Bishops Wood Reconstructed Anglo-Saxon Hall: a Study in Destruction by Fire

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Illustration by CAROLYN HUNT

Introduction

A reconstructed Anglo-Saxon hall at Bishops Wood Environmental Centre, Crossway Green, to the south-east of Stourport-on-Severn, was accidentally destroyed by fire on 4 November 2008. This building had been authentically built incorporating elements of several different methods of construction based on evidence derived from excavated archaeological examples, and had been opened in 2001 for teaching purposes. Although not at all part of the original script, its destruction offered a rare opportunity to record the physical effects of this fate and so facilitate recognition in the archaeological record of this type of destruction in the case of similar structures. A similar study is being undertaken on another reconstructed building of the same period at West Stow (Suffolk; Tipper forthcoming).

Hall construction

The reconstructed Bishops Wood hall had been largely based on an excavated example at West Stow in Suffolk (Hall 1; West 1969). Authentic period construction techniques were employed, and the timbers were worked by staff and volunteers to form the frame of green oak. The type of infill between the structural timbers had not been indicated by archaeological evidence, and so various types of cladding and walling techniques were employed with the practical aim of evaluating the relative durability of the construction as follows:

north side: thick square hewn beams fixed outside the posts on this side formed horizontal wall boards (Fig. 1), notched at the north-east corner in log cabin style, the gable being formed of vertical planks above;

eastern side: wattle and daub panels, in various experimental combinations of daub with and without straw and manure, and over the door an undaubed panel under the eaves let light into the interior, and;

south and most of the west sides: formed by vertical, tongued-and-grooved cladding boards, with horizontal overlapping planks at the southern end of the west side (Fig. 1) due to a shortage of sufficiently tall tree trunks, and with shrinkage gaps subsequently filled with a variety of materials including wool and moss.

Poles were lashed into place on the roof timbers to provide the framework for the thatch.

Hall destruction

The hall had been used as usual on 3 November 2008, with the fire in its fire-box in the centre of the building being damped down with dry soil before leaving the hall in the early afternoon. By the next morning the building was ablaze and the fire brigade attended. In the course of extinguishing

Fig. 1 Reconstructed Anglo-Saxon hall when first built; showing north end and west side (photograph by John Rhymer)

the fire some of the wall panels on the eastern side were pulled outwards and heaped up (Fig. 2 foreground left), and the wattle and daub panels were damaged by water. Some of the fallen timbers and floor planks were also removed from the structure to allow the cause of the fire to be investigated.

Cause of the fire

The cause of the fire was tracked down to the interior hearth, which was constructed as a thick clay lining in a wooden box set on the floorboards in the centre of the hall (Fig. 3), and, a crack having developed in the clay lining under the fire, this had allowed hot embers to fall through, so igniting the floor from underneath (Hereford and Worcester Fire and Rescue Service 2008). A rabbit burrow under the building had been a contributory factor, by providing ventilation to start the fire.

Archaeological investigation

Various avenues of investigation were identified at the outset, but due to funding constraints some possibilities (eg excavation) could not be pursued. The immediate imperative was, however, the adequate recording of the ruined structure (Fig. 4), and its associated artefacts, and some scientific recording at the site was also undertaken (see below). For the longer term a continuing experiment was also set up recording changes over time, as the site decays.

Aspects of site status both pre- and post-fire have been recorded and interpreted (though only provisionally as this was not a purpose-made experiment with variables being tightly controlled),

Fig. 2 Remains of the hall building after the 2008 fire; viewed from the south-east corner (photograph by Christine Elgy)

Fig. 3 Clay-lined fire-box (photograph by John Rhymer)

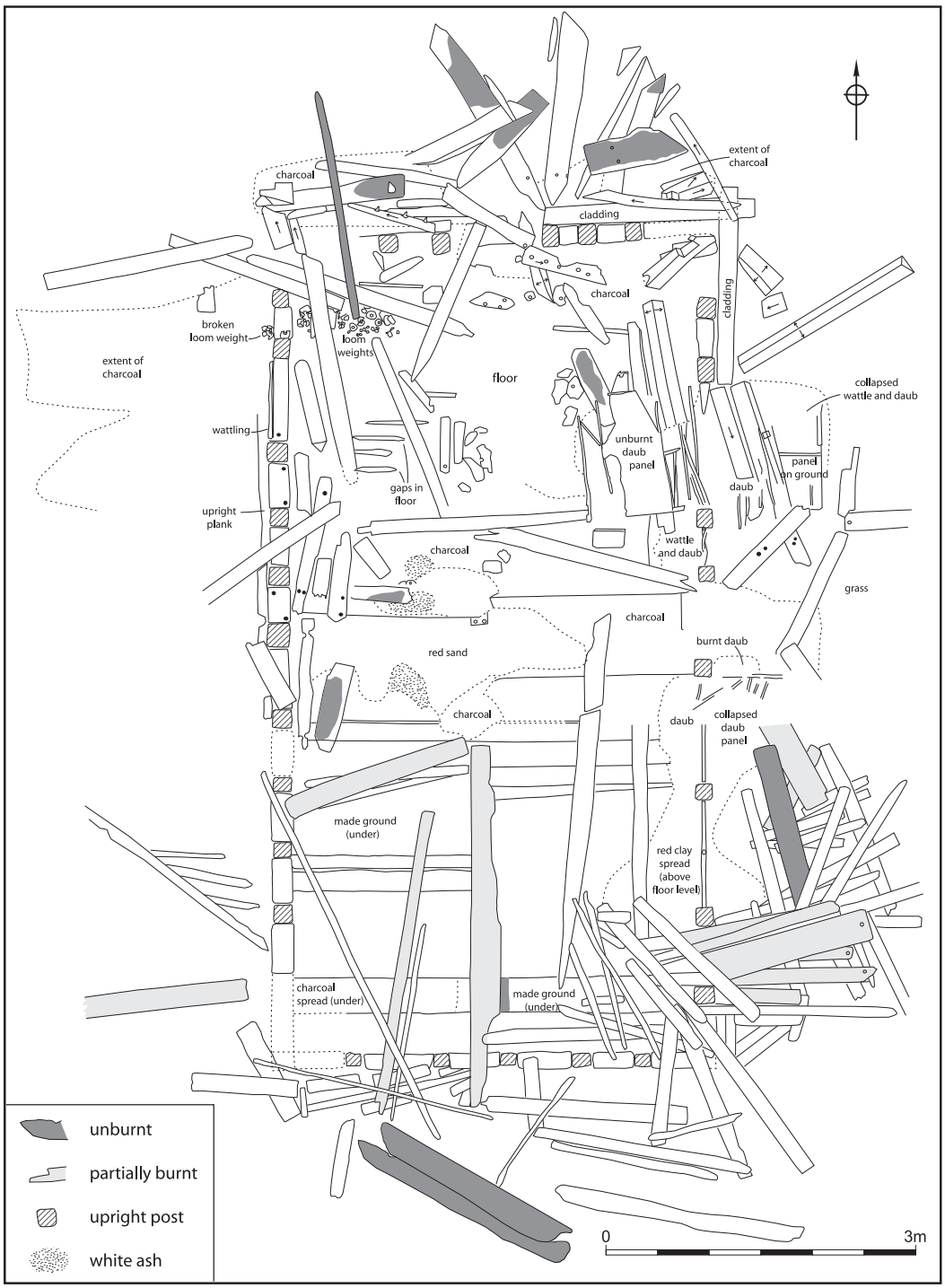

Fig. 4 Plan of burnt remains of the building

Table 1: Correlation of pre- and post-fire evidence with interpretation

Original situation	**Post-fire evidence**	**Interpretation and comment**
Pots inside the hall	Pot sherds found outside the building.	Thermal shock causing explosion of ceramic on over-rapid heating/cooling.
Limestone loom weights holding warp threads of upright loom	The shattered weights were deposited on the floor beneath the loom.	Cause of breakage uncertain, perhaps a combination of rapid heating/cooling and physical damage *in situ*.
Daub panels filling in between main structural vertical timbers (east side)	Daub on ground from fallen panels **within** the structure, and forming regularly shaped patches of silty clay as panels deteriorated with exposure to the elements.	Where close to wall lines and with rectangular forms, daub is more likely to have been derived from the walls rather than being remnants of floor surfaces, as they might easily otherwise be misinterpreted.
Timber walls, including panelling/cladding	The Hall's vertical timber wall cladding (especially at north and south ends) collapsed outside the hall during the fire, while the thicker horizontal timbers survived still in place, although heavily charred. The posts holding the structure remained firmly in the ground.	Variation in timber sizes, subject to position vis à vis the most intense part of the blaze will affect the amount of structural timber remaining in place. Where no daub in evidence this could indicate timber cladding of walls.
Fire-box	The clay was flattened and spread by weathering. (though also heavily disturbed by the fire investigators).	An irregular patch of **unburnt** clay within the building could still indicate where a fire-box had been located, whereas otherwise the assumption might be that being at the centre of the conflagration all associated clay would be burnt.

providing evidence specific to this type of structure (see Table 1), while the scientifically determined characteristics may be more generally useful for the determination of sites of burnt structures.

Scientific recording

A magnetic susceptibility survey was undertaken on the remains of the hall (Masters *et al* in prep) by taking a transect of readings across the building east–west, including through the eastern doorway. Elevated readings of susceptibility (indicative of the effects of heat on the underlying soil) were found within the footprint of the building and *c* 2m beyond, but with, by far, the highest readings being in the vicinity of the doorway, where burnt daub from the wall combined with where the doorway opening potentially led to more intense burning. Where still standing, daub panels revealed clearly which side had been exposed to heat, though this was a much lower reading than where panels had fallen to the ground in the doorway area, the latter presumably having undergone more severe heat which eventually burnt away their fixings. Unsurprisingly, therefore, the presence of daub is clearly useful for indicating when a structure has been burnt, but, more significantly, the pattern of magnetic susceptibility data may well be useful for indicating where the heat had been most intense, and, more generally, hint at building techniques.

In a separate exercise the direction and intensity of the heat was assessed from charring and scorching of the willow fencing adjacent the hall on its west side (Williams and Flanagan in prep). This confirmed the indications from the remains of the hall that the fire had been most intense at the south end of the building – a contributory factor to this may be that a log pile had been present to the south-west of the fire-box (J Rhymer, pers comm). Tests on the willow with direct and radiant heat suggested that the there was a heat flux gradation along the line of the fence and that, assuming

the flame temperature was about 1000°C (*ibid*), the flames had reached about 1m from of the building.

The future of the site

The ruined shell of the hall is being retained as an educational resource and as the focus of further research. Some of the fallen charred timbers have been buried for excavation at a later date, so as to provide data on changes due to burial. The site will also continue to be monitored over the next few years to record the continuing natural decay of the hall remains and the concomitant recovery of the natural environment in the wake of the fire. The site will, therefore, continue to provide interesting data and could further inform the interpretation of similar archaeological sites, as more data is gathered.

Conclusions

This study has provided information that could be useful for the study of archaeological remains, in fact continuing the experimental purpose of the original reconstruction. Because of the type of construction this should be widely relevant, since in the past timber structures were the norm, and were often burned down. It is salutary that even minor features, such as an animal burrow, could be very relevant to the interpretation of site events.

Select scientific work during the excavation of buildings may also be more widely justified in the light that it can clearly be informative. Indeed, where the evidence for an excavated building having been burnt down may well no longer be particularly obvious, it could be suggested that more routinely resort be made to magnetic susceptibility survey.

Acknowledgements

Credit is particularly due to John Rhymer (Bishops Wood Environmental Centre) who recognised the potential of the site for significant archaeological study and its educational application, and made contact with appropriate organisations. One of the latter was the Worcestershire Historic Environment and Archaeology Service which provided critical (though partial) financial support towards the archaeological recording, undertaken by the authors together with Chris Gibbs, who also all gave their own time to ensure the necessary work was completed. The authors would also like to thank: Mike Williams of Cranfield University for providing information from their field study of the site; and Jess Tipper (Suffolk County Council Archaeology Service) for information.

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