



# brick tales: the story of brick



From the Tower of Babel to the European settlement of Australia, brick has a fascinating history going back thousands of years.

On 4 June 1789, just sixteen months after the first landing at Sydney Cove, the ladies and gentlemen of the settlement gathered to celebrate the birthday of King George III and the grand opening of Government House, Australia's first brick building.

Located on what is now the south-west corner of Phillip and Bridge Streets, the two-storey Georgian-style residence was designed and built for Governor Phillip by a convict brickmaker, James Bloodsworth.

Among the First Fleet's cargo were 5000 bricks and brick moulds, wooden boxes used to hand-mould wet clay into bricks ready for firing. A good supply of clay was soon located on what became known as Brickfield Hill and convicts were put to work making bricks.

The work was hard - the colony's most intractable convicts were sent to the brickfields as punishment. But the hardest work was carting the bricks. There were no horses so a team of 12 men drew a cart laden with 750 kilograms of bricks, making nine trips a day to the settlement a kilometre away. This was considered the most extreme punishment, often resulting in death by exhaustion or accidental crushing under an upturned cart.

Despite problems with dampness and rotting timbers, Government House was used for 57 years before the old building was demolished and its foundations disappeared beneath the pavement. Some of the original bricks are now held in Sydney's Mitchell Library.

However the story of brick goes back not hundreds but thousands of years.



Convicts hauling a wagon laden with bricks. Image from *And So We Graft from Six to Six: The Brickmakers of New South Wales* by Warwick Gemmell, courtesy the author.



Government House, Australia's first brick building was designed and built by James Bloodsworth, a convict brickmaker who was responsible for many of Sydney's early public buildings. Drawing by Morton Herman.

*“Among the First Fleet’s cargo were 5000 bricks and brick moulds”*



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reaching back into pre-history

It was probably as long ago as 8000 BC in Mesopotamia (part of modern Iraq) when mankind first discovered clay could be shaped and sun dried to produce a building material.

The Tower of Babel was constructed in sun-dried bricks - they were also made in many parts of the Middle East, India, North Africa, and North and Central America. However it wasn't until bricks were fired in a kiln that they became truly durable. Excavations have uncovered perfectly preserved fired bricks from as far back as 5000 BC.



*A piece of Roman brick from the Theatre at Fiesole, near Florence, Italy. Although this fragment is about 2000 years old it is similar in composition and texture to Australian bricks of the 18th century.*



*Traditional brickmaking in Australia (from top):. A brick yard in Chapel Street, Melbourne, 1860. Hand moulding bricks by "throwing" wet clay (date unknown). Dehacking (unloading fired bricks from kiln) onto wooden barrows (date unknown).*

Some are barely recognisable as bricks to modern eyes. Bricks from Assyria, in the heart of Mesopotamia, weighed over 18 kilograms! Triangular bricks were used to build the Roman Colosseum. The more common Roman bricks were broad and flat, like modern floor tiles.

Brickmaking was introduced into Britain following the Roman invasion in 54 BC but the skill was lost after the last Roman legion withdrew in 410 AD. However Roman bricks were recycled over the centuries, a prominent example being Colchester Castle completed in 1080 from bricks then almost a millennium old. Today the castle houses a historical museum.

The industry was revived by Flemish brickmakers brought to England in the thirteenth century and it was these skills that came to Australia with the First Fleet.



*Brickmakers (including children) in Hull, England in the 1850s.*

*"Bricks from Assyria, in the heart of Mesopotamia, weighed over 18 kilograms"*



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brick spreads throughout the colonies

By the time of the First Fleet, brickmaking technology hadn't changed greatly and bricks were well established as an essential building material.

Their use was limited at first in Sydney because of a shortage of lime, a key ingredient in early mortar. The lime used in the mortar in the first Government House was made from oyster shells collected by women convicts. Hair, mostly from animals, was also used to bind mortar. In 1832 400 Norfolk Island convicts were shorn and their hair mixed with mortar.

The convict brick mark of a broad arrow was introduced in 1819. Some early Australian bricks have a thumbprint, thought to be a tally mark, while others carry paw prints from dogs, cats and possums scavenging for food among the bricks set out to dry.

The broad arrow was replaced by a dazzling variety of marks pressed into the brick frog (the shallow depression in the top surface of a brick) including animal designs, stars, heel prints and even a military medal.

The oldest existing building in Australia is Elizabeth Farm at Parramatta, home of John and Elizabeth Macarthur. Completed in 1794, this long, low brick building with a steeply-pitched, shingled roof is the archetypal Australian farmhouse.

The administrators of Victoria's first settlement at Sorrento in 1802 reported finding "several kinds of clay for pottery, brick, etc". Victoria's first bricks were made in early 1827 at Corinella on Western Port, eight years before Melbourne's founding.

Melbourne's first brick structures is said to be a chimney built in late 1835 for John Batman by William Buckley, the newly-rehabilitated 'wild white man', who may have abandoned white society many years before but not his bricklaying skills. The bricks were imported from Van Diemen's Land (Tasmania). Melbourne's oldest existing brick building is believed to be Tavistock House in Flinders Lane, dating from the 1840s.

Van Diemen's Land was settled in 1803 and brick buildings were common by the 1820s, thanks largely to a plentiful lime supply for mortar.

Queensland's first settlement, the Moreton Bay District, was established in 1824 with the first bricks being made two years later from clay obtained in what is now Tank Street, Brisbane. The brick towers of The Windmill, later The Observatory, were completed in 1827.



Typical convict brick arrows. Photograph from *And So We Graft from Six to Six: The Brickmakers of New South Wales* by Warwick Gemmell, courtesy the author.



Australia's oldest existing building is Elizabeth Farm, Parramatta, New South Wales. Photograph courtesy National Trust (New South Wales).

The Swan River colony in Western Australia was settled in 1829 and brickmaking commenced the following year with good clay and sufficient lime for mortar.

Until the mid-1800s brickmaking technology had not altered for many centuries. All that was about to change.

*"The oldest existing building in Australia is Elizabeth Farm at Parramatta"*



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changing technologies

For untold centuries human labour was largely responsible for all aspects of brickmaking, from extracting clay to shaping bricks and setting and drawing the kiln. It was common in remote areas for clay to be extracted and bricks shaped and fired on the site by itinerant brickmakers.

The technology of brickmaking began to change dramatically in the second half of the nineteenth century with the advent of steam power. A hand-moulder turning out 1000 to 1300 bricks a day was no match for a machine producing 15,000 bricks a day. Steam power took away some of the hard work of brickmaking and allowed further efficiencies.

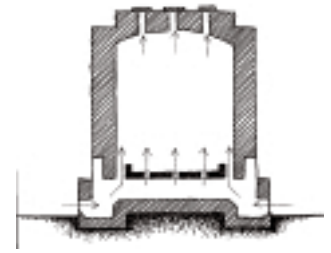
For centuries clamp kilns - temporary, wood-fired kilns - had been widely used. ricks to be fired were encased in a housing of green (unfired) bricks daubed with clay. The resulting bricks were often underfired because of the low temperature and lack of control.



*The distinctive appearance of a Hoffman kiln at Standard Brickworks in Box Hill, Melbourne, about 1934.*



*Unloading an updraught kiln in Launceston, Tasmania in 1959.*



*Updraught Scotch kiln with roof. This type was the earliest used in Australia. Image from And So We Graft from Six to Six: The Brickmakers of New South Wales by Warwick Gemmell, courtesy the author.*

From the early-1800s clamp kilns were replaced by permanent 'Scotch' kilns and later by the Hoffman kiln, the first to fire continuously, some of which are still in use today. These improvements and the change from wood to coal firing of kilns led to a sharp decline in brick prices in the 1870s, feeding a boom in the east-coast colonies.

Nineteenth century roads and transport systems were far less developed than today. This restricted brick deliveries to local areas although use was made of the expanding rail system. One enterprising New South Wales brickmaker even operated a fleet of sailing ships.

However for many years bricks were transported by horse-drawn wooden drays. During the boom times, hot bricks were sometimes loaded straight from the kiln causing drays to smoulder and even catch fire!

During this period of development and expansion, a number of architects were also creating a distinctly Australian style.

*“Some early Australian bricks have a thumbprint, thought to be a tally mark”*



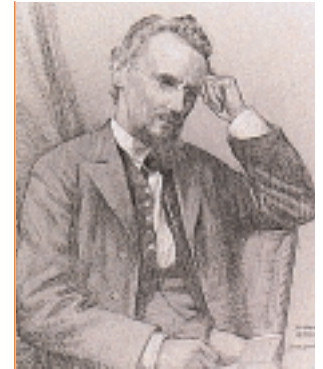
Architects such as Francis Greenway (New South Wales), James Blackburn (Van Diemen's Land) and Joseph Reed (Victoria) were influential in the development of the young colonies. Reed, for example, introduced from Lombardy, Italy the polychromatic (multi-coloured) brickwork that even today is distinctly Melbourne.

One of the leading architects of the nineteenth century was John Horbury Hunt. Born in Canada and raised in Boston, he arrived to Australia in 1863, escaping the American Civil War.

Hunt is best known for his church architecture but produced many other fine buildings. He crusaded for a return to brickwork and railed against stylistic pretence. Most of his work was in New South Wales and included churches, cathedrals, schools and private houses.

Hunt is remembered as quick tempered, argumentative, conceited and eccentric, but most of all gifted. He was a walking architect's office, his suits having a labyrinth of pockets holding drawing instruments and paper!

His memory was commemorated in the John Horbury Hunt Award for Excellence in Brickwork, an annual competition conducted by the NSW chapter of the Royal Australian Institute of Architects and in a book,



Left: John Horbury Hunt, a gifted 19th Century architect and champion of brickwork.



Rippon Lea, a prominent example of early Melbourne polychromatic brickwork, designed by Joseph Reed. Photograph courtesy National Trust (New South Wales).

John Horbury Hunt: *Radical Architect 1838—1904*, published in 2002 by the Historic Houses Trust of New South Wales.

Today, of course, “bricks and mortar” has become a byword for solidity and stability. There are many contemporary architects who are pushing the design boundaries with brickwork.

Their talent is celebrated in *Hod*, a publication of the Clay Brick and Paver Institute, showcasing the best of Australian brickwork design. *Hod* is distributed as an insert to *Architectural Product News*. Back issues of *Hod* are available in PDF format at [www.brickbydesign.com](http://www.brickbydesign.com).

“(John Horbury Hunt) crusaded for a return to brickwork and railed against stylistic pretence”



Boooloombah, a Queen Anne style mansion at Armidale, New South Wales designed by John Horbury Hunt and now part of the University of New England. Photograph courtesy Error! Bookmark not defined.