

3 Banbury Case Study



One type of Jurassic limestone which occurs in the Banbury area and runs east into Northamptonshire is a type of *lias* (a French word which is used for dense, or fine grained limestone) known by various names, Banbury Ironstone, Marlstone, Horton or Great Tew. Iron bearing, it has a distinctive ginger colour and often bears plenty of fossils. It runs through North Oxfordshire alongside the River Cherwell via Hook Norton, Deddington and Bodicote and is found north of Banbury up to Edgehill and eastwards through Middleton Cheney.

Ironstone is essentially found in the south and another in the north of Oxfordshire. The southern group of quarries were in the Kings Sutton area (including Ayno, Adderbury, Astrop, Nell Bridge and Sydenham quarries) and the Hook Norton /Bloxham area (Great Tew, Hook Norton and Bloxham quarries). The northern group includes not only Oxfordshire (Wroxton quarries), Warwickshire (Edge Hill and Burton Dasset quarries) but runs east to Northamptonshire (Byfield and Charwelton quarries).

Ironstone was typically also mined as a source of iron ore, the last pit in the Banbury area closing in the 1960's. These quarries fed the ironworks in South Wales and Staffordshire there being little or no such industries in Oxfordshire. This ironstone was also usually shallow and easily obtained without huge mechanical support, although the high quality stone for building was generally deeper. When sawn or dressed the deeper building stone often reveals blue green veins of great beauty. The texture and colour of this material was often used by sculptors. For example Henry Moore's Recumbent Figure from 1938 was commissioned by the architect Serge Chermayeff to stand on the terrace of his home on the South Downs. Moore used Hornton stone which came from a quarry near Banbury in Oxfordshire. There are upper beds of similar material, softer and often used for dry stone walling in the past and still being quarried in the Long Compton and Rollright area near Chipping Norton, and found further afield down to Middle Barton where there are still quarries supplying it as aggregate.

These grades of Hornton stone are often mixed with the more common grey lias for walling as in the example above from Duns Tew. This is a distinctive type of wall, usually mortared but with a dry (un-pointed) face and the stone tails bonded in mortar, a derivation of the Park wall design by Townshend for Blenheim Palace in the 1720's. The weathering is formed from dressed triangles bedded in mortar and with a mortar capping. Recently restored the wall surrounds the old school built with Hornton, from 1874 which became the Village Hall in the 1970's.

One recent source of Horton stone (closed in 2008) was Hornton Quarries Ltd, ('Hornton Masonry Company Ltd.'). Another quarry at Edge Hill produced ironstone, suitable for dry and mortared walling. Because this thinner material is found at upper levels it is therefore a finite resource and eventually becomes exhausted as it runs into the more compressed material used for building stone below. Consequently supplies of ironstone walling are rare and much in demand for repairs. Hornton Quarries in the past supplied quantities stone from a quarry near Hornton where the harder blue green stone was found. 'Blue' Hornton stone was used for monumental and architectural masonry and fine sawn paving. Hornton Stone was used extensively in the construction of some prestigious Oxford colleges.

Stone quarried near the village of Great Tew is an iron stone/limestone with iron ore content. It is used predominantly for sawn and cropped walling and architectural masonry, now Hornton Stone is scarcely available.

Because brown' Horton stone was generally quarried close to or within the Cotswold area it has become known known to many people as '**Cotswold Stone**' and was used extensively nearby quarries mentioned above, notably in the villages of Great Tew, Bloxham, Wroxton, Hook Norton and, Deddington, Adderbury and Horton itself. Hornton has found its way into some of the iconic Oxford buildings, notably detailed work on the University Museum (1859) and the Christ Church Meadow Buildings (1862). Broughton Castle near Banbury (dating from the 14th century with rebuilding done by Sir George Gilbert Scott in the Victorian period) and 17th century Chastleton

House near Moreton-in-Marsh are two examples of stately homes largely built with local Ironstone.

Visually similar is another type of iron bearing limestone often called Tayton Stone, often more coarse grained with fossils showing and which was also used as superior building stone. It was found extending from the Cotswolds and Oxfordshire over towards Northamptonshire. Tayton can be seen on the 18th century Radcliffe Camera in Oxford at first floor level, or on the 12th century bridge at Radcot near Faringdon.

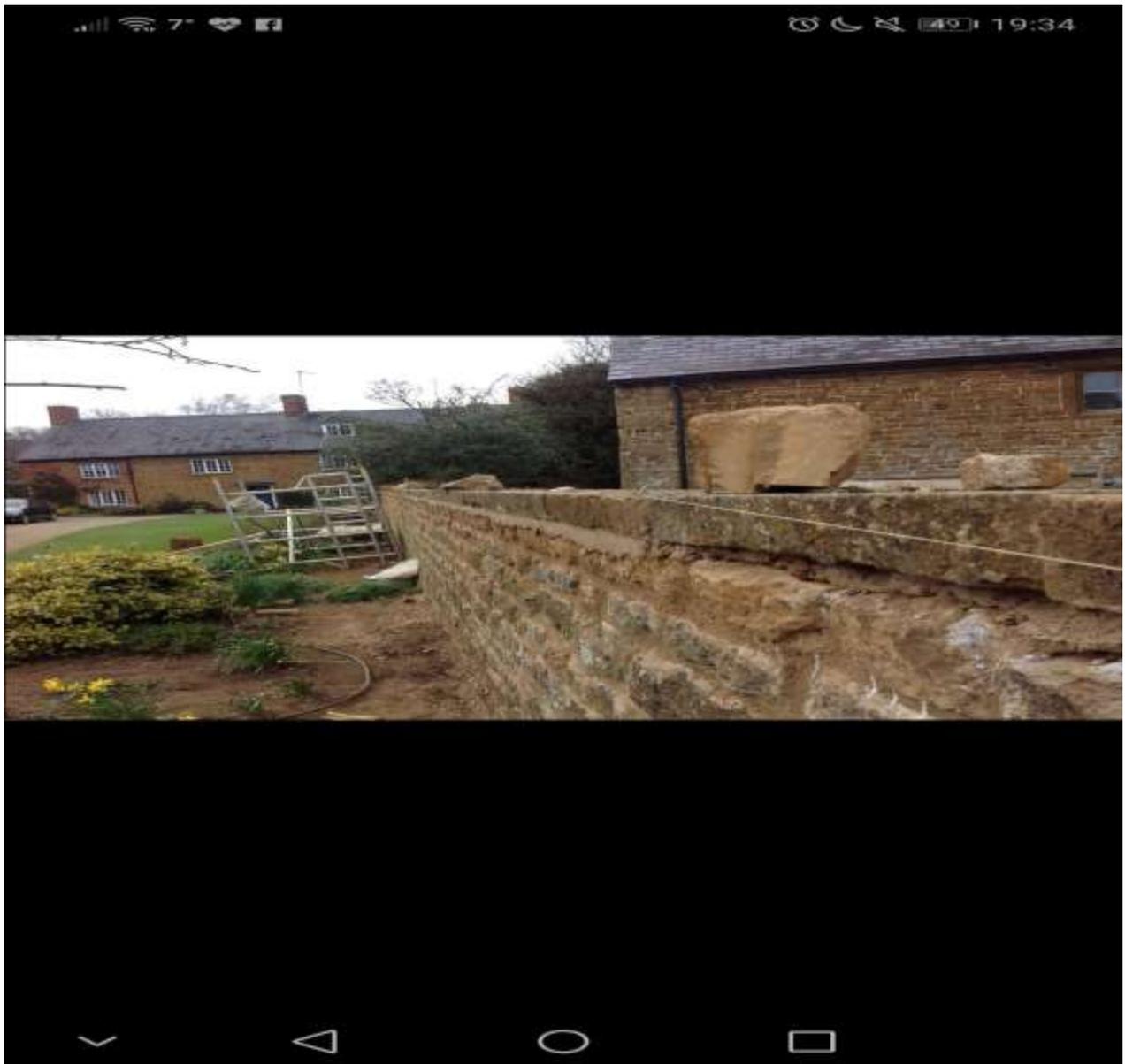
Hornton stone was often used for local manor houses, churches and fine gravestones as the harder type was suitable for delicate cutting and carving.



Whilst virtually all old stone structures were built with lime, there are strong regional differences and none more distinctive than the combination of Banbury ironstone and contrasting lime. The main street of Deddington a few miles south of Banbury is a case in point where most of the buildings are this type and present a dramatic effect. Since lime benefits greatly from an ageing period before use (6 months is the generally accepted minimum) protected from the atmosphere, in some circumstances old mortar from inside a wall can theoretically be reused. Such a project occurred at a manor house at Warmington, north of Banbury. Here moist lime

from the original early 19th century wall was remixed with new lime and sand to give a good replica of the original structure, eminently sustainable and cost effective.

The image below shows fresh mortar going in at coping level. It is still uncured and so looks very dark. A building behind shows the original lime pointing fully dried out and weathered where the characteristic “Cotswold” contrast of light cream lime mortar and green/brown Ironstone can be seen.



Repointing or replacing the mortar between stone blocks is often all that is necessary with Banbury Ironstone and similar limestone walling following a simple but time consuming set of rules. This will avoid the de-stabilising trauma of demolition or partial demolition and rebuilding from ground level, providing the structure is not out of line or suffering from lateral movement. The old mortar is removed carefully avoiding damage to the stone surrounding it. Generally the depth of the joint removed must be greater than the thickness or height. If the mortar is weak and

crumbly it needs to be removed until something solid is found. Secondly the cleaned out joint needs to be squared off to a vertical, so that replaced mortar is well bonded to the old. The clean joint is then moistened and lime mortar compressed into it until it is well proud of the wall face. New mortar should be pressed in very firmly to ensure there are no air spaces behind it. As soon as it starts to harden the new mortar is compressed again using a stiff brush striking at right angles to the wall and then brushed back to the level of the stone faces surrounding it. In an old wall where the stone is eroded with rounded edges care has to be taken to ensure the pointing does not spread over the stone surface from the joint, widening it and making the wall look irregular. If it overlaps the stone in this way damp will sit a long time around the stone edge and frost damage is likely to occur. New square stone can be flush pointed. Brushing the mortar when it has begun to harden ("green-hard") cleans any smearing from the stone, improves contact between mortar and stone, removes any scum or staining from lime leeching out of the mortar and improves the look of the joints by exposing the grit and particles within it. In other words the lime mortar joint is never "struck" like a cement joint is ("weather pointing") to shed water, as it has to breathe. in the same way the stone admits and expels water.

Carbonation of lime mortar or curing can take weeks or months and consequently working with lime is to be avoided in extremes of weather, either the height of summer or the depths of winter.