



CHILTERN
OPEN AIR
MUSEUM

*Where buildings come
alive through history*

Traditional brick making



Location:

- Didcot Cart Shed

Practical Notes:

- Brick making is an undercover but outdoor activity. It is important that your group dresses warmly and appropriately.
- The activity involves handling wet clay; if this might pose a difficulty for any member of your group (for example, individuals with severe eczema) we can provide non-powdered vinyl gloves.
- There are photo opportunities throughout this activity.
- All 'bricks' made by your group members remain at the Museum so that the clay can be recycled.

Purpose and content of the activity session:

- This session gives the chance for your group members to understand the long history of brick making in this country and in the Chiltern area in particular.
- Learn about some aspects of clay production, and how the raw product is made into bricks. Understand that clays vary according to the regions in which they are found, and that these different clays have different uses within the clay industries.
- Look at a variety of bricks and learn their names and functions, and the names of the different brick faces.
- See that bricks have different colourings, textures, and qualities.
- See some typical 19th and 20th century brick moulds.
- Understand that there are several processes the clay must undergo before it is fired in a kiln.
- That clay is plastic and malleable when wet and shrinks as it dries through the process of evaporation.

- That clay can be compressed both to shape it in a mould and to remove it from one. Understand that fired and unfired, glazed and unglazed will react very differently to water.
- Learn the terms porous and impervious, absorbent and non-absorbent.
- Understand that brickwork is laid in courses, and different arrangements of bricks are known as bonds.
- The bonding material is called mortar and is a mixture of cement or lime with sand and water.
- See a variety of clay products that are associated with buildings, e.g. soil pipes, pantiles.
- Answer and ask questions relating to clay and bricks and moulds.
- Watch a demonstration by the Museum teacher of traditional hand moulding of a brick.
- Make (either working singly or in a group of two or three) a wet brick, remove it from the mould using compression and then use it to help build a 'wall' (no mortar is used).

Possible extra activities: (time allowing)

- Apply their understanding of patterns and sequences in brickwork to try their hands at tile hanging - using a frame to represent a roof, and clay tiles with lugs. Understand why tilers would have used copper nails.
- Make patterned paths using fired bricks.

The explanation will vary in emphasis having regard to the age and ability of your group.

Chiltern Brickyards

Clay in the Chilterns

No matter where you are in the Chilterns you are never far from clay. Even clay dug from your garden can be used to make pots with a rich orange and red colour. Clay elsewhere in Buckinghamshire produces the famous 'Buckinghamshire Blues'.

Clay can be used to make a wide range of products, for example bricks, tiles (for floors and roofs), flower pots, bread crocks, clay pipes, jugs and hot water bottles. All these items can be found in the High Wycombe Toll House at the Museum.

Brick making

Bricks are a three-dimensional shape, with a stretcher, header, face and a frog and are made from clay, which has been fired in a kiln.

First the clay has to be dug out of the ground (a clay pit) during the winter, traditionally with a clay spade. After the clay has been weathered, the large stones are taken out and anthracite, sand and water are added.

The clay is used in bats (large lumps of clay that are big enough to make a brick). The bats and moulds are then dusted with sand and the clay is thrown into the mould.

The green bricks are then tipped out of the mould and taken to a hot kiln to dry them, there the bricks become smaller and harder as the water evaporates. The temperature of the kiln also changes the colour of the bricks.

While the clay is still wet it can be moulded into many different shapes because it is plastic and malleable. By using various moulds or pats a variety of shaped bricks can be produced to make different angles in buildings or special details on a building.

Children working in the brickyards

During the 19th Century the cheapest labourers in the brickyards were children as young as eight years old. Their working days were long and hard, working twelve hours a day, six days a week. They worked outside in the wet and cold; and a child could spend all day in wet clothes. Many of these children often had respiratory infections such as bronchitis.

Children could do all sorts of jobs in a brickyard, including:

- Carrying clay to the adult brick makers.
- Carrying green wet bricks to the drying sheds and stacking them to dry.
- Putting dried green bricks into the kiln.
- Emptying the kilns when the bricks had been baked.

Many children had to run to keep up with the number of bricks made by the adult workers and they could cover as much as eight miles around the brickyards each day.

It is hard to conceive the amount of child labour used in the production of the bricks for buildings constructed in the 19th century. Evidence, however, can be found on a closer look at some bricks as small fingerprints may sometimes be seen. This tells us that young children handled the green bricks.

A short history of brick making

The Romans made flat bricks, like oversized tiles. The clay was poured on a brickyard and when it was firm enough it was cut with iron tools. The tiles were then dried completely before they were put in a kiln.

The Saxon word meaning to build is *ge-timbren* which tells us that they used timber; however old Roman bricks may have been re-used at this time.

Bricks were important in the medieval times because of the *Sumptuary Laws*. Newly rich yeoman farmers and merchants in the late medieval period could afford clothes like the nobility but were not allowed to wear them and they wanted to show off their wealth. Brick makers and layers were then brought to England from Europe and houses started to be made partly from bricks, but still with a timber frame.

The bricks were made by simply knocking the clay into shape with wooden paddles or on a wooden bench.

Tudor bricks were made in the same way as medieval bricks and bricks often replaced wattle and daub. During this time bricks started to be used as a construction material, for example Hampton Court was built of bricks.

Pargetting (coloured patterns using bricks) and carved brickwork were also popular at this time.

As the bricks were handmade no two bricks were the same and there was a lot of difference between each brick maker.

During the 18th Century Britain was involved in various wars and these were funded by taxes. In the 1770s a brick tax was introduced and half a crown [12½p] had to be paid per thousand bricks. Because of this, larger and larger bricks were made, which the Chancellor of the Exchequer did not like! He started taxing bricks of a certain volume of clay. Moulds started to be used and Customs and Excise had to check every mould and count the number of bricks made with it. At this time the frog appeared in the brick – was this to avoid the tax?

Brick tax was abolished in 1850 and it was the start of the Industrial Revolution. This led to a building boom with homes needed for the workforce of the revolution.

Bricks started to be produced on an industrial scale and railways and canal were constructed to the brickyards. The expected workload was 800 to 1000 bricks per worker per day and the cheapest source of labour were children. Demand for bricks became so great that purpose built machinery and improved brick kilns enabled an increase in production. Fewer but larger brickyards were used during this time.

Today some factories produce hundreds of thousands of machine made bricks every day.

However the traditional techniques of hand made bricks are still needed for conservation areas where new buildings have to match old ones, for repairs on listed or preserved historic buildings or where an architect wants a particular effect.

Many different types of bricks are now made using various materials including concrete.

Victorian Profiles

Job Title: *Brickyard Apprentice—1862*

Name: *Thomas Smith*

Title: *Master*

Address: *The Bricklayer's Arms,
Ley Hill*

Date of Birth: *September 1850*

Place of Birth: *Ley Hill, Near Chesham,
Buckinghamshire.*

Father's Profession: *Brickmaker and Brewer*

Education:

Dame School: learned a bit of reading and can write my name.

Reasons for taking up this job:

Need to earn keep and learn Father's trade.

Responsibilities and Achievements:

Can carry up to 40 green bricks on a barrow at one time.

Keep brick moulds clean and in order.

Keep brickyard tidy.

Can pay Mother for my keep now that I am twelve years of age.

Interests and Hobbies:

Learning words from the Bible at Sunday School.

Watching birds and animals in the local woods.

Dislikes:

Working on cold, wet days as job is out of doors.

Access Statement:

Didcot Cart Shed: Fully Accessible to all users.

Brick making:

- There are a variety of techniques used for brick making; the type used during the session will depend on any known special needs.
- Hypoallergenic gloves are available if required.