Iain Soden Heritage Services Ltd

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Excavations in connection with the rebuilding of a Listed Garden Wall at Coventry Charterhouse, 2015

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Summary

The digging of supporting angle buttresses for the dilapidated stone and brick Grade II* listed garden wall at Charterhouse exposed no archaeology, but served to date the wall. However, targeted excavation within the orangery indicated how the orangery was heated in its final phase and suggested that a similar arrangement heated it when it was first built sometime in the 19th century.

Background

The nationally-significant medieval origins of Coventry's Charterhouse are well known. Less well-known however, are aspects of the gardens which developed around the rump of the dissolved monastic house, principally in the 19th century under first the Inge family and then the Wyley brothers.

The gardens eventually were divided into compartments which broadly reflect the former claustral buildings of the monastery and which in part were built off monastic foundations, in part newly-built.

Works to conserve a Grade II* listed wall relating to these gardens necessitated archaeological overview in case underlying monastic remains were exposed, and to try to add any data on the wall.

The wall in question is known from before 1838, when it is depicted on a map of the Inge Estate, for its sale in that year. At that time it divided 'garden' from 'orchard', names given at the time to what had formerly been the monastic Great Cloister and the outer court (Soden 1995, 20-1 and fig 3).

The wall is of two distinct characters. The western half is of large, weathered blocks of Triassic sandstone, and is long thought to have been constructed on foundations formed by the south wall of the monastic church. It includes an almost semi-circular stone and brick structure known as the Orangery. The wall and much of the orangery required dismantling and rebuilding.

The eastern half is of two materials. The northern face is built of smaller, roughly squared sandstone blocks, mortared to a southern face of brick. This wall was in an advanced state of disrepair, including areas of complete collapse.

Previous test pitting (Soden 2014) had established that a) the western half did indeed rest upon monastic foundations and included upstanding monastic remains, such as a window in the church and (as had been noted previously) the jambs of the entrance from cloister into the church tower, and b) that the eastern half had little in the way of foundation.

Conservation of the wall involved seven watching brief visits by Iain Soden Heritage Services Ltd to monitor the digging of new foundations for the wall, where the existing ones were inadequate for the new fabric. They commenced in March 2015; the last was carried out 16 November 2015. The fieldwork was carried out by Iain Soden, Danny McAree and Joe Prentice.

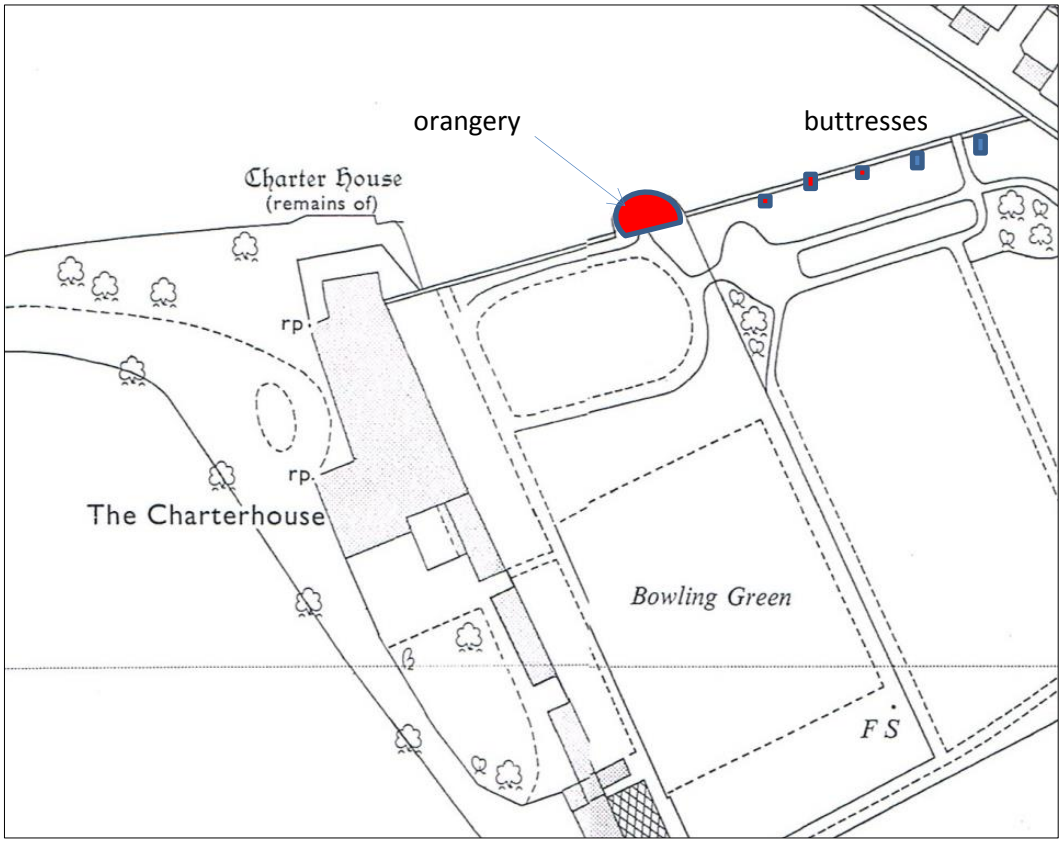

Fig 1: Location of works detailed in this report. OS 1963-71

Fieldwork

New foundations for the garden wall

An archaeological watching brief was undertaken between March and November 2015 to monitor conservation and re-building works to the dividing wall between the inner and outer courts at Coventry Charterhouse.

Fig 2: Buttress foundation hole between two temporary weighted wall-supports

At pre-selected points along the wall on its south side was dug a series of five rectangular foundation pits (Fig 1), positioned between scaffolded water-bowser weights (Fig 2), used to temporarily support the wall, which was leaning on a considerable angle. This was done under an archaeological watching brief. The four pits each totalled 1.2m wide and a little over 1.2m long. Each cut through thick topsoil and a little subsoil to the natural Keuper Marl geology at a depth of approximately 800mm deep. No archaeology was present in any of the pits, although the topsoil in the easternmost (gate-pier) pit contained large quantities of former brick-wall collapse, still mortared. The pits are now marked mostly by angled brick buttresses for which they were dug and a brick gate-pier at the east end (Fig 1 for locations). These will support the wall and an access gate for the foreseeable future.

At one point the wall had collapsed completely, turning the foundation stones, which had to be re-set on concrete. There a large salt-glazed stoneware jar lid was recovered from the foundation, which by way of a *terminus post quem*, dates the wall above to the 19th century.

Fig 3: One of the foundation trenches for the angled buttresses; scale 1m

The orangery hot-wall

The state of the wall to the semi-circular orangery (Fig 1) was giving grave cause for concern. It comprised reused monastic stone on the exterior with a double skin of brick on the inside, the two skins separated by three tiers of surviving deep channels, each c200mm wide and used to circulate hot air from an unknown source, thereby warming the brick wall and beyond it the orangery interior (Fig 4).

The brick skins were built generally of stretcher-bond and each channel had a base/ceiling made from unused flat roof tiles. Each channel was heavily sooted, showing that however they were heated, the hot air passage system had worked long enough to clog them quite thoroughly.

The hot-wall and the stone exterior were partly taken down and the remains cleaned up for photographic recording as part of the monitoring works on the wall-conservation (Fig 4). The figure below shows the system as it was exposed and cleaned. New work, re-using fallen and dismantled original masonry and new, conservation-grade brick, was thereafter built up off this base.

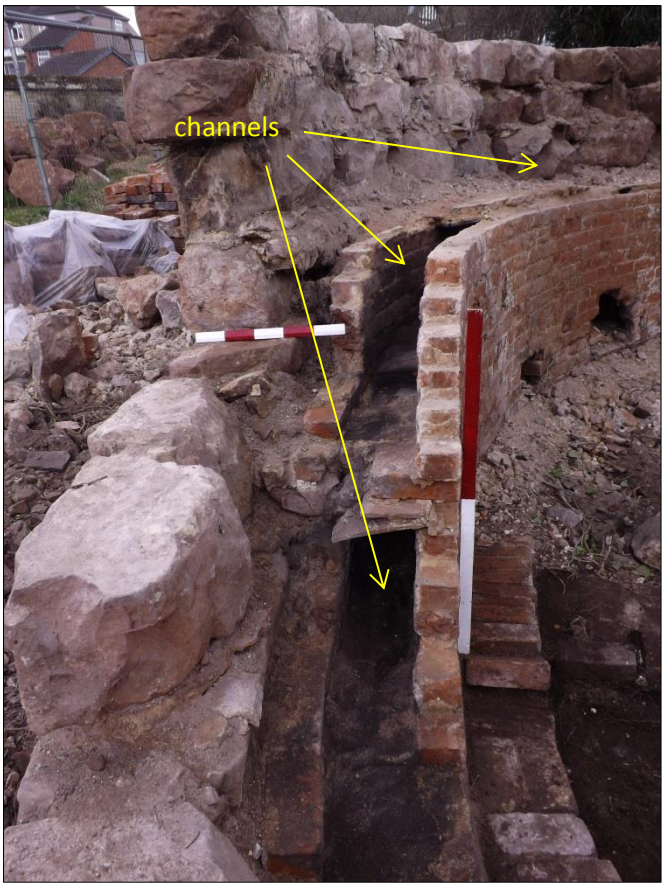

Fig 4: The orangery wall at the point of maximum dismantling; scales 1m and 50cm

Excavations within the orangery

The final part of this report concerns works to better understand the functioning of the heating which made the orangery serviceable (and that it was specifically an orangery is actually an assumption); more properly it was a hot-house, which may have been used for melons, cucumbers or a number of heat-loving specimen crops.

These works were additional to the monitoring of the wall conservation and were brought about by the wishes of the architect to understand more of the way in which the orangery was heated, since so much of the chimney(s) and superstructure had been lost. Intrusive excavation was therefore agreed with English Heritage/Historic England and additional funds made available to address the sub-floor remains as a guide to the former use of the building and to get some idea of how it formerly functioned.

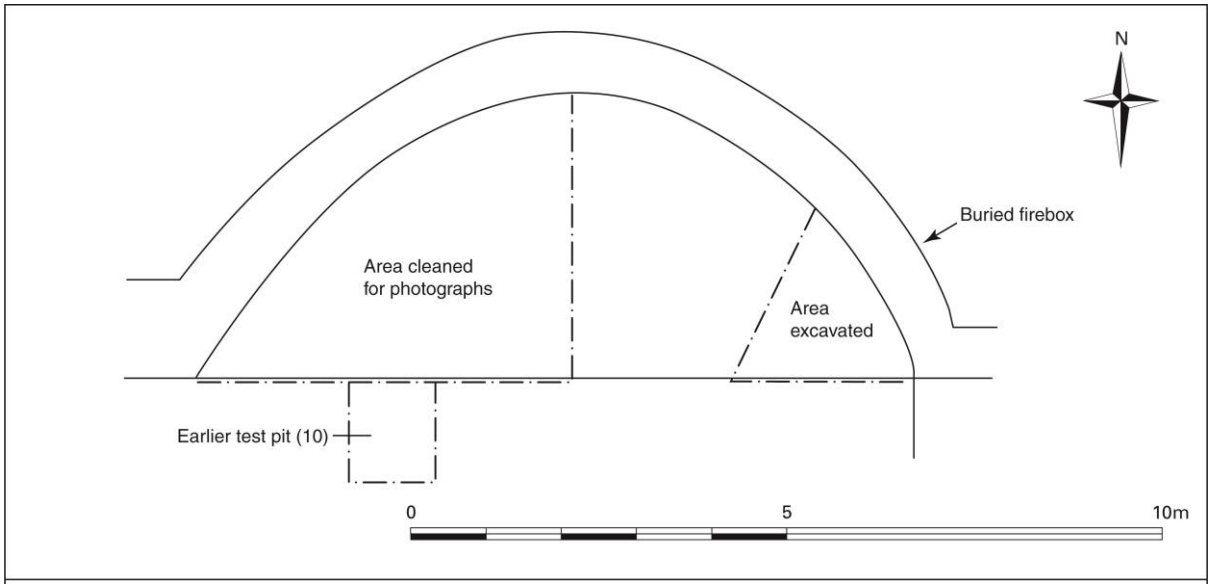

Fig 5: Areas cleaned during monitoring or excavated as follow-up works within the orangery

The western half of the orangery floor

The origin and development of the (imperfect) semi-circular Orangery has until now been little understood and it has never been the subject of specific archaeological enquiry. While the 1813 Ordnance Survey Surveyors Drawing is too small to show such detail, the orangery does not appear on the 1838 Inge Estate Sale map (Soden 1995, 21) although here too the small scale of the map is arguably unhelpful in this respect. The site lies outside the area on the 1851 Board of Health Map, but the orangery is clearly shown on all editions of the Ordnance Survey 1:2500 maps from 1889 onwards. Therefore it clearly originates before 1889, but how long before is not clear.

It was therefore agreed that without disturbing the deposits, some cleaning should be undertaken as part of the conservation monitoring works to better understand the layout of the orangery and obtain any dating which might be forthcoming in the process. A test pit had previously been dug in 2015 which showed that the area in front of the building had been provided with an ornamental interlocking brick hardstanding some 500mm down (Fig 5 [Test pit 10]).

Fig 6: Test pit with cleared orangery behind, looking north; scales 1m and 30cm

Fig 7: Western half of the orangery, looking south, cleaned to recognise sub-floor flues; scale 1m. At this point the orangery wall has been dismantled. Work showed that the left alignment of bricks (x) and the arc around the foot of the orangery (y) were both unrelated to the orangery when in use; they were merely neat stores/stacks of materials

The western half of the orangery was cleared and cleaned archaeologically to give some indication of what lay below the modern collapse, builders' trample and leaf-mould, which together covered the entire interior. This was cleaned down to undisturbed levels, which were seen to comprise root-rich topsoil around an array of curving lines of mortared brick, apparently of two different phases of sub-floor construction. Around the edge of the semi-circle and down the centre lay an un-mortared store of bricks, cleaned and put by at some previous episode, probably for re-use. These appeared not to be part of any floor-configuration; so neither did an arc of free-standing bricks around the inner edge of the semi-circle.

The layout of these lines of brick were largely unhelpful in addressing the way in which the heating of the orangery worked, not least because this side of the orangery had been completely dismantled due to its advanced state of decay.

Excavating the eastern portion

It was therefore decided under an existing English Heritage (now Historic England) Class-consent, to excavate a small portion at the east end of the orangery to further elucidate the workings of the heating system. Works specifically were dug to avoid penetrating through to the rubble of the monastic church quire beneath, over which the orangery is known to lie.

In the small area chosen, no orangery floor remained beneath a modern accumulation of scalpings, geotextile membrane over compacted leaf-mould and soils. It did however, contain an array of brick flues made of extraordinarily poorly-preserved and heat-damaged brick, re-used potentially many times, and vestiges survived of two, possibly three, heating flue arrangements.

In its earliest visible phase, former flues were only just visible in the base of the excavation. Their lines were indistinct and they had been reduced to merely mortar-lines, their bases characterised by lines of brick laid at angles, not respected by later, better-preserved flue edges. They were set partly upon re-used roof-tiles and Welsh Slate, perhaps to help level up the surface of the monastic Dissolution rubble thought to lie beneath the whole structure and give the flue walls a flat bed.

During either the earliest, or another, newer phase, the southernmost former flue had linked directly to a surviving chimney at the far eastern end of the orangery and which was housed entirely within the thickness of the brick and stone wall. However, this had been blanked off in subsequent re-arrangement.

Fig 8: The excavated portion of the east end of the orangery.

Fig 9: The excavated eastern portion of the orangery, north to top; scales 1m and 30cm. Vestiges of earlier flue edges are dashed-in. Note the heat-shattered bricks of one flue edge.

The bricks which formed the last-phase, surviving flue (most easily visible in the centre of Figs 9 and 10), were made up of at least 50% re-used brick-bats and fragments, almost all of which had been seriously heat-damaged in this, their last re-use.

At the eastern end of the flue was the inlet from a stone and brick-lined firebox, at least one wall of which was curved, but whose interior was a straight channel. Unspent fuel from the last firing still litters the interior of this firebox (left intact), and a cast iron door can be seen closed tight shut in the outer surface of the orangery wall, buried below the exterior surface (Fig 11).

The temperatures reached in and close to the firebox were sufficient to damage the old re-used flue bricks for over a metre under the lost former floors (which ought to have been of stone flags, if only by reason of this heat). Inside and close to the inlet the brick was also covered in a concretion of fuel waste and gas-borne deposits, which had deposited, bubbled, spat and re-fused again and again. The entrance of the flue was stopped up with a mixture of this and ash, together with granular brick-dust, testament to the high temperatures once reached within. The unburnt fuel shows that both coal and coke were used at different times.

Fig 10: The excavated eastern portion of the orangery, north to left. Note the redundant chimney flue at top right; scales 1m and 30cm, the smaller scale is wedged between melted fuel-waste concretions on the heat-affected brick (arrowed)

Fig 11: View through the flue within the wall, showing the buried cast-iron door on the exterior of the orangery. It is littered with unburnt coal and coke fragments.

Finds

There were few finds but those few do add something to understanding the orangery. All came from the in-fill of the earlier (northern) flue, and so date to the last heating arrangement.

- A clay tobacco pipe bowl with moulded oak-leaf decoration down the front and back of the bowl, but lacking an incuse mark on the stem, is probably from the Stoke (Coventry) factory

of John Holt, whose family was working nearby in the late 19th and early 20th century (Muldoon 1979, no 33c is the closest parallel).

- A few sherds of 'standard' flower pots derive from the same origin. Although broken, they clearly derived from small flower pots of less than 6-inch diameter, suggesting that far from being only for the overwintering of pot-standing orange trees (as a classic orangery was intended), the structure was probably being used for growing on or storing immature plants free from frost, very much like a greenhouse.

Conclusions

The watching brief on the construction of the buttresses confirmed that no archaeology was disturbed by the work.

The investigation on the orangery strongly suggests that the entire structure dates no earlier than the 19th century, as indicated by the widespread use of 19th-century brick in all phases, and Welsh Slate in the flue bases. Finds suggest that the last phase of the flue-heating was in use perhaps well into the 20th century.

In its later phase, the finds suggest a wider, general planting-house-type use than something specialised, such as an orangery.

While the flues indicate how the identified heat source was used to heat the sub-floor spaces, and the redundant flue for a chimney was identified, there has been no link found between the heat source and the formerly heated wall spaces. It seems that while one chimney exited the sub-floor gases in this last phase (missing from the west end), that same chimney may originally have served the sub-floor heating. It is possible that another heat source lay somewhere else in the arc of the orangery, perhaps at the west end, but the collapse of the fabric there has not left any trace visible above ground.

The course of the sub-floor flues has been altered, perhaps because the fire was not drawing sufficiently, or that the course of the flues was blocked. Certainly in its final use the flue close to the firebox was clogged with ash and concretions, not just the soil which was used to backfill after the floor had been removed.

Each tier surviving of the spaces within the hot-wall was also heavily sooted. Although this proves conclusively that the hot-wall was indeed in use at some point, it also suggests that it may not have been very efficient, and the whole assembly appears to have lacked the mechanism by which it could be easily (or effectively) swept.

The works have left 75% of the orangery sub-floor interior untouched. The evidence suggests that at least one former stoke-chamber and ash-pit (possibly two) lie outside the line of the orangery. One lies outside the east end above the remains of the monastic church.

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