

Crambe St Michaels Chancel

The Chancel of St Michael's Church, Crambe is reckoned to have been built in the 12thC, replacing an earlier, 11thC chancel of unknown footprint and which was contemporary with the nave and chancel arch. The tower was added early in the 14thC to an extended nave. The lower levels of the eastern nave, at least, may be of earlier than 11thC construction and may have been part of a half-timbered Saxon church on the site. It is asserted by several sources (see www.english-church-architecture.net, eg) that the S wall of the chancel was wholly rebuilt in the 19thC, during the final decade of which significant repairs and alterations were carried out upon the building. This notion is confounded by the fact that the S wall remains bound with earth mortar, as are all other walls, and that these were evident within both interior and exterior withes of masonry. Earth mortars are equally evident to the interior masonry of the tower, locating Crambe very clearly within the long-standing earth built masonry tradition of the Malton area, with earth being the preferred mortar of masons until well into the 18thC. The whole 'system' – which involved final pointing with lime-rich mortar, as well as internal earth plastering, finished with lime-rich top-coats - may be wonderfully observed at the surviving and largely intact cruck house nearby, at Pond Farmhouse.

The geology of St Michael's church is unusually rich. The nave and chancel are constructed of a mosaic of immediately local ironstone (dogger), Whitwell oolitic limestone, calcareous sandstone (birdsall grit), Jurassic sandstone from the north Yorkshire moors, as well as of large elements of millstone grit from the pennines, which latter have been taken by archaeologists to indicate the use of Roman spolia in Norman and post Norman raisings and additions. This theory is supported by the fact that a number of such grit-stones show lewis holes upon their faces indicating re-use in an orientation at 90 degrees to originally intended. Chancel and nave also include lumps of Hildenley limestone, large ashlar blocks of which the tower is almost exclusively constructed.

Windows introduced or wholly renewed 1886-7 are of fine-grained pennine sandstone.

The roof of the chancel is covered with robust Westmoreland greenslate; that of the nave with west Yorkshire flag. Both reputedly displaced lead, although the earliest roof covering will have been of wheat thatch. Most buildings in Malton still carried thatch in the 18thC.

Interior geology is much more uniform – mainly Whitwell oolitic limestone rubble throughout the nave and chancel; Hildenley rubble within the tower.

There can be no doubt that the interior was intended to be lime (or more likely, earth and then lime) plastered by its builders and that this interior plaster probably endured even beyond the wholesale replacement of some windows in the late 19thC, since these project internally to receive the wall plaster. Soon after this time, if not indeed by then, the walls were 'scraped' to reveal the interior masonry and the earth and/or lime mortar joints repointed with ordinary Portland cement mortar. On the evidence of the current phase of internal repointing works, this opc repointing is generally shallow and 'over-laid'.

Plasters would have been limewashed and the (projecting) semi-circular arch over the NW window arch, which may be taken as one of the earliest in the church, retains numerous layers of white limewash, currently somewhat discoloured by the dust and dirt of ages. This remnant of original painted finish might provide a model for future limewashing of the interior, were this ever to be

considered. It is important to note that for the vast majority of the life of this building, its interior was plastered and limewashed and that its sense would have been, in all this time, very much different to today.

With the exception of the millstone grit, other pennine sandstone and the earlier Jurassic sandstone inclusions, all of these stones may be considered to be local. If not immediately so, the larger ashlar blocks of calcareous sandstone evident in the tower will have been brought down the River Derwent from Malton, the proximity of which river also explains the presence of stone from further afield.

Hildenley limestone was used exclusively by the church during the medieval period and almost as exclusively by the Strickland/Cholmley families after the Dissolution, the quarries between Malton and Coneysthorpe having been purchased by the Stricklands in 1545. It is the material of Kirkham (as well as of Old Malton) Priory, as it is also of Howsham Hall, traditional home of the Lords of the Manor of Crambe.

In more recent times, repairs have been carried out using stones from Lincolnshire – typically Clipsham and Ancaster Hard White – reflecting the decline of quarrying locally and to the general dilution of local distinctiveness.

Here and there on the Chancel, brick and clay tile have been used for repair, and this pattern has been continued during the recent works with the occasional use of soft clay plain tile for the packing of wider joints and to face up some severely – but not yet structurally – eroded stonework. Lime mortar repairs have been applied individually to less heavily eroded stones, continuing similar practice from the past evident in places to the Chancel masonry.

The lime mortars of the nave and chancel are of creamy hue, rich in limestone aggregate and in lime. They were hot-mixed using quicklime (probably of burned Whitwell oolite) and contain some ox-hair, as it is typical for pointing mortars in the Malton area to do and which may have been a response of local masons to the general use of earth bedding mortars themselves softer than the lime mortars; a response, therefore, to a slight incompatibility between the two mortars, the hair introducing greater flexural strength in this context. The earth mortars are sandy and will be locally dug sub-soil.

Historic lime mortar repairs, N wall (right) and W wall of Nave (below





Earth mortars to the wall core, N wall of Chancel (above) and, internally, to S and E walls (below)





Earth mortar within tower(above) and same, with original lime pointing, Pond Farmhouse



The masonry works:

Internally and externally, all loose opc pointing mortar was removed and repointed using a hot-mixed lime mortar.

Externally, the earlier lime repointing mortars had an orange hue, but within their body, this was more of a cream colour – the ‘orangeness’ was delivered by leeching iron from the dogger bed stones, as well perhaps as the oxidation of iron-rich aggregates within the mortar. It was elected to match the original, ‘internal’ hue of the mortar in the expectation that similar weathering would take place over time.

The mix was: 3 parts sharp sand (from Yarrow Aggregates, Beverley, via Travis Perkins, Malton): 1 ½ parts Malton Oolite, 5mm to dust, from Whitewall Quarry, Norton: ½ part Guiting stonedust from Temple Guiting, Gloucestershire: 1 ½ parts Calbux quicklime from Buxton, Derbyshire.

The method of mixing was: mix all (moist) aggregate and quicklime together (in small batches) and leave to slake for 5 minutes without the addition of water but adding goat-hair at this stage. Add water and mix by hand until pliable. Leave a further 5 minutes before vigorously knocking up and adding water as necessary to achieve a workable mortar. Mortar was used immediately or set aside for use the following day.

Lime pointing mortars internally were paler than even the unweathered mortar outside. The mix was as above, but a further ½ part Malton oolite was substituted for the ½ part Guiting. The method of mixing was the same.

To more exposed joints, such as at the top of the gable, ¼ guage Metastar calcined china clay was added to the batch of mortar.



The e end of the chancel was repointed almost 100%, all sound lime mortar joints being left in situ.

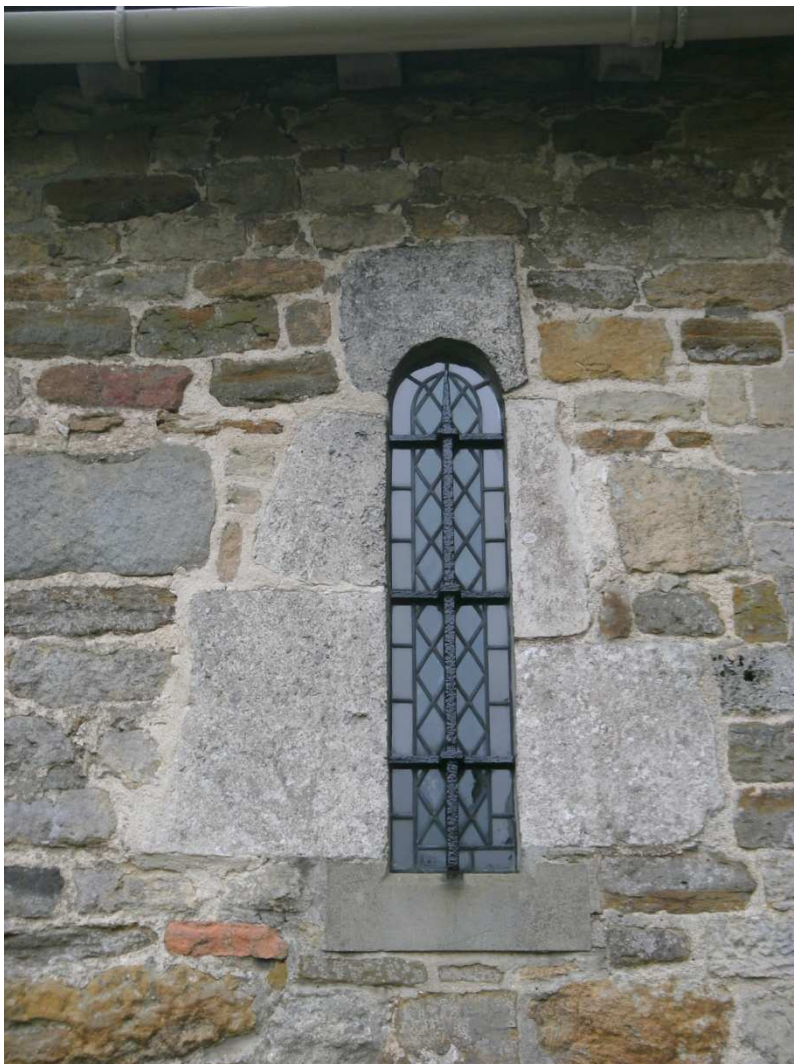
The reveals of all windows of the chancel had been repointed in the past with an almost neat opc mortar. This was removed and all were repointed with the interior lime mortar mix (see above). The masonry around the earliest NW window was repointed also, the opc repointing being loose.



NW window after removal of opc pointing

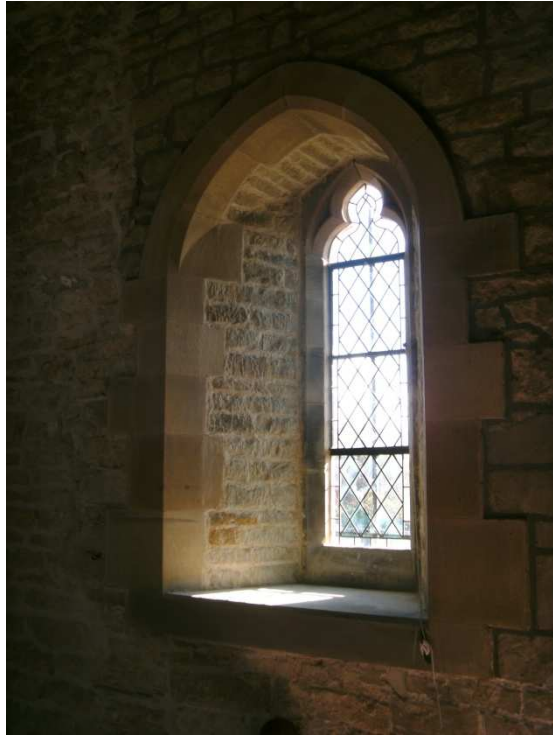
same, repointed.





exterior view of same. The jambs and heads are of Hildenley limestone. Joints immediately adjacent were relieved of hard and loosening opc mortar and repointed with lime mortar.





Repointing of gable and of areas of loose opc at lower level.



The S wall of the chancel was repointed about 80%, more than originally intended. Opc pointing that had seemed sound upon inspection and at the time of pricing, had come loose since – perhaps as a result of the thermal stresses set up by the exceptionally cold and prolonged winter of 2010/11. Fine joints to the pennine sandstone windows were also repointed, with a weakly NHL mortar and ‘silver sand’ mortar.





Repointing to the N wall was much less extensively required, consistent with its thermal stability. Much of the earlier lime mortar to this elevation remains intact with only localised intervention with opc in the past. There were some significant movement cracks, which were packed with lime mortar and small sections of clay plain tile.





It had been originally intended to remove a stone channel at the base of the walls. In the past, the nave had a gutter which discharged into a section of concrete channel at its E end which fed into the stone channel. The stone channel is of Jurassic sandstone. Investigations established that this channel rested above a projecting stone footing for the wall – at least on the N side, where excavation was carried out near the junction of the chancel wall with the nave. The two channel stones lifted were bedded upon naturally occurring boulder clay and a scattering of broken clay pipes, remnants of an earlier drainage scheme. Excavation at the base of an in situ channel stone to the E side showed this to have been bedded upon a (probably hydraulic) lime mortar. The presence of the stone footing made it impossible to install a French drain and it was decided to leave the stone channel in situ, whilst moving the down-pipes to their earlier location at the E end of the chancel walls and adjusting the fall of the gutters. Their earlier relocation to the W end of the nave had led to an accumulation of moisture at the base of the walls in the vicinity of the down-pipes. It is anticipated that this excessive moisture will now decline. The base of the walls generally is not damp and the floor of the chancel is somewhat higher than ground level. A hard opc fillet between stone channel and the wall was broken out and the void back-filled with 20mm shingle to enhance vapour permeability at the wall foot. The earlier cementitious fillet was left to the E wall, it being very narrow and its removal being very likely to cause damage to the stone channel.

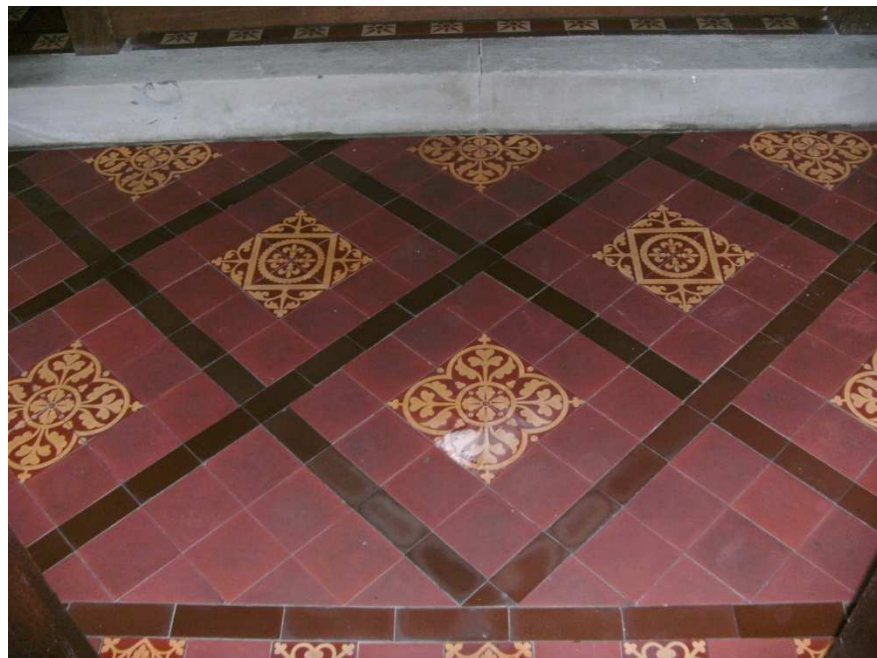


view on lifting channel stone, N side



Stone footing of N channel wall beneath this channel stone

The floor of the chancel is of encaustic and geometric tile laid around pre-existing grave-slabs. Some eight geometric tiles require replacement – 6 plain red and two brown glazed. The floor was cleaned using Vulpex detergent/degreaser diluted at 1: 10 and cleaning was carried out by hand using cotton cloths. The Vulpex began to break down waxes in places where these were quite thickly applied. Vulpex is supplied by Picreator UK.



Replacement of required new tiles is yet to be carried out, but it is anticipated that the tiles will be laid upon lime mortar and that, remnant floor waxes notwithstanding, this floor enjoys appropriate breathability. It will be important that such vapour permeability is retained in the future – the application of non-breathable finishes in the past may be witnessed upon several of the grave-slabs, as may be the decay that such finishes have promoted in these stones. The new tiles will be supplied by Craven Dunhill Jackfield, Ironbridge, Shropshire, the probable manufacturers of the original tiles.

Repairs to the leaded lights were executed by the Barley Studio in Dunnington.

During the course of the works – as a separate item – the chancel wall monuments were cleaned using Vulpex and acetone. Two of their inscriptions were repainted. These monuments are all to members of the Cholmley family. These monuments were all of carrera marble mounted upon a grey or black marble and were carved variously by York masons Skelton and Plows during the 19thC.

The masonry conservation team consisted of Ben Gourley, Mark Wilson, John Greenan, Matthew Appleton, Eveline Van Halem, Eric Bowie and Nigel Copsey of the Earth Stone and Lime Company, Malton.

The architect was Dominic Lockett and the client was the Church Commissioners, represented by Martin Jinks.

NC 9.10.2011.