

# A Roman Limekiln at Helpston

by Adrian Challands

During the early summer of 1960, Mr Don Baxter, a machine operator at the Helpston Stone Quarry, brought to the attention of Peterborough Museum Society's Archaeological Field Section samples of Roman pottery which he had found during quarrying operations. Subsequent investigation revealed considerable traces of Roman occupation in a shallow, newly-cut, quarry face. Excavations commenced under the direction of the late Mr G. F. Dakin and Mr E. Standen which quickly indicated that a substantial stone-built structure was being investigated. This was later established as a limekiln (figs. 16, 17).

The site lies 1½ miles south of Helpston village and 270 metres east of the Roman King Street. A mere 36cm below the topsoil and subsoil lower Lincolnshire limestone is present, weathered at the top, but becoming increasingly solidly bedded with depth. The method of building the kiln appears to have been initially to quarry holes in this stratum, approximating to, but somewhat larger than, the basic shape of the kiln and stokehole. A reasonably level floor, deliberately sloped down towards the kiln from the stokehole, was also formed out of the solid limestone. Altogether the kiln survived to a height of 2.45 metres and consisted of an upper and lower section, divided by a ledge.

Very substantial masonry forms the kiln's upper section which had a diameter of 2.75 metres and seven courses of stonework remaining (fig. 16). The masonry was well mortared together and laid in panels of two courses of herringbone pitching bedded with a horizontal stretcher course above and below. The two lower panels rest on a ledge cut out of the natural limestone. The space between the kiln wall and the edge of the quarried hole was solidly filled with limestone rubble and mortar. A lime and sand rendering about 3cm thick covered the upper walling and extended down to cover part of the natural limestone as far as the ledge.

The lower section was constructed of seven courses of horizontally bedded limestone blocks, laid in lime mortar and dressed to form a smooth curve. At the floor the diameter of the chamber was 2.1 metres and at the ledge 2.26 metres. The wall had a slight outward batter. The ledge was about 18cm wide and ran the whole way round the kiln,

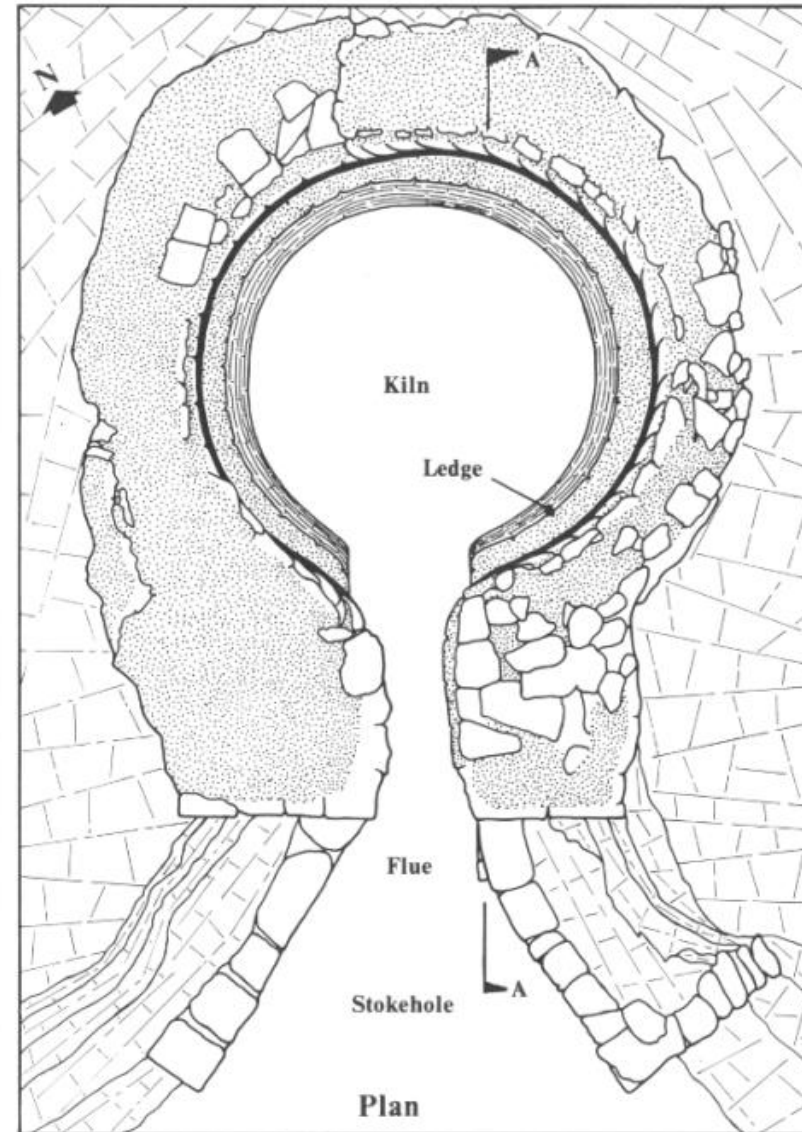


Fig 16 Plan of the Helpston limekiln

except at its junction with the flue. It had a mortar bed on top, similar to the rendering on the walls of the upper section.

The 1.37 metre long flue (fig. 17) was composed of horizontally bedded mortared blocks similar to those forming the lower section of the chamber. These extended up thirteen courses to a height of 1.52 metres. The top four courses were corbelled, and may have originally formed an arch. The well built flue-checks faced a V-shaped stokehole, 2.45 metres long, with low revetting walls. They abutted the natural rock as did the parts already described.

A clue to the methods employed in preparing the kiln for firing was given by unmortared limestone blocks, resting on the ledge, which corbelled out over the lower section. In places three courses still existed. This may have been the springing of a dome to support the limestone to be burnt in the upper section. Dr Norman Davey has suggested that this dome may have been constructed upon a charge of timber in the lower section to give it initial support. Above the dome alternate layers of limestone and timber were probably packed. He is of the opinion that the dome would not have collapsed once the timber fuel in the lower section had been consumed. The fact that 75cm of pure lime remained, resting on only a thin layer of charcoal, implies that the charcoal had been raked-out while the dome was still intact. After the firing, which may have lasted several days, the dome would have been broken and the lime removed through the flue and stokehole.

Most of the masonry of the kiln and flue had been subjected to burning and it is evident that a fierce heat was required to convert the limestone into lime. Samples of charcoal from the stokehole have been identified as mostly hawthorn with some blackthorn. Samples from the kiln itself were mostly too calcified to permit identification, although hawthorn and birch were represented.

Occupation layers containing pottery and coins of mid to late fourth-century date sealed and overlapped the kiln for a distance of some 12 metres. This suggests that the kiln was deliberately filled in with limestone rubble before the mid fourth century.

Whilst this is the only structural evidence for what must have been an important and extensive industry in the lower Nene Valley, other examples of similar kilns have been excavated in the middle and upper Nene Valley, such as at Weekley in Northamptonshire (Jackson (1973)).

### Acknowledgements

Thanks are due to Mr A. Crowson of the Maxey Gravel Works and Mr C. Goodfellow, the landowner, for permission to conduct the

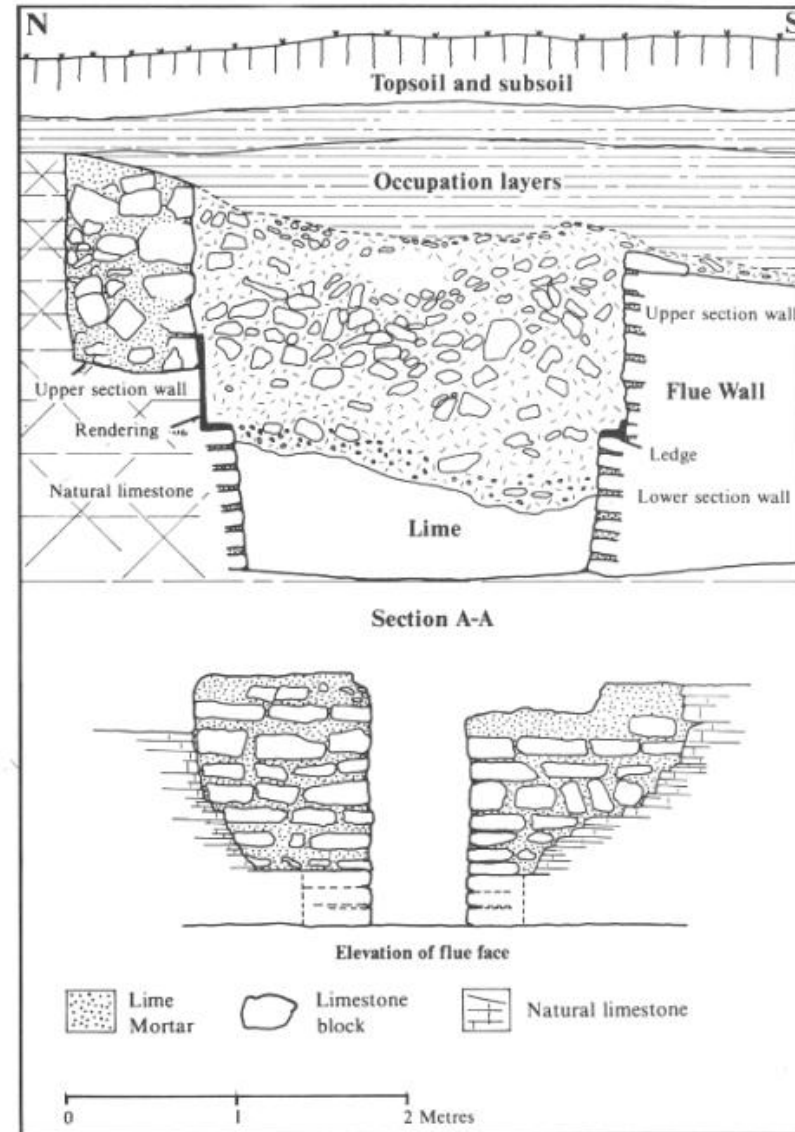


Fig 17 Sectional view of the Helpston limekiln

excavations; to Dr Norman Davey for his helpful comments on the production methods, and to Dr G. Taylor of the Royal Botanic Gardens for his analysis of the charcoal remains.

### **Bibliography**

Jackson (1973) D. A. Jackson, 'A Roman limekiln at Weckley, Northamptonshire', *Britannia* IV, 1973, 128-40.



*Fig 18 The Helpston limekiln*