decorative elements gave

¹⁴⁹ *Australasian Builder and Contractor's News*, 20 April 1889, p 379.

¹⁵⁰ Richard Apperley, 'A Controlled Near-Chaos', in Trevor Howells [ed], *Towards the Dawn* (Sydney 1989), pp 25-8; see also Hugh Fraser, *The Federation House* (Sydney 1986), p 22.

¹⁵¹ M U Beasley, 'With a Glint of Gold', in Trevor Howells [ed], *Towards the Dawn* (Sydney 1989), p 147.

¹⁵² Hugh Pagan, *Catalogue 41* (London 2001), pp 3-4, notes on item 8, Andrea Boni & C, *Album di Decorazione Eseguita in Terra Cotta nell Stabilimento Andrea Boni e C. Premiate con Medaglia d'Oro et d'Argento dall' I.R. Istituto di Milani e con Medaglia di Bronzo dal giuri nell' Esposizione Mondiale di Nuova Jork* [Milan, no date [1860]].

¹⁵³ Deborah Slaton & H J Hunderman, 'Terra Cotta' in T C Jester [ed], *Twentieth-Century Building Materials* (Washington [DC] 1985), p 156. Simpson dates the foundation of the Chicago Terra Cotta Company to 1861, and its liquidation to 1879: P H Simpson, *Cheap, Quick, & Easy* (Knoxville [Tennessee] 1999), p 130,

¹⁵⁴ *The Northwestern Terra Cotta Company Chicago* (brochure, no place or date).

¹⁵⁵ *Australian Home Builder*, 15 May 1925, p 16.

way more generally to complete glazed terra cotta treatments during the 1890s,¹⁵⁶ an early example being the Champlain in State Street, Chicago, of 1893-4.¹⁵⁷

In Britain moulded terra cotta cladding, as distinct from glazed tiles or simple terra cotta shingles, was popularised by its use in Alfred Waterhouse's Natural History Museum of 1873-80, and this may have had more influence in Australia than the American examples. The Adelaide potter William Shearing visited both Europe and North America in 1885, returning with the knowledge to begin local manufacture, for, as he later said, 'many a tip I have picked up which I have since made very useful'. He built a terra cotta workshop at the Hindmarsh Pottery, and a Staffordshire downdraught kiln intended principally for firing terra cotta. Later in 1885 it was reported a large amount of ornamental terra cotta work was being produced 'including cornices, string courses, tiles and panels in both white and red terracotta', and that most of the designs were entirely new and had been obtained by Shearing while in England.¹⁵⁸

Decorative terra cotta wall panels are reported to be incorporated in the Southwark Hotel, Thebarton, of 1885,¹⁵⁹ and somewhat later in the Henry Searle house, 296 Payneham Road.¹⁶⁰ Ioannou illustrates a very fine panel made by Shearing in about 1886, which survives in situ in a façade in The Parade, Norwood.¹⁶¹ Charles Koster's Premier Pottery made some attempt to compete with Shearing, and Ioannou also illustrates large moulded tiles thought to be from this source, in a house of 1887 in Portrush Road.¹⁶² It is interesting, however, that in 1887 an apparently serious enquiry came to the *Australasian Builder & Contractor's News* as to whether terra cotta ornament was manufactured in any Australian colony.¹⁶³ E J Woods used terra cotta panels with floral motifs in 1897 at 'Springhill Lodge', 410 Carrington Street,¹⁶⁴ and in the same year an ornamental band of terra cotta 'specially designed' in Adelaide, and presumably made there, was used on Moir's Chambers in Perth, by J T Hobbs.¹⁶⁵

¹⁵⁶ The Reliance Building, Chicago, begun by Burnham & Root in 1890, as completed by D H Burnham & Co in 1895, used glazed white terra cotta tiling, but set out rather as framed panels rather than as a complete three-dimensional treatment. The Fisher Building, Chicago, by D H Burnham & Co in 1895-6, is fully clad in terra cotta or a more ornamental character. The most prominent manufacturer was to be the Northwestern Terra Cotta Company, and its brochure *The Northwestern Terra Cotta Company Chicago* (brochure, no place or date), illustrates prominent examples by the company, including the Guaranty (now Prudential) Building, Buffalo, by Adler & Sullivan, 1895 (p 13); the Schlesinger & Mayer Building (subsequently the Carson Pirie Scott & Co store), Chicago, by Louis Sullivan, 1899 & later (p 25); and the Railway Exchange (now Santa Fé) Building, Chicago, by D H Burnham & Co, 1904 (pp 9,11).

¹⁵⁷ By Holabird & Roche: Joseph Siry, 'Adler & Sullivan's Guaranty Building in Chicago', *Journal of the Society of Architectural Historians*, LV, 1 (March 1986), p 21.

¹⁵⁸ Ioannou, *Ceramics in South Australia*, p 88.

¹⁵⁹ Information from Peter Bell, 1991.

¹⁶⁰ Information from John Hoysted, 1991.

¹⁶¹ Ioannou, *Ceramics in South Australia*, p 91.

¹⁶² Ioannou, *Ceramics in South Australia*, pp 89, 91.

¹⁶³ *Australasian Builder & Contractor's News*, 1 October 1887, p 334.

¹⁶⁴ Katrina McDougall, 'A Preference for Stone', in Trevor Howells [ed], *Towards the Dawn* (Sydney 1989), p 129.

¹⁶⁵ *West Australian*, 28 July 1897, p 5, quoted by Ingrid van Bremen, 'The New Architecture of the Gold Boom' (PhD, University of Western Australia, 1990), p 137.

In Sydney the brothers William, John and Thomas Bakewell established a brickworks and pottery at Macdonaldtown, which reached its peak in the 1890s when it was controlled by William. A fountain and other terra cotta ornaments produced by the factory still survive at the Bakewell property, 'St Aubins', where the house dates from about 1887-90.¹⁶⁶ It is tempting to surmise that the brothers were related to the Richard Bakewell of Manchester who patented a brick press in 1831,¹⁶⁷ but it is only known that their father, Christopher Bakewell, was a builder in Nottingham. Norman Selfe used panels of terra cotta by Lucien Henry depicting local fauna in 'Annesbury', the house he designed for himself at Alt Street, Ashfield, Sydney in 1887.¹⁶⁸ The first major use of the material was in W E Kemp's Technical College buildings at Ultimo, completed in 1891,¹⁶⁹ where there were panels of tiles below the windows. Next year he used a similar detail in the nearby Technological Museum, in addition to similar tiles in the gables. The first building wholly faced with terra cotta was that of the P & O Steamship Company at Grosvenor, Lang and George Streets, Sydney, designed by Robertson & Marks.¹⁷⁰

In Melbourne the tile maker Henry Cawkwell had made a limited amount of ornamental terra cotta work, and there seem to have been no more specialised firms until the 1880s, but in 1887 one R Terry is named as the manufacturer of the terra cotta in the New Zealand Insurance Co offices in Collins Street.¹⁷¹ This was doubtless meant to be Graham Ferry of Brunswick, who in the same year supplied the fine terra cotta ornament of 'Byram' (later 'Goathland') in Kew.¹⁷²

George Fischer's terra cotta works at Albion, Brisbane, were established in about 1861, but in September 1883 the building materials merchant James Campbell & Sons bought a half share, and two years later he acquired the business outright and renamed it the Albion Brick and Pottery Works.¹⁷³ At this stage they were still making only pipes and bricks, but within a few years they expanded into terra cotta. They possibly benefited from confusion with the well-known English Campbell company, but there is unlikely to have been any connection with the J Campbell of

¹⁶⁶ Michel Reymond, 'St Aubins, New South Wales', in John Moore et al, *Historic Homesteads of Australia Volume Two* (Stanmore [NSW] 1976), pp 297-301, also citing the *Building and Engineering Journal*, July 1893.

¹⁶⁷ 'Brick', *Penny Cyclopaedia*, V (London 1836), p 409, citing the *Mechanic's Magazine*, 14 May 1831.

¹⁶⁸ *Australasian Builder and Contractor's News*, 5 May 1888, p 286, quoted by Andrew Montana, *The Art Movement in Australia: Design, Taste and Society 1875-1900* (Melbourne 2000), p 217, & L J Dockrill, 'Developments in Architecture in New South Wales during the Victorian Period' [6 vols, PhD, University of New South Wales, 1983], I, p 125; also illustration of lyrebird, Dockrill p 126, and in Ann Stephen [ed], *Visions of a Republic: the Work of Lucien Henry* (Sydney 2002), p 92. See also Hugh Fraser, *The Federation House* (Sydney 1986), p 22.

¹⁶⁹ *Cyclopedia of New South Wales*, p 408, quoted by L J Dockrill, 'Developments in Architecture in New South Wales during the Victorian Period' [6 vols, PhD, University of New South Wales, 1983], I, p 124.

¹⁷⁰ Alfred Barbara, 'Terra Cotta in Sydney Architecture 1788-1914' [2 vols, BArch, University of New South Wales, no date (1978)], II, p 69, quoting personal correspondence with George Lindsay, Works Manager of Wunderlich's Rose Hill Terra Cotta Plant.

¹⁷¹ *Australasian Builder and Contractor's News*, 9 July 1887, p 140.

¹⁷² Montana, *The Art Movement*, p 203, presumably derived from the *Australasian*, 7 February 1891, p 278.

¹⁷³ *Queensland Heritage Register*, January 2004.

Launceston who showed terra cotta ware and drainpipes, as well as majolica ware and other pottery products, at the Melbourne Centennial Exhibition of 1888-9.¹⁷⁴ Campbell's Sandhill Pottery has already been mentioned as the makers of terra cotta shingle tiles used in Tasmania.

The Brisbane James Campbell was much more than a potter. He and his wife Isabella and children had migrated from Perthshire and reached Moreton Bay in 1853. At this stage he was a plasterer by trade,¹⁷⁵ but he entered into a lime and cement business, and after surviving the slump of the 1860s expanded into the timber trade at his Creek Street premises.¹⁷⁶ Subsequently his company established a large timber mill near Coochin Creek, with good access to the Glasshouse Mountains and the hinterland. The boats servicing it had by 1895 had developed into a fleet of sixteen vessels which carried both goods and passengers up and down the Queensland coast.¹⁷⁷ A large mill was established at Breakfast Creek, as already mentioned above, and the company launched into the pre-cut house business.¹⁷⁸ In 1891 Campbells of Brisbane were responsible for the terra cotta dressings of the Queensland National Bank branch in Fortitude Valley,¹⁷⁹ and during the 1890s they were regarded as the foremost manufacturers in Australia. They exported extensively to Victoria and New South Wales, where George McCrae, city architect of Sydney, was a prolific user. One early example was the New Belmont Market (the Haymarket) of 1891-3, where the decoration was designed in McCrae's office, and manufactured by Campbells under a separate contract.¹⁸⁰

h. ridging & gryphons

Terra cotta ridgings and finials reach Australia at about the same time as imported Marseilles tiles, towards 1890, but are used even on slate roofs. In 1891 H M Robinson, author of many Sydney tram shelters, was reported to have designed the terra cotta finials and ridge cresting for the tramway waiting room at the corner of Elizabeth and Liverpool Streets.¹⁸¹ It is unclear where these items were made, but one possibility would be F Liebenritt's Cumberland Pottery at Drutt Town near Sydney, which by 1888 was making vases and pottery,¹⁸² and which soon expanded

¹⁷⁴ Centennial Exhibition, *Official Record*, p 567, 747. The *Australasian Federal Directory* (Melbourne 1888), p 474, lists under potteries both J Campbell of Wellington St, Launceston, and J Campbell & Sons of Albion, Queensland. For the Launceston Campbell see also *Australasian Builder and Contractor's News*, 9 March 1889, p 226.

¹⁷⁵ Dimity Dornan & Denis Cryle, *The Petrie Family: Building Colonial Brisbane* (St Lucia [Queensland] 1992), pp 97, 114, ref Jaqueline Whitley, 'Two Families of Early Brisbane' (BA Hons, University of Queensland 1963), chapter 3.

¹⁷⁶ Dornan & Cryle, *The Petrie Family*, p 151.

¹⁷⁷ Dornan & Cryle, *The Petrie Family*, pp 159-160.

¹⁷⁸ Dornan & Cryle, *The Petrie Family*, p 169. Dornan's map of the Albion-Clayfield area, p 156, shows Campbell's sawmill just north of the intersection of Sandgate and Breakfast Creek roads, and his brick and pottery works on the north side of Crosby Road.

¹⁷⁹ *Building, Engineering and Mining Journal*, 16 September 1891, p 188.

¹⁸⁰ *Building and Engineering Journal*, 21 May 1892, p 85; 27 August 1892, p 208; cited by J S Kerr, *The Haymarket and the Capitol* (Sydney 1990), p 9.

¹⁸¹ *Australian Builder and Contractor's News*, 14 March 1891, p 196.

¹⁸² Centennial International Exhibition, Melbourne 1888-1889, *Official Record* (Melbourne 1890), p 512. The name is here given as 'Liebenritt'.

into architectural work. Wunderlichs advertised in 1897 that their roofing accessories were made by Liebentritt's Cumberland Pottery, but these were probably confined to very simple items.¹⁸³ By 1907 Liebentritt & Sons' terra cotta was being advertised by Brown & Brown of Sydney,¹⁸⁴ so the link with Wunderlich must have been severed. By 1910 Wunderlichs were making some accessories at their Brunswick works, but still importing ridging, and probably other items, from Marseilles.¹⁸⁵ In 1911 *Building* reported a house at Lane Cove, New South Wales, which was roofed in Wunderlich's Marseilles tiles (presumably imported), with cresting and finials from their Melbourne works.¹⁸⁶

Melbourne's Federation architecture, and to a lesser extent that of Hobart and Perth, is characterised by the more elaborate finials such as the gryphons or winged dragons often misleadingly referred to as 'gargoyles', but these are hardly known in Sydney. They are also rare in Brisbane, though James Clark's 'Wybenia', New Farm, of about 1900 (demolished) is said to have had a full range of terra cotta cresting and finials.¹⁸⁷ At first most were probably imported, probably from Britain, for they were associated with the 'Old English' strand of the Queen Anne, which derives them from the somewhat obscure English tradition of anthropomorphic terra cotta roof finials.¹⁸⁸ Their first appearance locally is in an 'Old English' style house in the Melbourne suburb of St Kilda designed at the end of 1887 by Oakden, Addison & Kemp. The published perspective, signed by Henry Kemp, shows some sort of winged creature terminating each of the half-timbered gables of the façade.¹⁸⁹

Kemp was a recent migrant from England and a devotee of the Shavian Old English, and it is more than likely he who ignited the imports. It would be helpful to have earlier data, but in 1901 there were a number English makers of terra cotta cresting and finials of various types. Some made finials only in forms such as balls and fleurons, but the range of S & E Collier of Reading included two dragons and a rather improbable seated dog.¹⁹⁰ J K Cooper & Sons of Maidenhead, made a winged dragon terminal, fleurons and other items resembling those illustrated by Viollet-le-Duc, and a dog-like horned beast which looks as if it has come straight off Notre-Dame, Paris.¹⁹¹ This does raise the possibility that such items were imported from France rather than Britain, for they could easily have come from Marseilles together with the roof tiles with which they are commonly associated. But there is no particular evidence of this, and the models used locally tend to be dragons rather than anything specifically French in character. Moreover the first were made locally at almost the same time as the serious importation of Marseilles tiles began.

183 Susan Bures, *The House of Wunderlich* (Kenthurst, NSW, 1987), p 33.

184 Walter Jeffries, *The Australian Building Estimator* (Sydney 1907), advertisements, no page.

185 Susan Bures, *The House of Wunderlich* (Kenthurst, NSW, 1987), p 33.

186 *Building*, 12 May 1911, p 79.

187 Robert Riddel, 'Sheeted in Iron', in Trevor Howells [ed], *Towards the Dawn* (Sydney 1989), p 111.

188 For which see G C Dunning, 'Medieval Chimney Pots', in E M Jope [ed], *Studies in Building History* (London 1961), p 79.

189 *Australian Builder and Contractor's News*, 31 December 1887, plate.

190 J E Sears [ed], *The Contractors,' Merchants,' and Estate Managers' Compendium and Catalogue* (15th ed, London 1901), pp 56-7.

191 Sears, *Contractors' Compendium*(1901), p 59.

The Victorian Terra Cotta Lumber Company at Brunswick, Melbourne, reportedly made the 'griffins' for the Pagoda at the Flemington Racecourse in about 1889.¹⁹² This was the Temperance Pagoda, a polygonal [decagonal] structure of three tiers, with the gryphons placed at the outer points of each of the three roofs, in the form of heraldic winged creatures.¹⁹³ At the end of that year a reporter noted a similar gryphon, 1.8 metres high, at the company's new Wandong factory, where the manager stated that any design for ornamental work could be executed.¹⁹⁴ The company had a very chequered history and cannot have been responsible for the great bulk of gryphons and dragons which appeared up until about the time of the Great War, but so far only one other local maker has been identified.

The oldest identifiable dragon finial surviving in Australia is that at 'Redholme' (later 'Warwillah') in St Kilda Road, Melbourne, built in 1896-7 to the design of John Beswicke. It already looks far more Chinese than Cooper's English products, and it is unfortunate that we do not know where it come from. By 1900 the Australian Tessellated Tile Co was making a range of roof crestings and finials, and one of these was a winged dragon, but by no means so elaborate as that at Redholme.¹⁹⁵ A gryphon is found on a house of 1902 in Whitehorse Road, and Ian Evans illustrates a dragon on a house in Manning Road, Malvern.¹⁹⁶ Later local motifs appear: kangaroos on a house at the corner of Lennox and Elizabeth Streets, Richmond,¹⁹⁷ and kookaburras at 485 Swift Street, Albury and one in Dandenong Road, Oakleigh illustrated by Evans.¹⁹⁸

i. glazed terra cotta cladding

Glazed terra cotta cladding in Australia was at first it was simply an extension of the business of glazed tile manufacture. Thus in 1904-5 the cladding of the Boer War Memorial in St Kilda, Victoria, was of faience supplied by the Australian Tessellated Tile Company of Mitcham.¹⁹⁹ The company developed a considerable specialisation in this field, and by 1912 was advertising 'fireplaces, kerbs &c in rich colors [*sic*]' and would prepare designs to order.²⁰⁰ Under the circumstances it is remarkable that George Taylor, editor of *Building*, could report after a visit to the United States that 'the blue, grey, green and cream-glazed varieties were a revelation ... Yet Australia has not got it'.²⁰¹

¹⁹² J W Payne, *Pretty Sally's Hill* (Kilmore [Victoria] 1981), p 6.

¹⁹³ John Pacini, *A Century Galloped By* (Melbourne 1988), pp 373-4 & illustration p 139.

¹⁹⁴ *Australian Builder and Contractor's News*, 28 December 1889, p 630.

¹⁹⁵ *Building, Engineering and Mining Journal*, 22 December 1900, between pp 398, 399.

¹⁹⁶ Ian Evans, *The Federation House* (Glebe [New South Wales] 1988 [1986], p 25.

¹⁹⁷ An old inhabitant has claimed to remember this house without the kangaroo finials, suggesting that they are relatively modern additions, but this seems highly unlikely: information from Robin Jackson, Richmond, 2000.

¹⁹⁸ Evans, *The Federation House*, p 26.

¹⁹⁹ This is a delightful art nouveau pillar designed by Hugh Peck. See [Kate Grey], *South African War Memorial, Alfred Square, St Kilda* (Melbourne, no date), passim.

²⁰⁰ *Salon*, I, 1 (July-August 1912), advertisements p v.

²⁰¹ *Building*, 12 October 1914, pp 50-53, quoted by Peter Barrett (2001), p 28.

It was presumably Taylor himself who in 1922 wrote anonymously (and not very well) in *Building*:

In the ceramic industry in Australia, a want has been felt for a very long time for the supply of terra cotta as a facing material ...

It is because of this that we find that the art of terra cotta making with its application to building, is practically an 'unknown quantity' in Australia; in some cases where terra cotta has been manufactured, failure has resulted, not because of any lack of merit in the manufacture or design, but possibly because it has been used merely as a decoration applied to spandrils here or there, or in other spaces that lend themselves to objects of decoration or where same may be considered necessary.

However he was able to cite one successful local example, coincidentally the office of his own journal, at 20 Loftus Street, Sydney, where 'a fine terra cotta front' had been installed by the Australian Tessellated Tile Company.²⁰²

The long-felt need was soon to be satisfied, for after the Great War, Wunderlich had established works at Rosehill, and later at Sunshine, near Melbourne. A ceramics expert was brought out from America to establish the industry, and production began in 1924.²⁰³ Full scale glazed terra cladding then began in 1925, when the *Australian Home Builder* reported that Temple Court in Melbourne was to be clad in 'light imitation granite terra cotta supplied by Wunderlich Ltd. in a specially moulded design.' Other architects were proposing to use the material, and in one or two cases plans were in hand, it was claimed, to cut back 'the grey cement faces of existing structures' and re-clad them in the new material. The works in Sydney were already operating, and a site for another factory had been secured in the Melbourne suburb of Sunshine.²⁰⁴

The most remarkable example was the facing of the Commonwealth Savings Bank in Martin Place, Sydney, which was applied in 1926 and included ionic capitals on a gigantic scale. Glazed terra cotta cladding is very common on buildings such as branch banks in Victoria and New South Wales, but it is rarer elsewhere. In Perth, which presumably imported the material from the east through H L Brisbane & Wunderlich, the conspicuous example is the Atlas Building at 10 the Esplanade, by Hennessy & R Summerhayes in 1937, and it is said also to be the first building in the state to use glazed terra cotta as an internal lining material. Although the material is associated mainly with quasi-historical styling such as the classical manner of the various banks, or the Woolworth Gothic of the Manchester Unity building, Melbourne, it was also used in the wonderful art deco façade of Elmslea Chambers, Montague Street, Goulburn, by the architect L P Burns in 1934,²⁰⁵ and occasionally used in more modern designs, such as the McPherson & Co office in Bourke Street,

²⁰² *Building*, 12 October 1922, pp 130-1.

²⁰³ Susan Bures, *The House of Wunderlich* (Kenthurst, NSW, 1987), p 106.

²⁰⁴ *Australian Home Builder*, 16 March 1925, p 18.

²⁰⁵ Inspected 1979. See also Patrick Van Daele & Roy Lumby, *A Spirit of Progress: Art Deco Architecture in Australia* (Sydney 1999), pp 82-3.

Melbourne, in the 1930s,²⁰⁶ and the refacing of the Conrick Tomalin building in Sydney, by Robertson & Marks in 1952.²⁰⁷

Shortly before World War II the material was challenged by Claudite Architectural Porcelain, which was metal based, brightly coloured, and adapted to the simpler lines of more modern architecture. After the war Wunderlich terra cotta seemed to linger on almost as an anachronism. Modern architecture did not require moulded terra cotta or ornamental forms in general. It is true that Wunderlich also made extruded rectangular blocks with a glazed face, and ten inch [255 mm] square wall tiles, which would have been more relevant to current demands, but the colours were mostly mottled and singularly repellent.²⁰⁸ The tiles were also intended for internal use, and Wunderlichs also manufactured moulded terracotta fireplace surrounds.²⁰⁹

²⁰⁶ *Bulletin of the Melbourne University Architectural Atelier* (Melbourne 1937), p 2: Wunderlich Limited advertisement.

²⁰⁷ *Building-Lighting-Engineering*, 24 November 1952, p 49.

²⁰⁸ F W Ware & W L Richardson [eds], *Ramsay's Architectural and Engineering Catalogue* (2nd ed, Melbourne 1949), § 9/1. For the tiles see *Building-Lighting-Engineering*, 24 October 1952, p 49.

²⁰⁹ *Building-Lighting-Engineering*, 24 October 1952, p 49.