Over Easter 2022 the Butser Ancient Farm, at Chalton, Hants, one of the ARA’s most popular venues for members, welcomed staff and students from the Institute of Archaeology at University College London (UCL) and Archaeology South East to Butser. As part of their ‘Archaeotech’ course the students had the opportunity to get hands-on experience with some experimental archaeology. They built a replica of a Roman kiln, which they returned to in September to fill with pottery and managed two successful firings under the watchful eye of Bill Sillar, Professor of Archaeology and Technology in Society at UCL, who has kindly shared the process involved.

The students spent a week building the kiln working with colleagues from Archaeology South East, particularly Louise Rayner and Alice Dowsett. The kiln is based on an early second-century Roman kiln from the salt marshes of the River Medway estuary on the north Kent coast, originally excavated in 1975 by Ian Jackson and the Upchurch Archaeology Research Group (UARG). This is one of at least eighteen similar kilns in the intertidal area investigated by UARG which are thought to be derived in their style of construction from Late Iron Age kilns. The excavation was difficult as it needed to be undertaken during a limited low-tide period between the regular high tides when the site was submerged. The Roman potters built this kiln into a riverside bank, which is partly why it was so well preserved. It was an up-draught kiln where in loading it the ‘green’ unfired pottery was placed on ceramic horizontal bars which were in turn supported above the furnace by clay pillars and a thick lip around the internal base of the kiln. The superstructure of the kiln was not...
preserved but turfs or pottery sherds could have been used. The stoke-hole was relatively small, which may reflect the type of fuel used. It has been suggested that these kilns were short-lived and that the potters had a ‘knock down and rebuild’ approach where the kiln bars could be reused in a new kiln. However, the excavators of the kiln identified evidence of re-lining showing that the structures could be re-vamped, fired up again and used on more than one occasion. The kiln was chosen as the reference for this experiment partly due to the generosity of Ian Jackson and his colleagues in sharing their understanding of these kilns and allowing the team to study the assemblage of pottery found and recovered from within the kiln and beside it.

The replica kiln at Butser was built into a bank in the area between the reconstructed Iron Age enclosure with its round-houses and other structures and the reconstructed villa house based on the Sparsholt Roman villa, near Winchester. This both reflected the chronology of an early Romano-British kiln and contributes to the ‘pyro-technology’ area that Butser Ancient Farm is developing for future metal working, pottery firing and (hopefully) glass working. The chalk geology of the South Downs (where Butser Hill is the highest point) is very different to the silts of the Medway estuary, so we had to import clay, but like the Roman potters we mixed the clay with organic material (in our case grass cuttings!) for the lining of the kiln chamber. We also made kiln bars and the pedestal supports out of clay well-tempered with chaff and grass. It might have been possible to do this more quickly than the six days we actually took, but we benefited from the gradual drying as we slowly layered the clay onto the sides of the pit and formed the lip support in the interior of the furnace and the exterior flue. We the allowed the kiln to dry out until late September when we returned with another group of UCL students to fill and fire the kiln.

We brought the original excavated assemblage of pottery and kiln furniture to Butser to look at while we were working on the kiln build. This helped the students to understand the connection between the archaeological site and their experimental work. It also provided us with insights into the materials and forming of the kiln furniture and the pottery. We were very grateful that Ian Jackson came to Butser to discuss his excavation with Anna Doherty who has undertaken an initial analysis of the pottery assemblage. Some of the pottery was made on the wheel, but most of the jars were hand built using coiling techniques. In the Roman period potters used a kick wheel, where the potter’s foot pushes a
circular base that transfers the momentum up to the wheel on which he or she forms the pots. We brought a kick wheel to Butser and have started to make pottery to imitate some of the original Roman forms. But we made the majority of our pottery using hand building techniques, including a range of jars of similar sizes to those found in the excavated kiln.

In late September we returned to the kiln with a selection of pottery made by various students, staff and volunteers. The kiln was dry to the touch, but still had a lot of moisture in the clay, so we started with a small fire at the base of the chamber to dry out and warm the kiln structure. We then placed our pre-prepared pedestals and kiln bars and continued to heat the structure. A couple of the kiln bars broke, probably as we heated them up too quickly to release the moisture in the clay. We then loaded the kiln placing the jars and other pots mouth downwards, we put two layers of pottery with a mixture of vessels. We continued to slowly heat the kiln. For fuel we were using coppiced wood from fences and structures that had been dismantled at Butser, this was predominately hazel that was aged and fairly dry. So a very suitable fuel to use in the restricted opening of the kiln flue. As the pottery began to heat up we placed a covering of pottery sherds (including some fragments of original Roman tiles) over the kiln load. (An interesting question is whether some of the pottery excavated at the original Medway kiln was being used as a sherd covering for the firing.) We kept the firing going into the night reaching a temperature of around 860 degrees centigrade, and then left it to cool before unloading the following morning. This first firing was fairly successful with only three vessels completely shattered, but the pottery was slightly underfired and some large vessels had small cracks or chips, which were probably a result of production and handling faults. About 20% of vessels were partially reduced/carbonised as a result of poor circulation of air/oxygen during the firing. A second firing was more successful reaching a temperature of 960 degrees, but again with about 20% of the pottery partially reduced/carbonised. We now intend to undertake further analysis of the original assemblage from the Medway kiln to consider how our improved understanding of the kiln might help our interpretation and we hope to undertake further firings to assess how different fuels and methods of covering influence the firing conditions.

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