

Aylsham Roman Project Kiln Project 2018

*“Let’s build a kiln,” said Teresa.
“What a great idea,” we all said. “Err, how do we do that?”*

That was two years ago and now, two years later we have done just that. How we went about it and how successful we have been can be found below.

Background

We were inspired to build our own replica Roman kiln after discovering two fine examples during the first year of our community dig, in August 2016, here at Woodgate Nursery in Aylsham. Landowner Peter Purdy had been picking up pieces of Roman pottery in his fields for years and one day, after the plough went a little deeper and brought up what looked like kiln material, he decided to call in the experts. Britannia Archaeology dug a trial trench and there was a feature. It was enough for Peter to organise a community dig and we have not looked back since.



Fig 1 Kiln 1

Kiln 1, so called because it was the first discovered, measured about a metre in diameter, had a pedestal and kiln bars radiating out like the spokes of a wheel. It was fully excavated in August 2017 and showed to have two inner linings as well. Archaeo-magnetic dating was carried out during this year, but was inconclusive. The date, though, is between 150-250-AD.



Fig 2 Kiln 2

Kiln 2, our second discovery, was vastly different. It measured over two metres in diameter and is one of the largest discovered in this country. It had a perforated floor that had been repaired during its use. It seems the outer wall collapsed at one point and an inner one built, changing its overall shape from round to oval and reducing its size. We were unable to excavate this fully in August 2017, for fear that it would collapse completely and we would have nothing remaining of this incredible find.

Neither of these can be seen, unfortunately, as we have had to re-cover them and wait for a time when we may be able to open and preserve them for all to see. They live on in photos and large pull-up posters, plus jigsaw puzzles. They did, though, inspire us onwards to learn more about kilns and thus, making a kiln became a natural progression.

Beginning

At a meeting to review our first year’s dig, Teresa Rogers raised the idea of building our own kiln. We were all keen to do so - how good it would be, what an experience, bring our discoveries to light – but none of us had any experience using clay to make pots, yet alone building a kiln. We started researching and looked to see what we could find on the Internet. There were presentations and photographs and although these were really useful, there were still gaps in what we actually needed to do. It was now time to plan for the year two dig and we had to put the kiln to the back of our minds.

We still kept looking and something caught our eye, a report by someone called Beryl Hines on kiln building with the group called the Anglian Potters. An email or two later

and we had her contact details and, along with another Anglian Potter member, Jackie Watson, we arranged a meeting. This initial meeting with them took place in April 2018 and we knew, with Beryl working with us, we would be able to go ahead.



Fig 3 Beryl Hines

Many years ago, Beryl had the good fortune when she was at school to meet a studio potter, Dorothy Kemp, who was allowed to teach pottery to the sixth form. For Beryl this started a lifelong obsession with clay and she became very interested in the complexities of firing pottery. Curiosity about the workings of the Romano-British kilns found all over East Anglia was logically followed by a series of experiments, which archaeologists were not at all interested in at the time.

Her interest in wood fired kilns continued, however, and over the years there were opportunities to visit kiln sites and continue experiments. These culminated in the great joy of a workshop in Tokoname, Japan, where she visited ancient kiln sites and had the enormous privilege of making pots and taking part in the firing of Anagama kilns. These big kilns, containing hundreds of pots, were fired with wood and had to be taken up to the temperature of 1 280 degrees centigrade. White hot!

The Archaeological world eventually realised that practical experiments could shed light on the artefacts they were digging up and over the years, Beryl and her team have built a variety of experimental kilns for different people. These include a glass furnace, a tile kiln and a brick kiln for the “Time Team” programme, several different kilns for the Anglian Potters and a Romano-British style kiln for the “Study Group for Roman Pottery”, for their conference at Nottingham University. She was very pleased to be invited to take part in the building and firing of this exciting experimental kiln in Aylsham.

Planning

Although Roman kilns would probably have been fired during the Summer time after tiles and pots had been made in the Spring time— tiles we have found with animal prints on and identified by Julie Curl, our animal and bone professional, have included fox cub – we had to build ours in November. (Peter and his team at the Nursery were busy preparing for the Sandringham Garden Show during June and July and all their hard work paid off with a large gold award for a magnificent show garden in the grand marquee). We decided on November and worked back from there.

Although we know there is clay on site, finding a good source of it at the moment has eluded us, so we had to buy it in. During July, all the children from one of our local infant schools, John of Gaunt Infant and Nursery, made a pot, some more were made during our August dig and further ones during October. They were all kept in one of the polytunnels in the Nursery, a perfect drying area. The potters amongst our group also made some.

Base Building



Fig 4 Preparation

During the week beginning 1st October, Beryl Hines, affectionately called Beryl the Builder, along with a group of ARP friends built the base. An area was dug out by Daniel from the Nursery for the stoke hole and the top layer of soil removed next to it which became the base of the kiln, about one metre in diameter. This was finished by hand and then the fun began!

The clay that had been brought in was not suitable for building the kiln as it was too refined and smooth. To make it coarser we needed to add sand and to make it stronger and less likely to crack as it dried, we decided to follow an early Medieval recipe and add one-part horse manure to three-parts clay. Horse manure is full of little fragments of grass fibre and this helps to hold the clay together. Beryl was very pleased to find a group of kiln builders happy to try this, she had had been wanting to experiment with horse poo for years!

On to a tarpaulin, we cut up and laid some clay and shovelled sand and horse manure on to it. After covering it with the other half of the tarpaulin, we started to puddle it. This involved walking over it, stamping on it, dancing on it, singing silly songs, rolling it over and doing it all again; a complete aerobic activity for nearly two hours. It was great fun, we even crowned Colin and Pauline our Strictly Come Puddling champions!



Figs 5-11 Clay Puddling



Fig 12 Lining the Base

Once mixed, the base of the hole that had been dug was covered with the puddled clay, leaving space to build a pedestal out of brick, which mimicked Kiln 1. The sides, too, were covered in clay. The stoke



Fig 13 Willow Lattice

hole and fire box were lined with bricks, held in place with clay. Willow withies were used to create a lattice across the top ready for clay to be moulded on to them and to create the floor of the kiln. Gaps were made creating a perforated floor, thus mimicking Kiln 2. We tried to follow and use the archaeology of our own kilns in our own twenty-first century version.



Fig 14 Labelling

Initials and dates were drawn in the clay, finger marks added and finally a rim of clay all the way round. The fire box was covered with large tiles and our base was complete. All we needed to do now was to cover it over to protect it from rain and check it



Fig 15 The Finished Base

regularly, covering any cracks that appeared, but generally to leave it to dry. We were very lucky, October was a very mild month and it successfully dried, the floor remained in place, all was looking good.

Packing

On November 5th, we all met again. The base was good and dry, we brought all the pots from the polytunnel and the task of packing the kiln began. It was important not to go right to edge as we needed to cover it all with clay. This was such an exciting moment, all the children's pots went in, some other pots and tiles, some jugs made by our potters and a



Fig 17 The Owl

fantastic owl based on our owl logo. A very early coin of the goddess of wisdom, Minerva, had been found on the site and she is often pictured with an owl. Teresa, who works at the Nursery, whose idea this all was and who has been very much involved in getting the project to this stage, drew our owl which appears on all our publications, promotional items etc. Phil had produced it in 3D, it looked absolutely terrific. It was placed on the top, beak down. Would it still be in one piece by the end of the week?



Fig 16 The Packed Kiln



Fig 18 Covering the Hay

All of this was covered in hay and over the top, covering the lot, more clay. This had to be carefully put on so that it didn't flatten the hay, but left a gap between the the pots and the roof. Vents were made in the top for smoke and flame to escape, but also to see how hot the pots were becoming. Eventually it was done, some



Fig 19 Offering to the Gods

sprigs of Sorbus Aucuparia (Mountain Ash), Chaenomeles Japonica (Japanese quince) and Nandina Domestica (Japanese Heavenly Bamboo) were placed on the top as an offering to the Gods and prayers were said, in good traditional style. Would this help us have a successful firing? Only time would tell.

Firing



Fig 20 The Kiln is Lit

It was 1230 on November 5th and the moment had come. Peter lit a small pile of kindling wood in the mouth of the fire box and immediately the flame was drawn into the kiln. The fire had to remain small in order for the clay to dry out gradually. Steam was soon seen to rise out of the vents. For about six hours, the fire was gradually developed until the top dried and smoke began to appear through the vents instead of steam. Now we could feed more wood and try and raise the temperature inside the kiln. Dan and Ollie from the Nursery kept bringing us wood to ensure we had enough to last us through the night.

Many people visited to watch what we were doing, but as darkness fell and the night developed the hardy few were left,

Beryl, her son-in-law and chief stoker John, Teresa, Peter, Jackie, Colin, Diana and Sheila. The night started fairly windy, as the day had been, but as dusk disappeared so the mist descended and the wind died down completely. Our wood had been damp, but it was now being covered with a further layer of moisture. We worked all through the night, keeping our own bonfire alight and drying wood for the kiln all around it. John kept stoking the kiln, with the aim of building up the temperature inside.



Fig 21 The Fire Box



Fig 22 Glowing Pots

At around 0330, a hot, red glow could be seen coming from the vents in the roof of the kiln. We could see some pot shapes beginning to glow and sparks disappearing into the



Fig 23 Cooking on the Kiln

night air, but we couldn't keep the temperature rising. John worked tirelessly, caressing the fire, urging it to pour forth its heat. We certainly had the heat, but it would have been good to have got it higher. Dawn gradually broke and we were still at it, still determined to get it to work, still in amazing good humour on just a few minutes sleep, or none at all. No grumbles, no bad-temper, it was quite an amazing night, sitting watching the kiln, warming ourselves by our own bonfire, making a drink in the gloom., roasting chestnuts. As it grew lighter, fry pans appeared and bacon and sausages were cooked on top of the kiln. Never had it tasted better!



Fig 24 Covering the Kiln

We kept stoking until 1230 on November 6th and then called a halt. We had done as much as we could, it was now time to stop. As with the beginning and the gradual heating, the kiln needed to gradually cool down. Clay plugs were laid across the vents at the top and soil and



Fig 25 Cooling Down

sand used to cover the whole kiln. John blocked the stoke hole up with bricks and further sand was thrown over that area as well. Wisps of smoke made their way through the top. It was now time to leave the kiln and get some well earned sleep.

Opening



Fig 26 Removing the Plugs

The kiln was left until November 9th, 1000, when we held a grand opening, and those days in between seemed to go on a long time. The first two, there was still warmth around the top of the kiln, but this gradually cooled until it was totally cold at the top. A lovely number of people turned up for the opening, to see if it had all worked. The sand was brushed away, the clay plugs removed and the clay at the top of the kiln was broken and removed.

What a sight was then beheld! The owl, on top, still in one piece, all the school pots sitting there, everything in one piece! We had managed to reach the temperature necessary to fire the pots but a higher temperature would have made for a more even firing. The atmosphere at the back of the kiln was very smoky. Those pots nearer the front of the kiln were nicely oxidised and came out red. The pots in the middle of the kiln came out grey and the pots at the back were very deprived of oxygen and came out black, but they all came out, all 221 pots and tiles. It was quite an emotional moment, especially then seeing them all laid out on the tables. The perforated floor had survived as well.



Fig 27 Opening the Kiln



Fig 28 A Successful Firing



Fig 29 The Fired Pots

The addition of the horse manure to the clay worked very well. Beryl thought there was much less cracking in the walls and floor of the kiln as it dried than she had encountered with some previous kilns and the roof over the pots, though cracked, had held together very well. It seems probable that the clay mixed for the building of kilns would have been prepared in the same way as clay for the daub used in wattle and daub buildings. The results of our experiment and the study of our fired kiln and the debris left after the firing has already been of great interest to the archaeologists and hopefully will add to their interpretation of ancient kilns.



Figure 30 The Owl



Fig 31 The Base after Firing

We had succeeded. The planning, the making, the drying, the puddling, the sleepless night, the long wait to open, everything had been worth it. Would we do it again, oh yes, we would, we cannot wait. We have already started thinking of things we would change, but all that is for the future. For now, we need to just celebrate what has been a very successful project.

Thank you

This project could not have been possible without some very key people to whom we owe a great deal of thanks

Teresa Rogers	for inspiring us to give it a go
Peter Purdy	for going along with all the madness
Beryl-the-Builder Hines	for her enthusiasm, calmness, great experience and wonderful stories
John-the-Stoker Seggar	for spending the night on his knees
Jackie Watson	for her advice about pots and firing and puddling skills

All the children at John of Gaunt Infant and Nursery School, Aylsham, for making a pot.

ARP Friends who helped in any way, in particular:

Donna Davison, Sheila Denny, Diana Duhig, Enid Parry, John Watkiss, Sue York, Colin Young

All the Aylsham Roman Project Friends who made a pot and came and visited us during it all.

All other friends and visitors who just came to see what we were up to and wish us well.

Sable the dog for welcoming us all every day onto the field even though it was wet and we were doing strange things with clay! She preferred home comforts during the night but soon found the remains of the bacon fat in the pan when she did arrive.

*Next time Teresa says, "Let's build a kiln," we will reply,
"What a great idea, we know how to do that."*