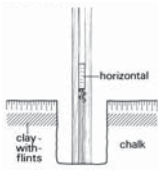


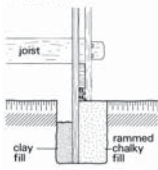
Continuing a series of articles from the workshop "The reconstruction of wooden buildings from the prehistoric and early historic period" in Århus in 1987 which are still relevant to today we present

Early Medieval Walls and Roofs: a case study in interrogative excavation

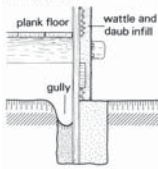
Construction



Construction



Occupation



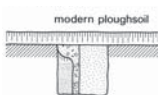
Destruction by Fire



Abandonment



As Excavated



■ Fig. 2 Diagram illustrating the creation of the timber ghosts

This contribution discusses the excavation techniques suitable for gathering as much information as necessary on the structure of wooden buildings to allow for reliable hypothetical reconstructions.

■ Martin MILLETT (UK)

Introduction

The purpose of this paper is to present a series of ideas about the excavation methods which need to be used on timber buildings in order to extract the information necessary for reliable hypothetical reconstructions to be produced. The case study upon which this paper is based is the early medieval (5th-7th century AD) site at Cowdery's Down, Basingstoke, Hampshire (England) excavated between 1978 and 1981 on behalf of the Hampshire County Museum Service. Since the site is now fully published (Millett with James 1983; James et al. 1984) this paper will concentrate upon three aspects: first, the nature of the evidence examined, secondly the excavation techniques, and finally a re-

sumé of the results.

The excavation examined a sequence of occupation which ran from the middle of the first millennium BC to the seventeenth century AD. The major period with which this paper is concerned is Period 4, when the site comprised an aristocratic hamlet or small village (Fig. 1). During this period there were three successive phases of substantial timber structures which produced well preserved structural evidence.

The Nature of the Evidence

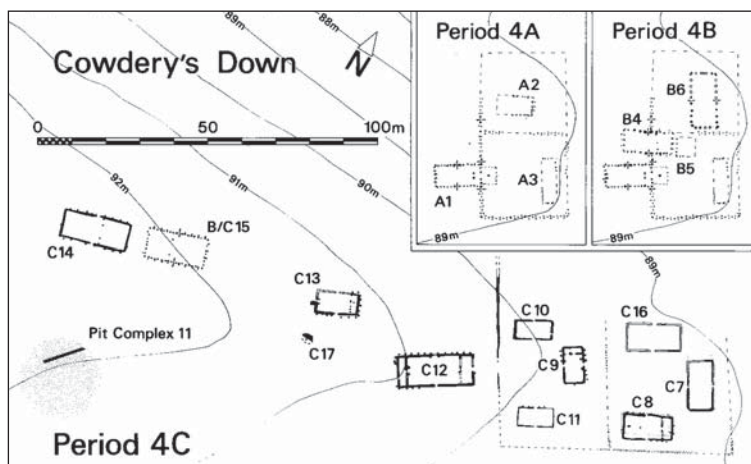
Excavation of the post-holes and foundation trenches of the buildings revealed that details of the timbers used in the construction of the buildings had been preserved as 'ghosts'. These had been generated as shown in Fig. 2. The vertical earth fast timbers had generally been packed around with subsoil (chalk or clay) during construction. This was compacted such that when the buildings were destroyed and

the bases of the timbers rotted, their outlines were preserved by topsoil slipping into the voids left. Since the topsoil was generally darker in colour than the surrounding earth, clear stains, or ghosts, survived preserving the timber shapes. These 'ghosts' were very clear on the chalk subsoil, but more subtle, although still detectable on the clay.

An early recognition of these features – similar to those previously excavated at Yeavinger by Hope-Taylor (1977) – enabled excavation techniques to be adopted which produced evidence suitable for generating hypothetical building reconstructions. That this work was successfully undertaken is due in large measure to my colleague Simon James who not only developed the ideas with me on the site, but also produced the reconstruction drawings.

Excavation Techniques

Hope-Taylor (1977) stressed the importance of excavating features containing timber ghosts horizontally, such that successive plans could be produced showing the details of the timbers and their survival at different depths within the features. In general this technique of excavation was adopted, with the structures planned at a scale of 1:10 first at the surface, and then at successive circa 50 mm spits throughout their depth. The excavated surfaces were carefully cleaned (often scraped with spoons rather than trowels) and the timber dimensions were measured individually as well as being drawn. These techniques produced the basic evidence from which we worked. They were especially successful in the excavation of the individual post-hole structures which provided unex-



■ Fig. 1 Overall plan of the early Medieval features at Cowdery's Down

pected evidence of construction using squared baulks of timber rather than round posts.

Despite the success of these techniques, the approach adopted differed from that generally recommended in Britain by those writing about excavation techniques. These excavators (e.g. *Barker 1977*) propose that excavation should be “objective” - based on the detailed recording of the evidence and the generation of a detailed record which is interpreted during preparation of the report.

This “objective” excavation presents problems, especially in the examination of the type of evidence being discussed here for without models of building reconstruction being generated during the excavation it is likely that the excavators will miss important data. This problem is illustrated by the lines of timbers which lay outside the wall lines in a number of the buildings in a position which suggests that they were buttresses (**Fig. 1**). Had these been excavated in the horizontal, they are unlikely to have produced evidence of their function, since they were shallow and any inclined timbers within them would have produced indistinct timber ghosts.

The technique adopted during the excavation of Cowdery's Down, can be best described as “interrogative”. The buildings were cleaned at the surface and planned. Informal hypotheses were then developed about the possible structure of the buildings and the ways in which they may have been built. These hypotheses were tested by surgical ex-

cavation – which included vertical sections – whilst their remaining portions were excavated in the horizontal plane as already described. The techniques used were varied during the excavation as new features were exposed, alternative hypotheses generated, and others discarded. In this way the excavation of the buildings proceeded as a dialectic between the excavated evidence and reconstruction hypotheses.

In the example of the potential buttress timbers discussed in the previous paragraph, vertical sections were cut through the features, at 90° to the wall lines, demonstrating that in some instances they contained timbers inclined at about 80° (**Fig. 6**), supporting the idea that they represent some form of buttress (see below).

The experience of this approach to excavation encourages me to believe that it is the correct way to produce the evidence for the reconstruction of timber buildings, as the problems posed by the structures are confronted whilst the evidence is still available for further study.

The Walls and Roofs

To generate a reconstruction of the buildings, we had to project the two dimensional evidence upwards. Having obtained the maximum information on the ground, our method was to use the evidence strictly, with little use of analogy from elsewhere in the initial stages. The evidence was of two basic types (a) the clear evidence of the walls of the individual buildings, and (b) the individual features within the

buildings which showed a regular pattern of occurrence when different structures were compared.

These types of evidence allow us to suggest general principles of reconstruction, although the level of their certainty declines the higher up the building one proceeds.

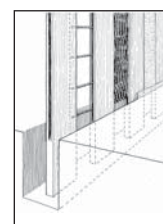
A. Walls:

These were universally sturdy, deeply founded in the earth and generally composite in structure, with various combinations of vertical timbers, presumed horizontal members and panels of wattle and daub fill (**Figs. 3-5**). Whilst the variations in the wall forms are of some interest, especially in explaining features on other excavations, it is the common features of construction which are the most important, with the sturdy construction suggesting that the walls took the main load of the roof, and the strong vertical emphasis suggesting that major horizontal ties were needed to hold the walls together. A horizontal provided at the wall top would seem most satisfactory, as such a wall plate would not only tie the wall together, but also spread the roof load evenly along the wall.

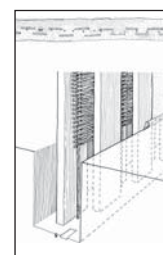
B. External Timbers:

Most of the buildings examined had regularly spaced post holes outside the wall lines, especially along the side walls (**Fig. 1**). These resembled buttresses and were generally paired across the building, but did not always correspond with features in the walls. They were close to the wall lines and careful excavation demonstrated that they were steeply inclined (**Fig. 6**) suggesting that (a) they generally met the walls at a low level and (b) they were too near the vertical to effectively counter any outward thrust from the roof.

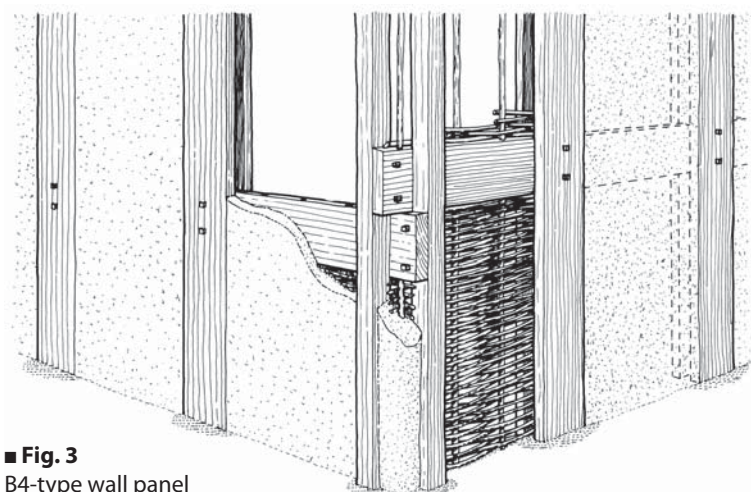
If we accept that these timbers were designed to meet the wall at the top, a low wall height is implied. One possible explanation for their function is that they were designed to support the wall plate and counter the torsion caused by the transmission of the roof load to the wall (**Fig. 7**), since with such low walls this cannot have been prevented by tie beams.



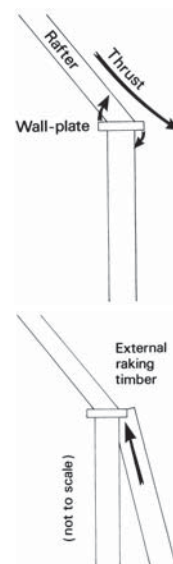
■ **Fig. 4**
C9-type
wall panel



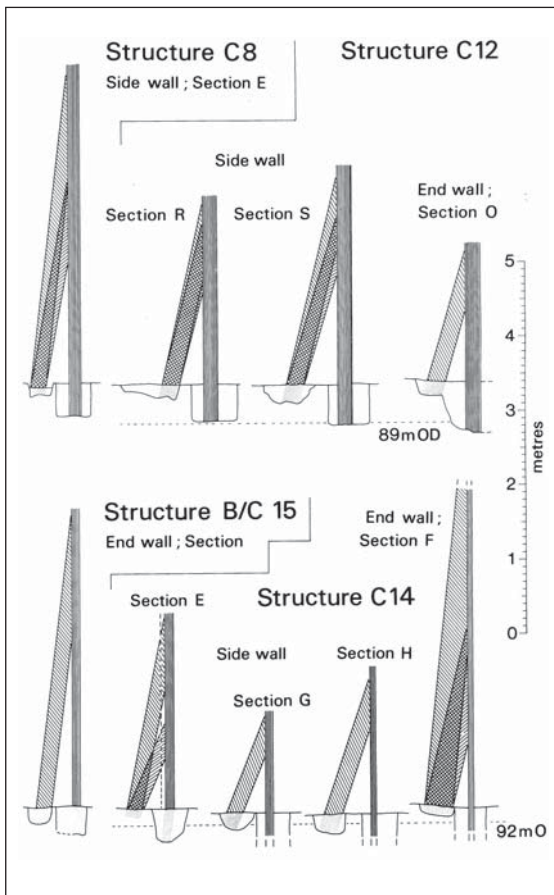
■ **Fig. 5**
C12-type
wall panel



■ **Fig. 3**
B4-type wall panel



■ **Fig. 7**
Suggested
function of
the external
timbers



■ Fig. 6 Angles of external timbers as revealed by excavation

C. Internal Timbers:

There were few internal timbers in the buildings, and none which can be related to aisle posts. In one or two buildings clear evidence of ridge supports was seen, and in many of the structures ridge supports were seen in the gable ends. These features suggest a basic structure in which the roof was hung from the ridge and supported on the sturdy walls (Fig. 8).

In other of the buildings, paired features along the centre line of the building can also be interpreted as supports for the ridge, by supporting a lintel on which stood a king post (Fig. 9 end wall). This has the advantage that the axis of building – which appears to have been functionally significant – was kept clear.

In a few of the buildings features in the side walls of the buildings mid way along the length may be interpreted as crucks which also supported lintels and king posts (Figs. 8 and 9 central frames).

Conclusion

The broad conclusions about these structures are supported by an analysis of similar sites on a number of British and Continental sites (James et al. 1964), encouraging the belief that the coherent system of construction described represents a valid hypothesis. This hypothesis should provide a model to be tested in future excavations and by physical reconstruction or computer simulation.

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 James, S., Marshall, A., and Millett, M.: "An early medieval building tradition" *Archaeological Journal* 141, 182-215
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Summary

Murs et toit du Haut Moyen Age: étude de cas sur les méthodes de fouilles

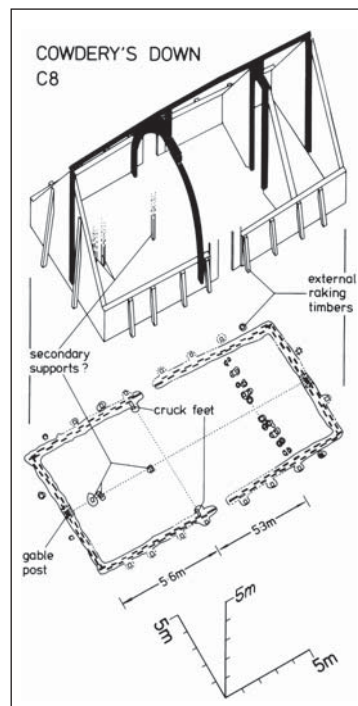
Cet article présente une série d'idées sur les méthodes de fouilles qui sont nécessaires pour l'étude de constructions en rondins de bois, pour en retirer des informations utiles et en permettre la reconstitution. L'étude repose sur le cas du site médiéval

de Cowdery's Down dans le Hampshire (Angleterre). Diverses hypothèses informelles ont été développées au cours des fouilles, et ont été testées par l'analyse «chirurgicale» des sections verticales et des plans horizontaux successifs. Cette méthode de fouilles a permis d'instaurer un dialogue entre les résultats des fouilles et les hypothèses de reconstitution.

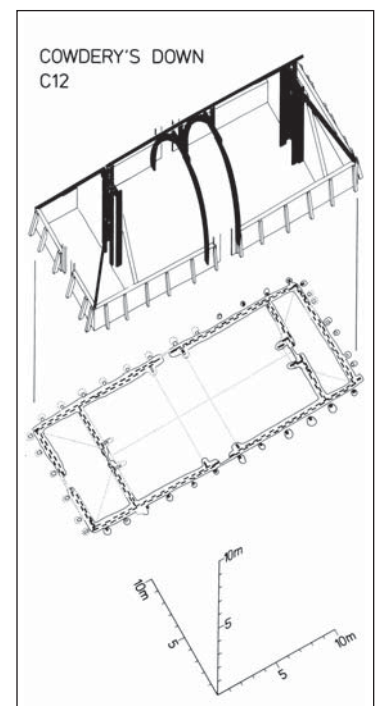
Frühmittelalterliche Wände und Dächer: Eine auf einer „nachfragenden“ Ausgrabung beruhende Fallstudie

Frühmittelalterliche Wände und Dächer: die Fallstudie einer dialektischen Ausgrabung

Dieser Artikel stellt eine Reihe von Ideen vor, die sich mit den Ausgrabungsmethoden von hölzernen Gebäuden befassen, die angewandt werden sollten, um Daten zu erhalten, die notwendig sind, um zuverlässige hypothetische Rekonstruktionen erstellen zu können. Die Fallstudie basiert dabei auf den Ausgrabungen einer frühmittelalterlichen Fundstelle bei Cowdery's Down, Hampshire (England). Die Methode, die bei der Grabung zur Anwendung kam, kann am besten als „nachfragend“ bezeichnet werden. Erste Hypothesen wurden während der Grabung entwickelt, die dann mit Hilfe von sehr präzisen und vorsichtigen Untersuchungen – bei denen sowohl vertikale Schnitte als auch die sukzessive Freilegung von horizontalen Plana zur Anwendung kamen - überprüft wurden. Auf diese Weise entwickelte sich die Freilegung des Gebäudes zu einem dialektischen Prozess zwischen dem ausgegrabenen Befund und dem Rekonstruktionsvorschlag.



■ Fig. 8 Skeletal reconstruction of Cowdery's Down Structure C6



■ Fig. 9 Skeletal reconstruction of Cowdery's Down Structure C12