

Bolingbroke Castle

Looking at the archaeology

The auger survey

The auger survey allowed us to look at the archaeology of the moat without having to damage it by excavation. It involved taking a series of narrow cores down through the fill of the moat so that we could study the different layers that had built up over time. We wanted to use the information to make sure that when the moat restoration work was carried out we knew how deep the modern silt was and could excavate it without damaging any of the underlying archaeology. We also wanted to take the opportunity of discovering as much as we could about the history of the moat and the castle in the process.

How the auger survey was carried out

We started by measuring out a series of straight lines (transects) across the parts of the moat that were going to be de-silted. We then marked a number of points at regular intervals along each line. The auger survey was carried out in the summer and we found that the vegetation and silting in the moat had built up to such an extent that we were able to easily walk across it without wellingtons. In the winter months the ground conditions would usually be wetter.

The cores were taken at each of the marked points using an auger, which is a long metal tube-shaped cutting tool with a handle on the top for pushing it down into the ground. The auger is 25mm in diameter and its basic 1m length can be extended by adding extra lengths of tube depending on how deep the cores need to go. In this case we kept going until we reached the natural clay that forms the bottom of the medieval moat. The only places where it was not possible to do this was at the ends of the transects nearest to the castle walls. Here we found it was not possible to auger deeper than about 0.3 metres. Each core taken was carefully analysed and recorded and the results were used to build up cross-



John Farrow

Bolingbroke Castle

sections of the different levels of the fill of the moat. We also took samples from the cores at regular intervals so that we could look for other evidence, including any plant pollen that was present in them. By looking for pollen we hoped to be able to find out what sorts of plants had been growing in the area at different times during the castle's history and get an idea of what the landscape may have been like and if it had changed over time. We also hoped to be able to radiocarbon date some material from near the bottom of the moat. If the date coincided with the date that the castle was built (around 1220) we would know that the medieval moat had not been cleared out to its bottom since that time.



John Farrow

What we found out

The depth of the medieval moat: The cores allowed us to measure the depth of the moat to the natural clay. We found that the bottom of the medieval moat was quite uneven but that its average depth was about 2.27 metres below the moat surface at the time of the survey. The water level would most probably have been higher during the medieval period as the moat came right up to the castle walls. This means that it could originally have been about 3 metres deep. It is likely that the water level was maintained by channelling water from the nearby stream which runs along the opposite side of Moat Lane to the castle.

The width of the moat: The medieval moat was wider than it appears today. As we have already seen, on the castle side the water would have included the area



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which is now the modern grass pathway around the outside of the walls. Also on its opposite side the auger survey did not identify the bank of the moat closest to Moat Lane, which suggests that it lay no closer than the modern road and that the road could be sited on the original moat bank. This would mean that the original medieval moat was at least 40 metres wide.

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What do the layers that make up the moat fill tell us?

The cores that were taken allowed us to look at all the different layers of material that had built up in the moat over time. Unfortunately we were not able to obtain an accurate radiocarbon date from the bottom layer of sediment but it is likely that this layer dates from the time the moat was first dug in about 1220. The layers most probably therefore represent nearly 800 years of activity on the castle site.

The bottom layer was the natural clay into which the moat had been dug. Above this there was a layer made up of sandy deposits with a few stones and some preserved organic material such as twigs. Over this were layers of silty sediments which had been formed by particles settling out from the water. These layers represented the period when the castle was in use. There was very little organic debris in them which indicated that the water in the moat was well oxygenated (so that organic things decay) and that it was kept fairly clean. It seemed that while the castle was in use during the medieval period and even beyond, the moat was well maintained as a quite deep body of open water.

Post-medieval silts building up in the moat after the castle was slighted

Slighting the castle - 1652 AD

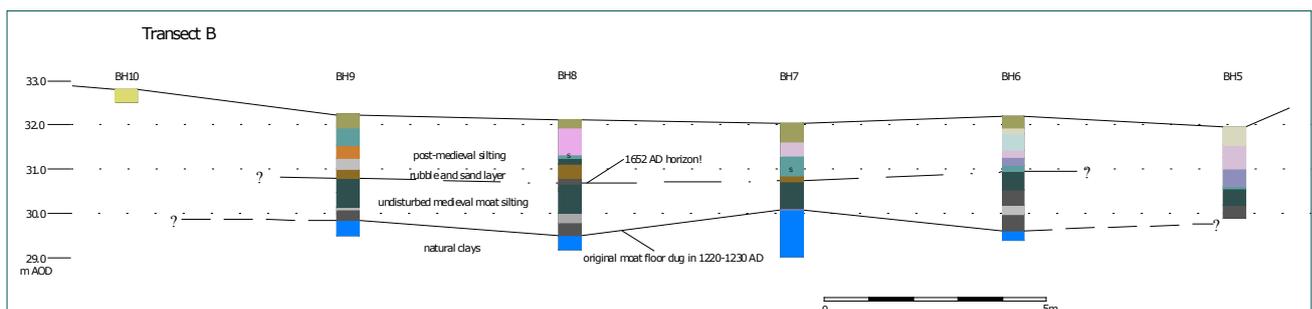
Moat silts with occasional freshwater mussel shells

Silting contemporary with the use of the castle

Base of the moat - dug out in 1220-1230 AD

Natural clay

James Rackham



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The next layer above was very different in character. It consisted of a layer made up of stones and sand. These were fragments of Spilsby sandstone which is the same stone that the castle is built of. When we were taking the samples this layer had been quite difficult to auger through. We could tell by the cores that it had not built up gradually in the same way as the ones below it but that it was the result of one particular event. We interpreted this layer as representing the point at which the castle was slighted by the parliamentarians in the mid 1600s at the end of the Civil War. It was largely destroyed so that it could never be used for defensive purposes by the king's supporters again. The stone from parts of the castle walls had evidently fallen into the moat and had remained there ever since.



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The levels above this reverted to the same gradually deposited silty sediments that we had found in the layers below it. This indicates that the moat continued to be water filled after the castle was ruined. However, without regular maintenance vegetation would gradually have spread into the water and taken it over. We know



from aerial photographs that by the time archaeologists started to excavate the castle in the 1960s the moat had dried up. The photos also show that they partially dug it out and we know that it contained mostly open water in the 1990s.

What did the pollen samples tell us?

Samples of the cores were examined for the presence of plant pollen. By looking at the different types of pollen it was possible to determine what plant species they had come from. As a result of this we were able to tell that:

- Some of the pollen came from water plants. We found that there was very little pollen from floating water plants in the lower silt layers (before the slighting of the castle in the mid 1600s) but much more in the layers from after that time. This supported the observations that we had made from looking at the auger cores that the moat was most probably kept clear of pond weed and maintained as a body of clear open water while the castle was in use but that it was not so well maintained afterwards and was gradually taken over by floating water plants.

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- There were plants such as reed mace (bulrushes), bur reed and various sedges growing at the margins of the moat throughout its life.
- There was very little tree and shrub pollen which indicates that the medieval and later landscape around the castle has never been heavily wooded.
- There were large numbers of grass pollens. Some of these could have come from plants growing around the fringes of the moat but it is likely that grassland and pasture was an important part of the surrounding countryside, especially as there was also pollen from other plants that grow in areas of pasture, such as dandelions and daisies.
- There was pollen from cereal crops such as wheat, barley and rye, and plants that have traditionally grown in arable fields, such as blue cornflower. However, the presence of these does not necessarily mean that large amounts of crops were being grown in the immediate area. The pollen could have come from the rubbish and other waste generated by life in the castle. Cereals would have been used as floor coverings which were periodically swept out and renewed, but more importantly they would have been brought into the castle from elsewhere for food, both for people and for animals, and the pollen would have passed through their digestive systems. We know that the garderobes (the castle toilets) discharged into the moat because the outfalls from them can still be seen in the castle walls. Some of the pollen could therefore have found its way into the moat in human waste from the toilets. (We also found a small number of eggs from parasites that live inside the digestive systems of people and animals).



One of the castle's garderobe shutes

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The auger survey was very useful for two reasons. Firstly it helped us to carry out the moat restoration work without damaging the underlying archaeology, and secondly it allowed us to look at the archaeology and to find out more about the castle site. The identification of the point in time when the castle was destroyed by Parliamentarian forces after the English Civil War enabled us to see how the moat environment changed after that event. The survey also enabled us to discover something about the lives of the people who lived there during the medieval period and what the landscape surrounding the castle and the village may have been like.