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St Andrew's Church, Stokeinteignhead, Devon (Diocese of Exeter)

Four churchyard Tombs

Report on Conservation and Repair

September 2020

1. Introduction

This report describes work undertaken in September 2020 to four listed table tombs in the churchyard of St Andrew's, Stokeinteignhead, Devon. All four had, to different degrees, suffered from structural instability caused largely by the presence of a number of vigorous tree saplings and other growth, but also by the use of ferrous fixings in the structure. The brief was to undertake their repair and stabilisation.

The work was commissioned by Gillian Drake on behalf of the PCC, who also acted as our liaison with the church. The project essentially followed the recommendations put forward in our previous report of July 2017 with some slight modifications as conditions on site dictated.

The report begins with a brief description of the monuments and their condition as found, then describes the work undertaken to each. The stone monuments are treated as a group as they are essentially similar in construction, materials and in the problems affecting them. The brick monument of Mary Roll is separately dealt with.

2. The monuments – brief description

2.1 Location and date

The three stone monuments, to James Brockinton Hore d. 1858, Elias Hore, d. 1862 and Edward Hugh Hunt, d. 1848, are situated as a group in a north-south line to the north of the main churchyard path and on a levelled space in the sloping churchyard. The monument of Mary Roll d. 1800 stands a few metres further south west, close to the path.

2.2 Description

All three stone monuments have a base course from which they spring, a plinth moulding with set back central sections on all four sides, corner pilasters and side and end panels. The southern side panel on each bears an inscription. The monument is then topped with a large slab with simple chamfer moulding.

There is limited, but effective ornament to the side and end panels, consisting of fluting and low relief projections, making the tombs, as a group an effective stylistic statement and giving them a sense of artistic gravitas.

The Mary Roll monument has a simple, stretcher bond box, with a plinth formed from lower projecting courses with an ovolo moulding. The top slab bearing the inscription has interesting curved ends.

2.3 Materials and Construction

The stone monuments are entirely made of Portland limestone, the go-to material of the eighteenth and nineteenth centuries. The Mary Roll monument is made of (probably local) bricks supporting a top slab which appears to be lias stone.

The three stone monuments have a similar construction, though with slight variations. They are essentially hollow boxes with varying amounts of internal stone and brick support, and carried on large base courses of squared blocks that once supported railings around the monument. The railings have now disappeared but the sockets still remain, some with the lead fixing material still in place. The railings

caused some damage due to corrosion, but the base courses are essentially sound. The southern base stone of the Elias Hore monument is clearly a more recent replacement, and is a thinner and wider section of stone.

All the stone monuments were tied together with iron cramps when work began, at plinth and side panel level. The base courses of the Brockinton Hore monument and the Hunt monument were fixed together with very effective lead joggles, providing a very secure footing for the chest tomb proper. Internally the central Elias Hore monument had a cross wall of brick supporting the two long sides; the other two monuments had rough stone support blocks behind the side and end panels of decidedly dubious effectiveness.

The Mary Roll monument consisted of a hollow box of stretcher bricks with a single cross wall in the centre from north to south.

2.4 Condition as Found

The monuments were in varying states of dilapidation. Worst was the Elias Hore monument, which had been severely undermined by the growth of a vigorous Sycamore tree at its west end. The roots of this were found to extend for several metres north south and east. The lack of lead joggles between the base stones had allowed the sycamore to displace and destabilise the base and therefore the whole monument. The corrosion of the iron fixings had further undermined the structural integrity of the monument and cause spalling of stone at the corners of plinth and panels. The western end panel had fallen in and the plinth here was damaged.

The Hunt monument (northernmost) was in slightly better condition, but was undermined not only by the secondary roots of the Sycamore but also by the intrusion of an elder bush and brambles to the north. The base was essentially sound due to the lead joggles. The upper parts of the structure however, had begun to come apart; roots had grown into the plinth joints and the iron had caused damage to the stone side panels. One end had fallen in and a corner pilaster was missing at the south west corner.

The Brockinton Hore monument was more stable, although roots and bramble stems had begun to open up the joints. The base was stable due to the lead joggles, although the entire structure had settled down to the west by about 50 mm. This settlement however, had not caused a problem to the structural integrity of the tomb chest. Iron cramps had caused some spalling and cracking to the plinth and side panels and there were losses to the stone detail.

The Mary Roll monument was leaning distinctly to the south, due to the fall in the ground here. This lean did not, however, appear to threaten the structural integrity of the monument and it was considered sufficient to repoint the brick section and remove adjacent plant growth. This consisted of a collection of brambles and ferns growing along the southern edge of the monument.

The Roll monument had clearly been repaired in the past, probably more than once, and there were some areas of cement-rich pointing. Some of these were stable and did not appear to be doing any damage; other areas of both cement and lime pointing had failed or been lost altogether. One or two bricks were shattered or damaged.

3. Conservation Programme

3.1 Approach

The three stone tombs were showing signs of instability such that the PCC was concerned over the safety of parishioners and visitors and had cordoned them off from the public. This justified concern, together with the failure and collapse of parts of these tombs required full dismantling of the tomb structures, their repair, removal of all ferrous elements and rebuilding on a solid footing, together with augmented and appropriate internal support.

The Roll tomb seemed a different case; despite the lean to the south, it appeared stable and required a less intrusive intervention, involving re-pointing, replacement of a few damaged bricks and removal of problematic plant growth around it.

4. Stone chest tombs

4.1 Recording and Documentation

Each monument was recorded with sketch drawings to assist with re-erection work; stone numbers, cracks and damage and dimensions were plotted on to these drawings. The monuments were also recorded with digital images taken with a Canon EOS 7D digital SLR camera. These records were maintained throughout the work and some are included with this report.

4.2 Removal of Vegetation

Vegetation and large plants growing on or around the tombs was removed with suitable garden tools; the sycamore sapling was dug out and cut with a hatchet and pick, so that there was no possibility of its regrowth. The elder bush and all brambles and ferns were removed and their roots dug out, and where possible, soil was drawn back from the edges of the monuments. This was not possible on the west and north sides of the Hunt monument as this is built into the slope of the hill.

Following removal, a dose of weedkiller was applied to all areas affected, including the interior of the monuments in an attempt to prevent re-growth. It is understood that vigilance will be required to prevent the situation deteriorating again.

4.3 Dismantling

A one tonne crane gantry was built on site, to allow the mounting of a block and tackle on a trolley and beam, so that the heavy top slabs could be removed and placed on moving skates. The slabs and other dismantled sections of the monuments were numbered and stored close by on timber bearers.

Dismantling was undertaken one by one from south to north in the same sequence – the slab was removed, ferrous fixings released to allow side and end panels, with their corner pilasters to be removed, and the plinth was then dismantled. The internal stone or brick supports were taken out to allow access to the next tomb.

Ferrous fixings were released with small drills and hand tools and old mortars removed with hammer and chisel.

4.4 Repairs

Shattered and fractured stones were repaired with stainless steel pins and Iridium epoxy resin; and gaps were filled with lime mortars. Some sections of stone had been damaged and lost form old impacts or the effects of plant growth; these were made good when the monuments were rebuilt, with hydraulic lime mortars (on the plinth) or hot mixed lime mortars in all other areas.

4.5 Assessment and repair of base courses

The base course to each monument, which provides its stability and formerly held the railings, was assessed for continuing stability. All joints were thoroughly raked out and re-pointed with hydraulic lime mortar. The Hunt and Brockinton Hore bases were then assessed as stable, largely because they had not been so severely disrupted by the sycamore and were strongly fixed together with lead joggle joints. It is accepted that the Brockinton Hore tomb has settled slightly down at the west end, but this is not considered a problem as it is stable and unlikely to move further.

The base to the Elias Hore tomb was a different matter. These stones were not lead-fixed and had move and become unstable. In addition, the eastern and southern base stones had cracked and their sub-bases had failed. This base was taken apart; the fractured stones were dowelled together, with additional cramps let into the underside for increased strength, and they were then laid on newly packed sub-bases. The thin southern stone to this monument was laid on a hydraulic lime bed, itself laid on a solid base of concrete slabs. In this way, the stability of this base was assured. In addition, of course, all roots of the old sycamore tree were eradicated wherever they were found.

4.6 Re-erection

The three monuments were then rebuilt in the reverse sequence to their dismantling. Each was supported internally by a new structure of concrete blocks laid on a levelled sub-base of rubble and Prompt natural cement mortar. Each side and end panel was supported in this way.

The monument stones were tied together with stainless steel cramps cold bent from 5 mm or 6 mm 316L grade stainless steel, as appropriate; cramps were set in epoxy resin or chemical mortar, as appropriate. Stones were bedded and pointed in lime mortar.

Finally the top slabs could be lifted into place and pointed in position.

5. Mary Roll monument

The monument of Mary Roll did not require dismantling but raking out and re-pointing of failed mortar joints, together with a limited amount of brick replacement. First, all vegetation surrounding the tomb was removed and the roots dug out of the ground.

Failed joints were raked out using hand tools and re-pointed with hot mixed lime mortar in two coats. The top coat was matched as closely as possible to the original mortar, using a mix of

1 Quicklime
1 fine red sand

1 Portland stone dust

1 fine golden sand

Mortars were protected for minimum two days to prevent excessively quick drying.

Failed bricks were removed carefully and replaced with bricks of similar age and appearance. One brick was turned round and its undamaged rear face used. Small losses to the bricks were made good with colour matched lime mortar repairs/.

Following work, the gantry crane was dismantled, rubble disposed of as directed and the site cleared and left clean and tidy.

Conclusion and Future Maintenance

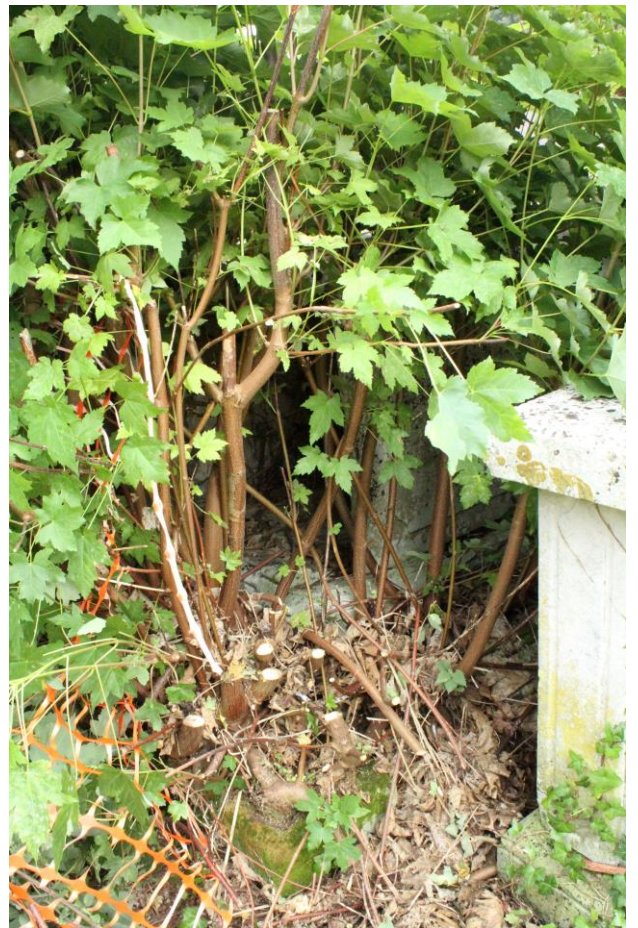
These four chest tombs have been stabilised and firmly fixed for the foreseeable future. Failing fixings have been removed and replaced with stainless steel fixing systems and solid concrete internal supports; vegetation has been removed and treated, its roots dug out and eradicated, and, in the case of the brick Roll tomb, the failed pointing and unstable brickwork has been repaired in a more conservative intervention.

It will be necessary for the PCC to be vigilant in the future as it is certain that persistent weeds like ivy, bramble and elder will colonise the area given the opportunity. The grass should be kept low and should any small saplings appear they should be eradicated as soon as possible. Likewise, ivy that starts to take hold on the surface of the stone must quickly be poisoned and removed before it can cause further disruption.

PHOTOGRAPHS



1-4. Views of vegetation affecting the tombs. 1 above; the Hunt virtually invisible in plant cover; 2 above right; brambles on the Roll tomb 3 right; Sycamore tree in the base of Elias Hore tomb 4 below; tombs covered in growth





5 and 6. Clearing of vegetation in progress





7 and 8. ivy growth and open joints affecting the Roll tomb





9 and 10. Right; poor quality internal support system to the Hunt tomb; below, moss and open joints in the plinth and base





11 Above; lifting gantry in use

12. below; top slab removed and place on moving skates





13-15. Work in progress:

Left, removing plinth stones;

Below, replacing failed bricks;

below left, drilling out ferrous cramps





16 and 17. Sections of the monument dismantled and stored nearby





18-20. Work in progress:

Left, repointing the base course

Above, new cramps and mortar repair

Below, building the plinth





21. Above, re-erection in progress

22. below, new internal support system





23. above, pointing work in progress

24. below, the Hunt monument complete





25. Above, the three stone monuments when work was complete

26. below second view of completed monuments





27. Above Elias Hore monument complete

28. James Brockinton Hore monument complete





29. Above, Mary Roll monument complete, view from the south

30. Below, Mary Roll monument complete, view from the south



31. Mary Roll monument complete, view from the east

