

A Roman Industrial Site and Villa at Sacrewell, Thornhaugh

By Adrian Challands

Introduction

During construction of a major water-supply pipeline north of the Nene at Sacrewell 30cm of topsoil was stripped from an area $\frac{3}{4}$ mile long by 36 metres wide (fig 6). Between the 100 and 150 foot contours, extensive structural features were noted (O.S. (1956), 33) on the line of the 12 metre wide pipe-trench. Partial destruction was inevitable across the remaining 24 metres. It was decided that before further construction was started recording was necessary.

Geology

In the vicinity of the buildings, flaggy basal beds of Lower Lincolnshire Limestone lie immediately below the topsoil. Fissures within this are filled with a drift deposit of very sandy clay.

Lower Estuarine sands outcrop 30 metres further south and contain lenses cemented by iron oxides. At the base of this stratum Northampton sands and ironstones occur, represented at Sacrewell by ironstone, 0.3 to 0.6 metres thick.

The Villa

Projecting from the trench side, building 1 (fig 5) was represented by one course of herringbone pitched limestone footings. The north footing was only 1.0 metre wide and the south footing 1.3 metres. Only slight traces of the east footing remained. The room measured at least 19 metres long by 5.5 metres wide, floored with limestone set in mortar, which was so far decayed that it was impossible to determine if floor or sub-floor was represented. No trace of internal partitions could be found, although a horizontally pitched earlier footing on a different alignment was utilised in the flooring. Localised burning directly on the floor (F2, 4) together with a heavy charcoal deposit (F3) may indicate use after the building's destruction. An area of dark loam (F1) containing fragmented limestone, mortar, *opus signinum*, flue-tiles, roof-tiles, nails and tufa, appeared to have been levelled and heavily trodden.

Footings of buildings 2 and 3 may represent one structure. Building 3 had been badly damaged. The footings of both were 0.8 metres wide, with similar well-mortared herringbone pitching. Considerable quantities of tufa surrounded them, and spread over the patchy internal flooring of mortar which had been laid directly on the natural rock

surface. Simple mortar flooring (F5, 7, 10) was laid directly on natural bedrock. Considerable signs of burning were noted on the flooring (F7), while that at F5 included large fragments of broken tile. Beneath dark loam and charcoal containing fragments of red painted wall plaster (F21) were similar mortar floors (F8, 18), together with mortar levelled over limestone hardcore (F9). In addition, a short length of damaged footing (F21) suggested another building.

On the same orientation as building 1, the building 4 had similar footings, but less substantial at 0.65 metres wide. They formed a room at least 9 metres long by 5 metres wide. The interior was filled with a mixture of soft lime and charcoal. Projecting south a short length of footing suggested a further room.

An enigmatic structure (F22), which may represent a malt kiln (Corder (1961), 53), lay south-east of building 4 on the same alignment and had a well-mortared horizontally pitched wall, 0.25 metres wide. The walling formed a 2.2 metre square chamber with a central flue 0.7 metres wide by 1.0 metre long, pointing south (fig 7). Internally it was paved with mortared limestone slabs, extending through, and 0.7 metres beyond, the flue. Although the flue sides were burnt, no sign of burning could be seen within the chamber.

The Industrial Site

In 120 metres of trench running southwards from the buildings no fewer than 8 ironworking furnaces were located. Three of these had been badly damaged and were recognised only by quantities of slag and reddening of the natural rock. The better state of preservation of the remaining furnaces may be due to their location around the buildings which saved them from the plough. It is probable that all the furnaces are of simple bowl type with the exception of furnace 4 and an additional furnace outside the main trench.

A diameter of 2.5 metres was indicated for Furnace 1 on the evidence of the burnt underlying bedrock. Fragments of fired clay indicated a lining. Some slag was found within the furnace itself, although most of it was embedded in charcoal, where it has been raked out to the west.

The better preserved clay lining of furnace 2 demonstrated how the lining was positioned around the perimeter to form a bowl. The filling comprised of purple clayey mixture containing charcoal and iron slag,

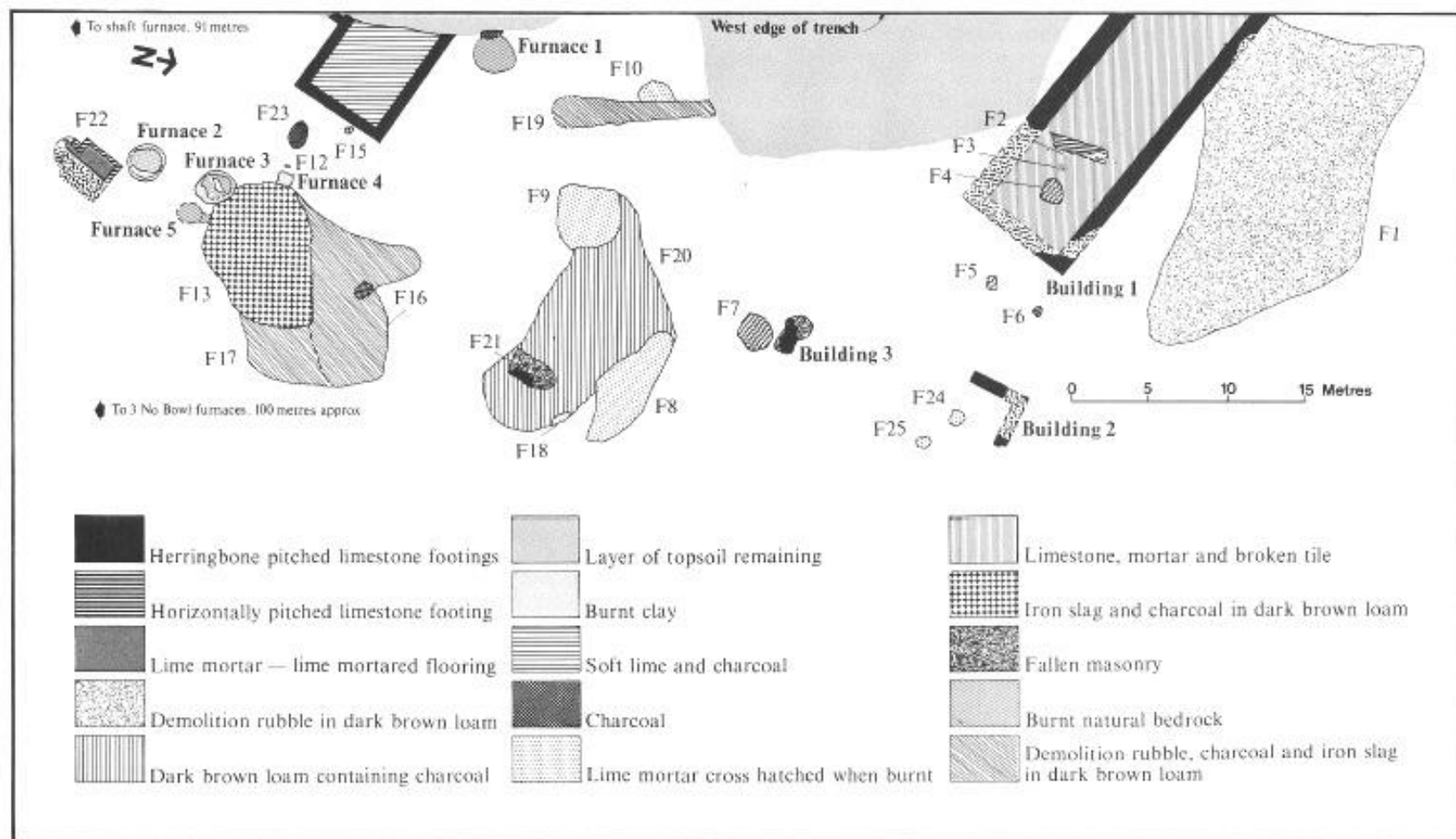


Fig 5 Plan of the villa at Sacrewell

giving way on the eastern edge to pure charcoal and slag.

Furnaces 3 and 5 were of similar construction. Furnace 5 had probably been demolished and replaced by 3. Furnace 4 was of different construction, comprising a burnt clay and mortar floor surrounded by traces of a rectangular masonry chamber. No slag was found within it. The function may have been ore roasting, to drive off moisture. These furnaces shared a common raking area (F13, 16, 17), composed of dark brown loam, demolition rubble, charcoal and slag, the latter increasing in density (F13) towards the furnace.

The shaft-furnace was located outside the main trench, and was cut by a minor pipeline trench. Calcareous clay which had been subjected to very high temperatures formed the lining, still standing to a height of 0.45 metres (see p. 18). Its diameter could not be established, although it was more than 0.6 metres.

Conclusions

A period of occupation from at least the mid-second to the late fourth century is implied by the pottery finds.

The general layout of the buildings suggests a winged villa which underwent at least one major alteration. Debris extending for 100 metres in the field to the west suggests that the principal rooms lie in that direction. It is in this area that the fired clay head (see p.17) was ploughed up.

The amount of building material found associated with iron smelting debris implies prior demolition and levelling of at least part of the structure. Indeed, the proximity of working furnaces would make occupation, to say the least, uncomfortable. The filling within building 4 may be associated with iron smelting. It may be tentatively suggested that an agricultural unit, based on the villa, was superseded, possibly in the late fourth century, by more remunerative metalworking activities.

A similar site is located two miles north of Sacrewell at Barnack. Together they may point to a major change in the economy of this section of the Nene Valley. However, only extensive investigation of sites such as Sacrewell can clarify this point.

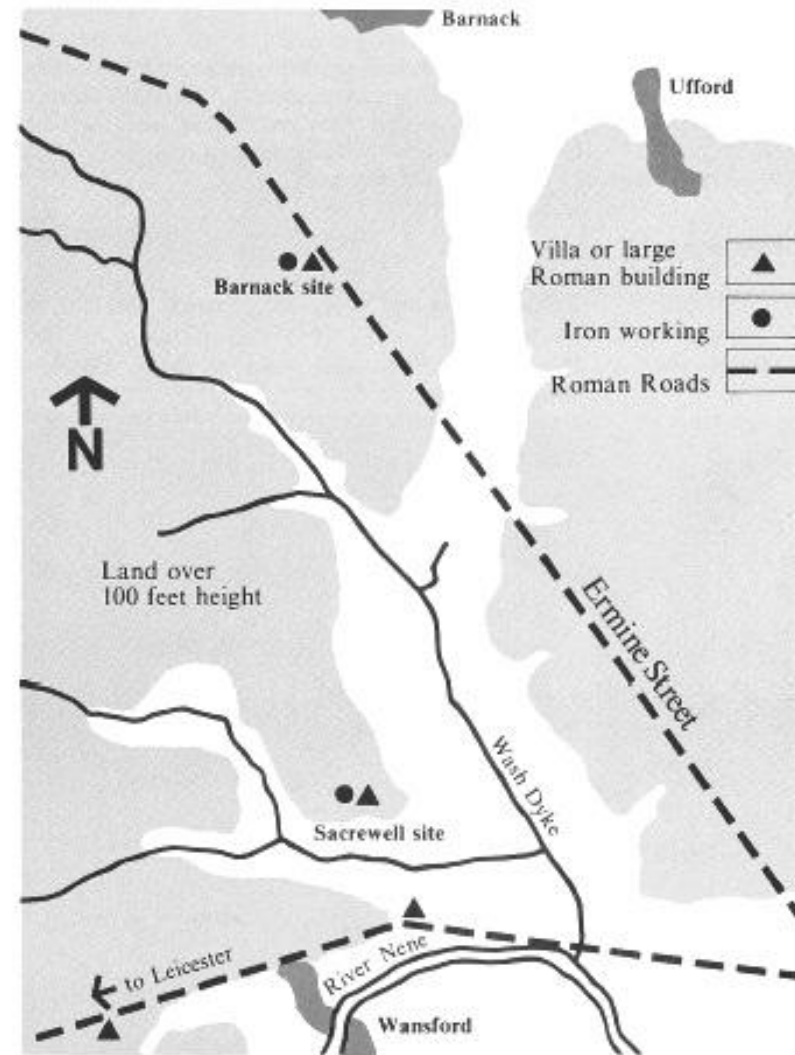


Fig 6 The situation of the Roman villa at Sacrewell

Acknowledgements

Thanks are due to Mr D. O. Powell of the William Scott Abbott Trust, Sacrewell Farm, for his help and encouragement; to Messrs. Edmund Nuttall Limited, the contractors, for their indulgence and assistance on site; to T. C. Hawksley, the consulting engineers; and finally to all those who materially assisted in the site work.

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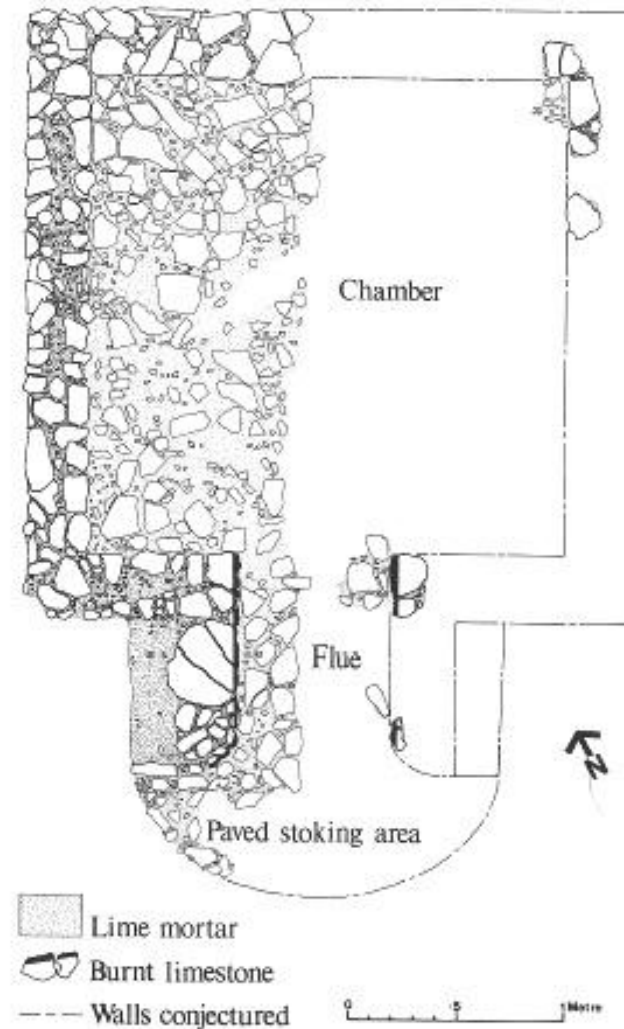


Fig 7 The possible malt-kiln from Sacrewell

A Terracotta Head from Sacrewell

By Professor Jocelyn Toynbee

This small fired clay male head, 5.5cm high and measuring 5.5cm from back to front, was found unstratified at Sacrewell near Thornhaugh on the site of a Roman villa (TF 075004). The area has produced 80% third-century and 20% second-century pottery, but nothing mediaeval. The clay is of a deep pink colour, and of the same colour and fabric as are most of the *tegulae* discovered in this region. There can be little doubt that the object is of Romano-British origin.

There is an irregular break at the base of the neck, which indicates that the head once crowned a full-length statuette, less probably a bust, but possibly a long giraffe-like neck, to which no body was attached. The tip of the nose and tip of the chin have been broken off. There is no trace of a beard. The top and back of the head are completely plain and smooth. No ears are shown; but above the places where they should have been there projects, more strongly on the person's right side than on his left, a kind of brim suggestive of a cap shaped like a shallow dome. Below this brim, on the low brow, there are 11 crudely cut, short, vertical incisions, probably representing hair, one immediately above the nose, 4 above the right eye and cheek, and 6 above the left eye and cheek. The large bean-shaped eyes are outlined by incision, the right eye being much more sloping and a good deal larger than the left eye. The nose is large and very projecting. Beneath the nose a roughly rectangular area, outlined with straight, continuous, incised lines, appears to represent a huge gaping mouth, along the top and bottom of which are slight indications, by incising, of an upper and a lower row of teeth. The cheeks are full and smooth.

Crude provincial work of this kind is almost impossible to date. A late second- or third-century date would seem to fit the pottery evidence.

Still more problematical is the question as to whom the head is meant to represent. I cannot recall ever having seen its parallel. The treatment of the hair by incision and the incised outlining of the eyes remind one of the grotesque human face worked on the outside of a mould for a jug-neck mask found at Horspath near Oxford (Toynbee (1963), no. 163, pl. 166-8), where the eyebrows are rendered and the eyes are outlined in the same incising technique. But there the mouth is quite naturalistic. As regards the open rectangular mouth of the Sacrewell terracotta, the nearest thing known to me is on the stone head of a Celtic god (?) found at Netherby in Cumberland and now in the Tullie House Museum, Carlisle (Toynbee, (1963), no. 42a, pl. 44). But it is

really impossible to say whether the terracotta head was an intentional caricature of a living person, as the Horspath face seems to have been, or presents a local deity worshipped in the villa's domestic shrine.

Best thanks are due to the object's owner, Mr D. O. Powell of the William Scott Abbott Trust.

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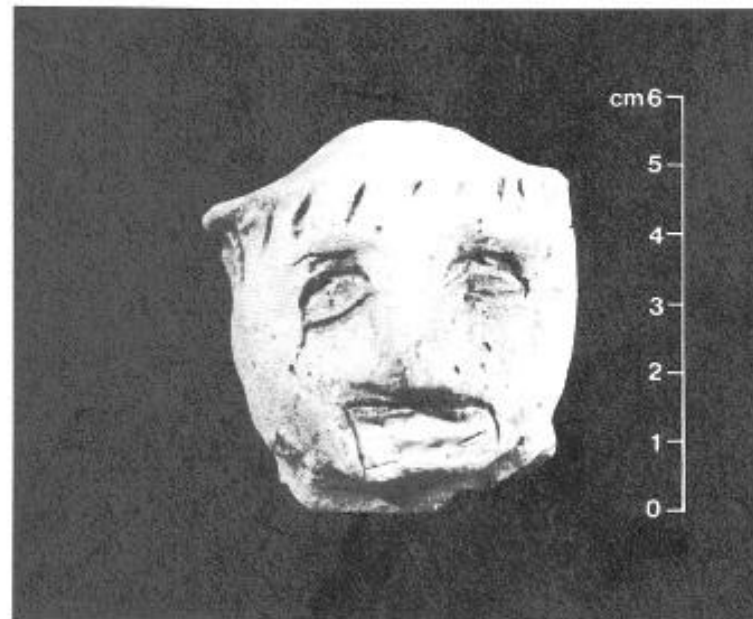


Fig 8a View of the terracotta head from Sacrewell

Furnace-Lining from Sacrewell

By Roger Norwich

The lining and slag recovered from the furnace area at Sacrewell showed something of the construction, length of use and technology of the smelting furnace at this site:

Geological investigations of the chemical and optical properties of the lining prove that it had originally been of a rather crumbly calcareous clay, one of the types found in the Nene Valley. For practical purposes the choice of clay would seem to have been a bad one, as the crumbly consistency would have made it a difficult material to mould into a furnace lining, and problems of collapse would have arisen during the initial drying stages.

The furnace builders overcame these difficulties by mixing organic materials such as grass and twigs with the clay, thereby bonding it into a more solid mass. This, however, does not alter the fact that there are other clays in the area which would have been easier to work, so the question of what influenced the smelters' choice must be considered.

The answer lies in the chemistry of iron smelting. Although the Roman shaft-furnace was an improvement on the bowl type, both in capacity and in the amount of heat generated, it was still unable to produce fairly liquid and therefore easily manageable blooms, only retaining a small percentage of slag. At this site, however, examination of both blooms and slag shows that quite a high degree of liquidity was reached, although that liquidity was not a function of temperature alone. The addition of limestone (CaCO_3) to iron ore during the smelting process means that as well as removing impurities, the required temperature for the reduction of iron from its oxide to its metallic state is much lower than it would otherwise be. As far as can be ascertained there was no addition of crushed limestone to the iron ore in these furnaces and it must be assumed that the fluxing of the ore was brought about by the CaCO_3 in the clay. The CaCO_3 adjacent to the facing-surface of the lining separated out into the iron ore, as is shown by the mineralogical distribution in the clay. The facings are wholly without calcium products, but the core of the lining still contains a considerable amount.

The furnace was evidently used only once before re-lining, because the limestone from the facing of the lining would have fallen out at the first firing, leaving none for subsequent use. The lining-core is still

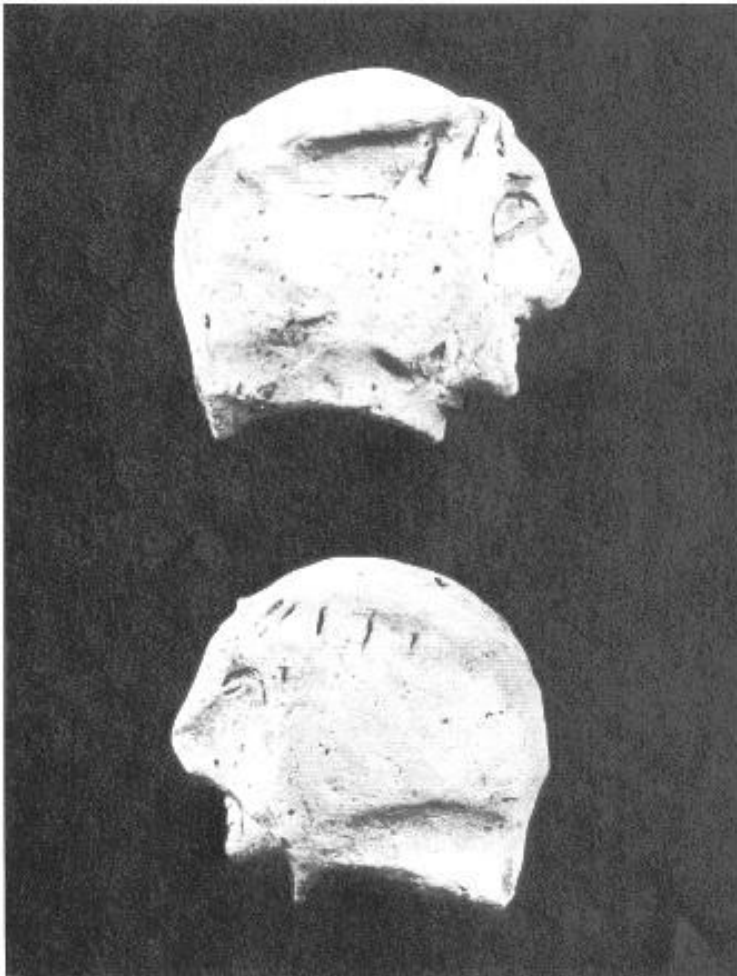


Fig 8b, c Views of the terracotta head from Sacrewell

rich in organic debris which has not been completely burnt away. This implies short-term heating.

From the evidence it can be seen that the iron smelters were aware that variations in their basic materials could affect the quality of their products, and though they did not understand the chemistry involved they were able, through experiment, to improve their production techniques.