Archaeological reconstruction in situ has been a hot item over the years. Spring 2011, a conference was devoted to this, in Calafell, Catalonia.
Is interpreting a site's past only possible at that site itself? Is a site better off without reconstruction and interpretation because it only damages the original material, if any is still left? Or is this the only way to salvage the story of the site for the generations to come? Ten authors were asked to give their views on the quote: "archaeological reconstruction in situ is the best way to tell the site's own story - on site. Otherwise the site is destroyed or the story lost" – and it is not that straightforward a yes or no.

A view of John H. Jameson (USA)

At historic sites, monuments, and parks, the process of effective interpretation allows each visitor to find an opportunity to personally connect with a resource or place. Each individual may connect to the place in a different way, and some may not connect immediately, but everyone should have an opportunity to explore how that special site or place is meaningful to them. Therefore, a major goal of interpretation is to increase each visitor's enjoyment and understanding of the site, monument, or park, and to allow visitors to care about the parks on their own terms. Many have argued that such personal connections are crucial in gaining public support for conservation efforts.

When practical and feasible, these personal connections of visitors are, generally, more effectively realized through on-site interpretation rather than off-site interpretation. Locating the interpretation and presentation programs on-site usually facilitates a clearer comprehension of sense of place and provides an air of authenticity. To-scale, on-site reconstructions, whose accuracy has been thoroughly verified by archaeological and historical research are needed, and essential in many cases, to enable visitors to understand cultural and spatial contexts and make personal connections to resource meanings and

significance; the memories they take away will be better informed and are longer lasting. I emphasize that this is a general observation, and exceptions can and do occur, depending on prescribed socio-political factors, physical nature, and setting of the site.

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• NPS Interpretive Development Program (IDP) Curriculum Coordinator/Certifier
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A view of Wulf Hein (DE)

My opinion is clearly contra! Realising the fact that (re)constructions of buildings are, in most cases, a mere attempt to approach the reality of the past; 'in-situ' constructions can turn assumptions into facts because the construct is built at a real site and, with that, takes over the magic of the original. Every excavation destroys sites; if these however are overbuilt on top of that, it excludes any further scientific access forever. Imagine, for example, that the surface of the Hohle Fels cave[1] would have been completely covered with concrete in the early 20th century and changed into a show cave. Assuming that the cave was completely excavated – today we would still be without Frau Fröhlich and the Vulture Flute...

Example: we built the Contubernium at the Aalen Limesmuseum (see Figure 1 and on top) in situ because there was simply no other option – outside the castellum area there was no space. The construction site was completely excavated to prevent any eternal sealing behind concrete of any remaining find layers.

One day – we had almost completely finished the construction – a visitor took us aside and asked: "Tell me, I already knew that Romans had concrete, but that they could construct such high walls... well, now I know how it must have looked like back then!"

He referred to the almost 10 metres tall angle of steel concrete in which we had placed a section of the Contubernium, it was mentally integrated as a construction element because the construction itself stands on the area of the old Castellum. If this thing would have been placed somewhere on a mountain field, conclusions form this gentleman would have been different.

Wulf Hein (DE)

A view of Hannah Simons (UK)

In situ reconstructions are not always viable and each site should be considered on a case-by-case basis, ensuring that the experiments pose no threat to any remaining archaeology, or future investigations of this material.

While the value of off-site reconstructions cannot be dismissed, in situ reconstructions provide maximum potential for investigating the story of a site both in terms of research potential and public interpretation.

West Stow Anglo-Saxon Village was reconstructed on the footprints of excavated original buildings and posed no threat to original material. Being reconstructed in this way enabled research to investigate and discuss the unique story of a specific location in early Anglo-Saxon England. These reconstructions allow us to test buildings within the situation or position that is most relevant to the original. The *terroir* has an effect on the buildings; their habitation and use, their structure and decay, and survival in the archaeological record. Original location is a key factor in creating experimental research with authenticity and integrity.

In situ reconstructions at West Stow have enabled researchers to find answers to questions that are both site specific and have wider implications. To realise the full research potential, it is desirable to have the site's archaeological collections and archives on site to ensure that, as new questions and theories are posed, the original evidence can easily be consulted.

With these factors in place it naturally leads to an ideal situation for public interpretation and engagement. With the addition of public displays of archaeological material and a range of interpretation visitors can discover many strands of evidence of the site's story for themselves.

Hannah Simons MA (UK)
Experimental Archaeologist
PhD candidate, University of York, UK

A view of Heather Hopkins (UK)

The recent collapse of walls and buildings in Pompeii (Autumn 2010) made headlines around the world. It highlighted the fragility of the remains but also demonstrated the balance that must be struck between consolidation, conservation, preservation and reconstruction of structures. When an artefact is likely to collapse an attempt may be made to consolidate it to preserve it. If a structure actually collapses then the decision is whether to consolidate the structure in its newly altered state or to reconstruct it. Many of the structures have already been consolidated, which means it is not always possible to distinguish the original and new

parts. This means that inaccuracies can develop. Where this occurs it is damaging to Pompeii as a whole as future archaeologists and visitors to the site will be misled.

To understand an artefact it is often necessary to build a replica. Recently the need to understand the artefacts and the desire to preserve them has collided, to the detriment of both. To build replicas within Pompeii is problematic: the city is so completely preserved it would affect the remains. The decision was made to 'rebuild' the dyeing apparatus in situ in the dyeing workshops, incorporating the original remains. It is now not possible to view the original structures. When they eventually decay it will not be possible to tell the ancient from the new. Worst of all, the reconstructions are actually inaccurate and have been completed without understanding the apparatus they are attempting to replicate.

Without the original there is no way to check the authenticity of the replica or amend it if new evidence comes to light. When reconstructing a site or apparatus there is a responsibility to ensure that the original is not damaged.

Heather Hopkins (UK)
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A view of Paul Bidwell (UK)

Archaeological reconstructions are the best means of conveying to visitors complex information about buildings and how they were used by those who lived in them. It is essential that the reconstructions should be based on the best possible evidence, and that they should be justified by a fully published assessment of that evidence which is peer-reviewed. Reconstructions in situ are only acceptable when the actual remains of the structure have been destroyed or are so badly damaged that they cannot be presented to visitors meaningfully. International guidelines on reconstructions are very restrictive, but their requirements have to be balanced against the clear benefits of reconstructions in bringing archaeological sites to life and engaging the public with their heritage.

Paul Bidwell (UK)
Head of Archaeology
Tyne and Wear Archives and Museums

A view of Hans Trauner (DE)

I have no clear opinion. I live in Nuremberg, and almost everything visible here in historical substance was built in 1950 and later. In individual cases, buildings have been destroyed to

the ground and completely rebuilt with new material.

Where models of original findings are concerned, however, a clear no. Doing this, findings are at least faked, if not destroyed. I can imagine in some cases only very complex architectural, almost abstract entities that could interpret the originals.

Otherwise: reconstruction, modelling, interpretation, yes, by all means - not only in the experimental sense, but also in the sense of public appeal, but always next to the original sites.

The Heuneburg made me think this through. The photos show the best side. But already the entrance with the barbed wire fence and the nice gravel paths make me feel as though I am at the Federal Garden Show. Certainly, building 'next to' the original site here is very difficult, but nonetheless possible. Also, I know the Heuneburg even before the building. The 'real' feeling for me was simply more authentic, closer and more accurate.

Would it then be a good idea to look for a mountain spur free of archaeology elsewhere? That is exactly what we did. Between about 1992 and 1998 we constructed what is known as the Celtic house. It was built in Landersdorf in Thalmässing, Middle Franconia. The lodge was / is accepted by the audience as such, even when it is clear that the original settlement was a bit further up.

Hans Trauner (DE)

A view of Marquardt Lund (DE)

'In situ', aside from the Pro and Contra of reconstructions at all

Pro: under the assumption that there is no impairment of existing findings, and the respective individual case is being checked (perhaps by a third party?), it is a good idea. It should be required that all new (re)constructed elements must be set only in previously excavated areas which are free of finds and well documented. In fact, through reconstruction (for example as part of an archaeological open-air museum), adjacent find areas could also experience a protective effect. A clear visual separation between original and reconstruction should be recognizable to the public.

Should preserved wall foundations e.g. Roman settlement remains and stone walls or standing stones of megalithic tombs, if they have been completely cleared and documented during excavation, be put again exactly in the original find situation? Or may carrier stones be resurrected again and may foundations be completed on small-scale foundations? I would agree with the former.

New cover stones or a new high stone wall on the original foundations are rejected for reasons of conservation, we cannot check on the spot with new questions, and the original substance could suffer. Here is my opinion on a case-by-case approach to weigh and decide. I think that flown-apart grave mounds may be, after excavation, prepared in situ in such way that the detected edge, the cover and presumed height, which surely are unclear, will be reconstructed.

For many visitors the 'actual, original location' is part of a high quality experience. The local population should be included before 'their' memorial is massively restructured. As an example, the megalithic tomb of Lübeck Waldhusen may be cited, which for didactic reasons should receive a new half-sided concrete 'grave mound'. This was rejected by the people.

Marquardt Lund (DE)

A view of Flintsource (DE)

With all reconstructed houses, Roman watchtowers and Celtic fortresses, we seem to forget the most in situ reconstruction in Germany there is: the 'solar observatory' at Goseck. This site was excavated in a hurry, without properly trained staff and without any necessity, has been published incompletely and was 'reconstructed' at full scale in 2005, in a way we cannot check the results. It may be clear that my enthusiasm for the work done is extremely limited.

The reason for an in situ reconstruction was the (presumed) function: such a 'solar observatory' can, obviously, only be built at the original spot because of its sight lines. All other aspects however, I find very questionable.

During an excursion last year I had the pleasure of visiting the site with one of the excavators, which unfortunately ended in a 'Message from the Disk world' [referring to the Nebra sky Disk, the editor] as is normal in this part of the country – something that works very well for getting public attention, but is completely devoid of science. I did not get any answers about the basis for the reconstruction back then. The wood used is of mediocre quality, and, due to the lack of published excavation details, I cannot compare the reconstruction with the original finds. When I had seen all this, one phrase came into mind: 'roundwood fetishism'. There is a chance that reconstructions can work, but before one builds any kind of model, the basic information behind it should be completely analysed, published and discussed.

In this discussion, I have clearly less problems with the recreation at the Heuneburg Celtic site. Even if the sawn planks are a pain in the eye, the 'rebuilt' corner does not convey an overly primitive image, and the excavations are published so that the original and reconstruction can be compared. But even here, a large sign or a publication with a

discussion about the ‘making of’ would be in order.

And with that, I think, we come to the essence: all reconstructions, be it in or ex situ, should be open to scrutiny, and the original finds and interpretations should be clearly presented. But I categorically oppose any excavation just to allow a reconstruction to be built.

Flintsource (DE)

A view of Gary Ball (UK)

I agree that the preservation of the archaeological material is an important factor, but think that reconstruction within the 'historic landscape' is just as important. We manage a site where an extant, above ground monument (www.tymawrhall.com) which has been restored (after excavation of the floor layers/surveys etc.) in situ in the original location the medieval builders chose. This has preserved the relationship of this building to the landscape, it being built gable end on to a large hill, a particular form of medieval building practice characterised in the area of mid Wales.

You may be interested to know that this medieval hall house was restored in situ after 20 years of discussion regarding its fate, options included:
• leaving it as a 'ruin' within a sealed outer building,
• dismantling it and re construction at St Fagans museum,
• relocation and reuse as the basis for an arts centre building.
Eventually it was restored as a building to be reoccupied as a domestic dwelling, and although some of the interior now has modern facilities, electricity, sewage etc. the form of the timber frame is that of the original 1460's construction, in the exact location the medieval builders chose.

However, I think that ideally a reconstruction close-by that does not infringe or impede the archaeology (and possible further excavation), is the best option.

English Heritage recently reconstructed a Roman villa at Wroxeter in Shropshire in situ, but the archaeology was 'sealed' first under an earth mound to preserve it. A good example of combining both the preservation of the below ground remains and creating a reconstruction that serves as a visual 3d representation of the site.

Gary Ball (UK)
History Matters www.historymattersonline.com

A view of Dr. Martin Müller (DE)

Reconstructions of buildings in their original position are always being critically discussed, because this form of visualisation of ancient buildings provides us with a range of opportunities, but also presents hazards.

From a preservation point of view, such reconstructions definitely have negative aspects. They are frequently built directly onto the ancient fabric. This can lead to the original finds being damaged. That is why in situ reconstructions ought, where possible, to be built above the finds, without contacting them, or preferably on the site of finds that have undergone thorough archaeological investigation, then been removed. The latter is usually the case when dealing with prehistoric (wooden) buildings. When a reconstruction is built over remains, we are deprived of the ability to make further scientific investigations – or at best they are exacerbated. In some cases, however, building over the remains can also protect them.

In situ reconstructions offer excellent opportunities for public dissemination work. No other form of visualisation can convey the dimensions of a building so concisely. Especially in the case of remains that are poorly preserved and cannot be displayed, in situ reconstructions enable the public to appreciate the historical site and circumstances. There is hardly a more suitable way for museums to awaken interest among a wide range of target groups in a historical site and in the preservation of ancient monuments.

The prerequisite of any reconstruction must be thorough scientific preparation and execution. The irreversibility of these buildings is a serious drawback, as it is not generally possible to react to new research findings. Another disadvantage is that usually no difference is made between the parts we are sure about and the parts that are hypothetical. Thus the impression can be given that the entire building is an unquestionable and sure representation. Since such reconstructions make a strong impression on visitors, this fact is difficult to put over.

Reconstructions that are carried out as an experiment offer the best opportunity of testing building techniques and construction methods. In the case of the LVR-Archaeological Park Xanten, the in situ reconstructions permit not so much the visualisation of individual buildings and structures, but more that of an entire 73 hectare historical area. This form of presentation is responsible for the fact that this historical monument could be made accessible to the public and thereby saved from destruction.

Conclusion: Since in situ reconstructions have a combination of advantages and disadvantages, decisions must be made according to individual situations and buildings. Across the board evaluations in this matter are counter-productive. What proves to be right in one place may be wrong in another context.

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1 The Hohle Fels is a cave in the Swabian Alb, Germany that has yielded some of the earliest examples of prehistoric art and musical instruments dating to the Upper Paleolithic. The first excavation took place in 1870. Later excavations discovered a number of spectacular finds including the here mentioned artifacts in 2008. (ed. com.)

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FIG 1. THE RECONSTRUCTED (IN SITU) CONTUBERNIUM AT THE AALEN LIMESMUSEUM, GERMANY. PHOTO: WULF HEIN

FIG 2. VAT 1, PROPERTY IXIII 2, ADDED HEIGHT DISCERNIBLE THROUGH A DIFFERENCE IN MORTAR COLOUR. THE APPARATUS WAS UNUSABLE IN ITS AMENDED STATE. PHOTO: ROB JANAWAY

FIG 3. VAT 5, PROPERTY IVIII19, SHOWING PROPS SUPPORTING POORLY MAINTAINED RECONSTRUCTED ROOF RESTING ON ORIGINAL ROMAN APPARATUS, THEREBY DAMAGING IT. AS THE RECONSTRUCTION DECAYS IT IS NOT POSSIBLE TO DISCERN THE ORIGINAL AND MODERN.

FIG 4. POMPEII, PROPERTY I VIII 19. THE ROOF IS MODERN REINFORCED CONCRETE THAT HAS BEEN POORLY MAINTAINED. PHOTO: ROB JANAWAY

FIG 5. POMPEII, PROPERTY I VIII 19. THE ROOF IS MODERN REINFORCED CONCRETE THAT HAS BEEN POORLY MAINTAINED. PHOTO: ROB JANAWAY

FIG 6. THE ORIGINAL REMAINS, AN UNKNOWN AMOUNT OF CONCRETE RESTORATION OF UNKNOWN AGE, PROPS FOR THE MODERN ROOF THAT IS COLLAPSING STRAIGHT ON TO THE ORIGINAL REMAINS. PHOTO: ROB JANAWAY

FIG 7. TY MAWR AISLED HALL, CIRCA 1460, RECONSTRUCTED IN SITU 1998 AND OPEN TO VISITORS.