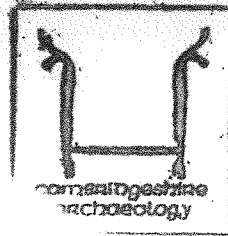
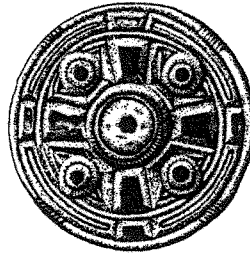


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An Early 19th Century Cast Iron Bridge at Culford School,
Bury St Edmunds, Suffolk: Archaeological Monitoring

W. Wall

1998

Cambridgeshire County Council

Report No. N 006

Commissioned By Stirling Maynard and Partners

**An Early Cast Iron Bridge at Culford School, Bury St Edmunds, Suffolk:
Archaeological Monitoring**

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October 1998

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Summary

On 21st and 23rd September, 1998, archaeological monitoring work was undertaken on a Grade 1 listed cast iron bridge in the grounds of Culford School, near Bury St Edmunds, Suffolk. The work involved investigation of the infill material forming the bridge roadway and monitoring of its removal with a view to discovering whether it was original, or had been subject to disturbance or repair in the past.

The infill was found to consist of alternating layers of chalk and hoggin (clayey sand mixed with gravel), laid in a distinctive fashion which appeared to be identical at either end of the bridge. No previous interventions were observed cutting through these layers, and the unity of the infilling scheme over the whole bridge strongly suggests that it is original. The style of the balustrade and ornamental details of the bridge, however, suggest that these may have been replaced to match the Italianate style of other additions to the park and gardens in the late 19th century.

An Early 19th Century Cast Iron Bridge at Culford School, Bury St Edmunds, Suffolk: Archaeological Monitoring

Introduction

On 21st and 23rd September, 1998, the author undertook monitoring work on a Grade 1 listed cast iron bridge in the grounds of Culford School, near Bury St Edmunds, Suffolk on behalf of the Archaeological Field Unit of Cambridgeshire County Council. The work was commissioned by Stirling Maynard and Partners as part of a programme of repairs to the bridge. A specification for the repair work drawn up by English Heritage (Harper 1997) required archaeological investigation of the infill and monitoring of its removal. The infill was removed in order to install a waterproof membrane and drainage system, designed to prevent water leaching into the structure of the bridge.

The aim of the archaeological monitoring was to discover whether the infill material forming the roadway over the bridge was original, or had been subject to disturbance in the past, whether as a result of previous attempts at repair or through other interventions.

Site Location (figure 1)

Culford lies in the valley of the River Lark, about 5 miles north-west of Bury St Edmunds in Suffolk. Culford Hall lies west of the present-day settlement of Culford village. The iron bridge lies about 350m west of Culford Hall and spans an artificial waterway which forms a feature of the Hall's landscape gardens. The bridge itself is at about 25m OD and the land around it slopes gently down to the south, towards the River Lark.

Archaeological and Historical Background

In 1591 Sir Nicholas Bacon, Lord of the Manor of Culford, built a red brick hall, apparently on the same site as the present Culford Hall. The house was subsequently remodelled by James Wyatt between 1790 - 1796 for the first Marquis Cornwallis and the estate remained in the Cornwallis family until 1824. It was later sold a number of times and is now occupied by a private school.

A lake of sorts has probably existed here since 1624 and was probably originally created as a canal and pond. The present lake is based upon a design by the landscape designer Humphrey Repton, who was engaged by the second Marquis Cornwallis in 1794 to undertake improvements to the landscape of the park. The Repton landscape included the present mile-long waterway which was constructed in 1795.

The iron bridge was probably constructed in 1803 by Samuel Wyatt, brother of James, for the second Marquis Cornwallis to a design closely based on one patented by Wyatt in 1800. The iron bridge at Culford Park is one of the earliest

surviving bridges with an unmodified cast iron structure, and is the earliest known example with hollow ribs.

Methodology

Archaeological monitoring took the form of observing the machine excavation of trial pits dug through the roadway material near the centre of the span, and during the machine removal of a large part of the infill, which was undertaken in order to gain access to the bridge deck itself for repair work. Two further machine cut trenches were dug on each side of the bridge from beyond the landward side of the abutments to a point about 6m in to the span.

Results (figure 2)

The trial pit at the centre of the bridge showed a clear sequence of deposits forming the roadway. The bridge deck plates were seen to be overlain by a layer of hard yellow bricks, one brick thick, over which had been placed a layer of pale yellow chalky material about 0.15m thick. Over this was a layer of yellowish brown clayey sand containing frequent gravel (hoggin) about 0.40m thick. Above this, a thin topsoil, no more than about 50mm thick, had developed.

In the trenches at either end of the bridge, a slightly different sequence was observed. Here, substantial abutments made of yellow brick, apparently laid in a stepped arrangement, were uncovered at each end of the bridge span. These were overlain by about 0.15m of pale yellow chalky material, clearly the same as that observed at the centre of the span. Over this was a layer of hoggin about 0.20m thick, also similar to that seen at the centre. Over this, however, was a layer of clean, white chalk about 0.35m thick. This chalk layer ran in to the bridge span from each end for a distance of about 5.9m, then tapered off. The point at which this chalk layer tapered off lay exactly in line with the outer edge of the first intermediate piers of the balustrade; the chalk layer also tapered off at exactly the same distance into the span on both the north and south sides of the bridge. Over the chalk layer was another layer of hoggin about 0.20m thick. This top layer clearly continued right over the bridge, beyond the point where the chalk layer tapered off, resulting in the thicker layer of hoggin that was observed at the centre of the span.

Conclusion

No interventions of any kind were observed in any of the trial pits or trenches, or during any of the excavation work. The make-up of the roadway material was such that any previous excavations into it would clearly have been seen cutting the well-defined layers of chalky material and hoggin. It seems clear, therefore, that no excavations have taken place into the roadway material since it was first laid. The identical arrangement of alternating chalk and hoggin layers at either

end of the bridge also suggests that the infill is of one "build" over the entire span of the bridge.

The question arises as to the date at which the infill was laid, and whether or not it is original. Unfortunately, no artefacts of any kind were uncovered from the infill material, so there is no possibility of dating the layers by conventional archaeological techniques. The unity of the fill layers over the whole bridge, however, suggests two alternatives. Firstly, the infill material may be a replacement for the original, in which case the whole of the original infill was removed and a completely new roadway was laid at some point. Secondly, and this is the simpler and more likely explanation, the roadway is entirely original.

The Balustrade and Ornamental Details

During the course of the archaeological work on the bridge infill, the question arose as to the originality of the present balustrade and ornamental details. Samuel Wyatt's patented design for a cast iron bridge across the Thames, on which the present bridge is closely based, had a cast iron parapet. A photograph of c1911, however, shows the Culford Park bridge with the balustrade and ornamental details substantially as they are now (Paine 1993, p13). This at least proves that the present arrangement dates back to the early 20th century.

The material used for the ornamental details is a reconstituted stone or fine aggregate concrete (Stirling Maynard Condition Survey, p 4). Stucco or plaster mimicking stone has been used in England from the 1500's. By 1803, the probable date of the bridge's construction, there were several patented artificial stone materials, the most famous being Coade's artificial stone, patented in the early 1770's. This was a kind of terracotta of exceptional durability, well suited to forming ornamental details (Clifton-Taylor 1972).

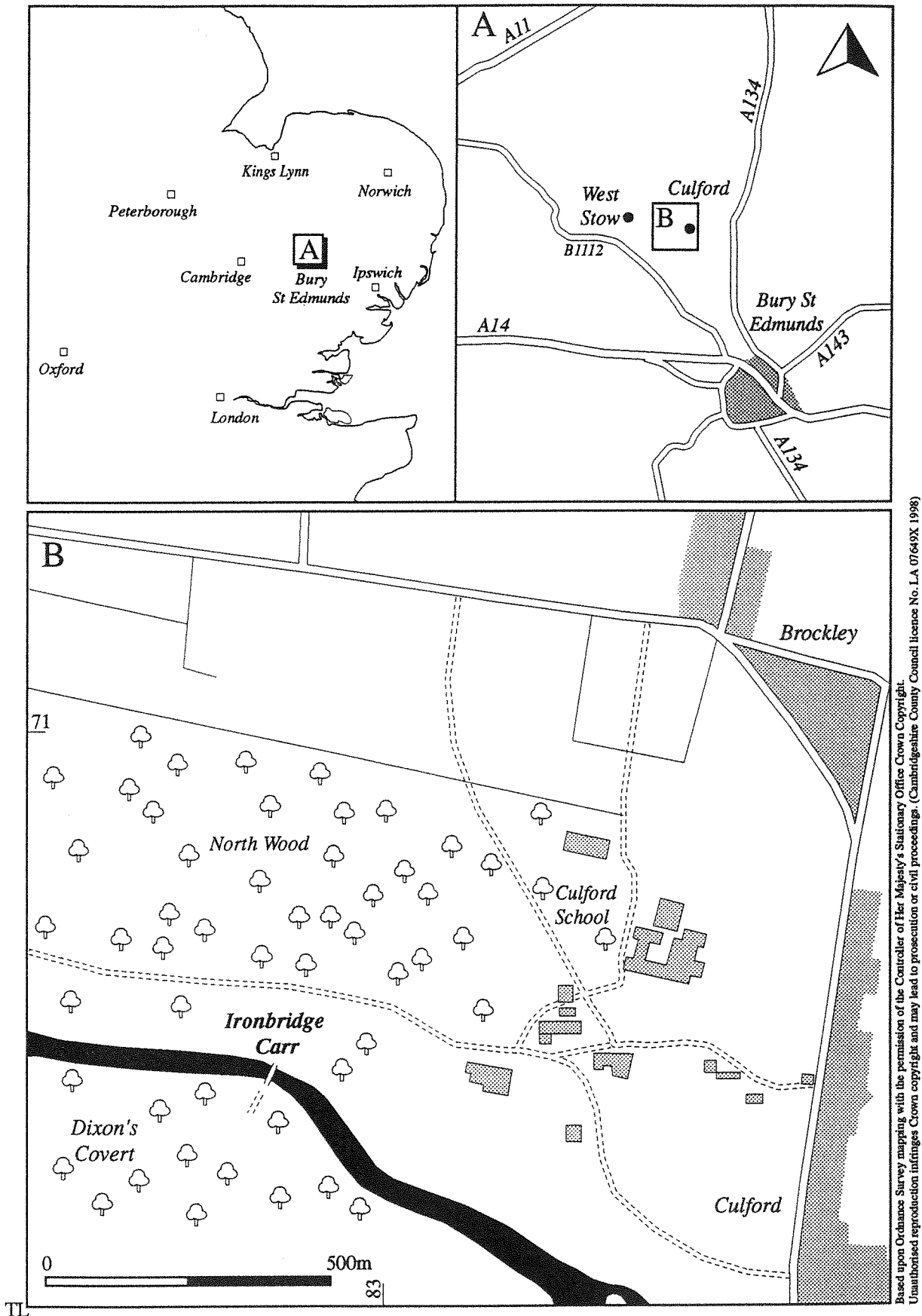
It is clear, therefore that the balustrade and ornamental details of reconstituted stone could easily have been contemporary with the original construction. Their style, however, appears to match that of other urns and ornamental features in Italianate style which were added to the park and garden by the Cadogan family in the late 19th century (Paine pers. comm.). It therefore seems likely that the balustrade and ornamental details are not original, but later additions of the mid to late 19th century.

Acknowledgements

The author would like to thank Peter Beveridge of Stirling Maynard and Partners for commissioning the project and for help and advice on site. Thanks are also due to Dr Twigs Way who undertook background research, and to Mr Clive Paine who provided background information.

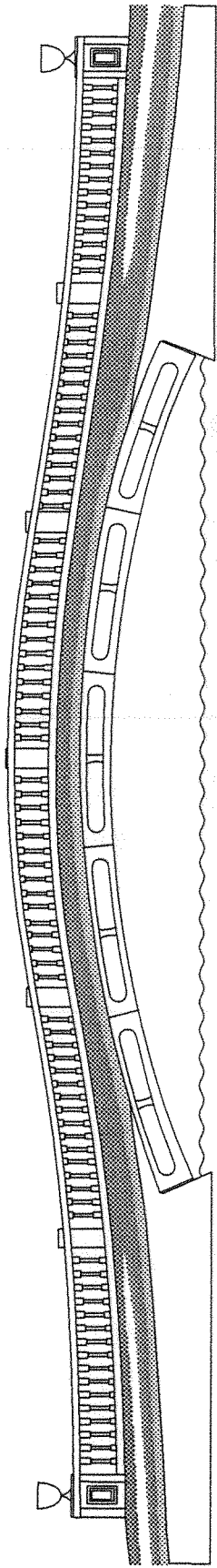
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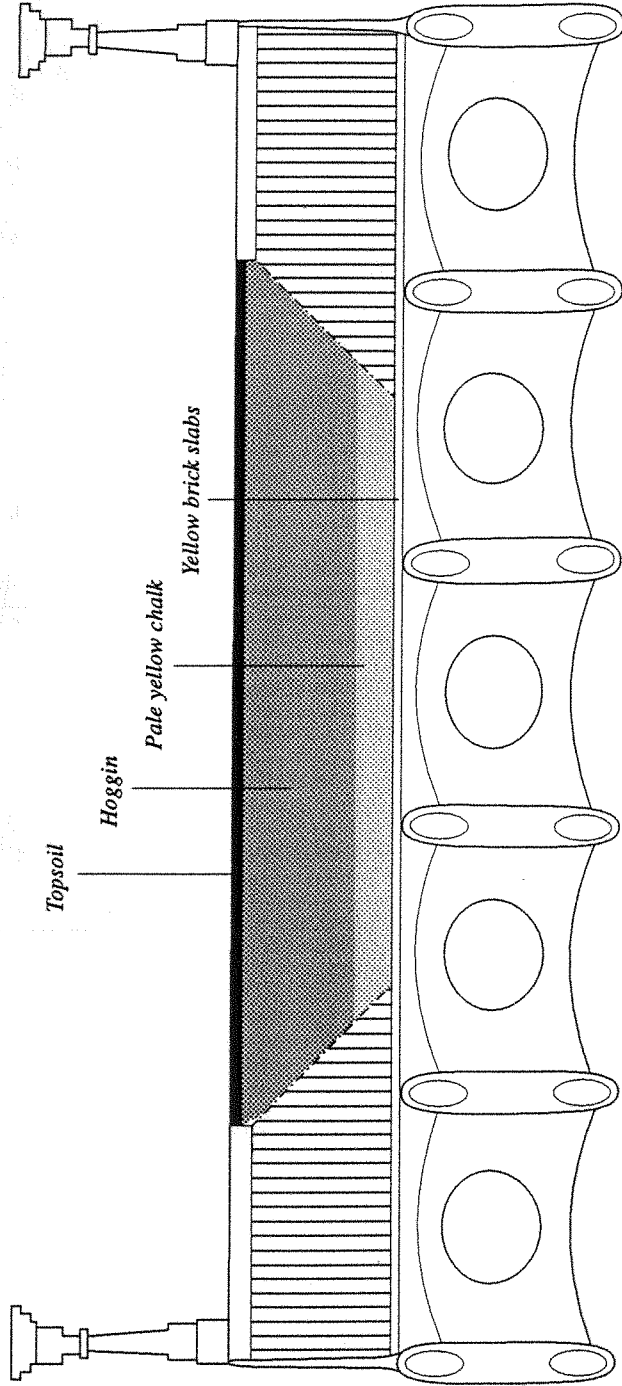
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Figure 1 Site location



0 5m

- xxxxx Hoggin
- Pale yellow chalk
- White chalk
- ▭ Undisturbed fill



Topsoil

Hoggin

Pale yellow chalk

Yellow brick slabs

0 1m

Figure 2 Cross-sections of the bridge infill



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