The East Heslington Quern and Millstone Assemblage

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SLIDE 1 The later prehistoric levels of the site produced a typical assemblage of saddle querns and grinding stones, commonly termed rubbers or mules. The assemblage has seven saddle querns, including this Jurassic sandstone example, and field-walking produced a further four. The preponderance of saddle querns and relative absence of beehive querns across the substantial areas excavated hints at the suggestion that the focus of late Iron Age excavation was outside the area examined. This suggests that back-and-forth grinding was the main method of cereal processing throughout the Bronze Age and most of the Iron Age.

The sole beehive quern base SLIDE 2 came from a late Roman context, but is probably residual and derived from a disturbed LIA or early R-B level. It is a Jurassic sandstone, which was derived from a source on the southern edge of the North Yorkshire Moors.

A secondary socket in the grinding face is an interesting feature of this base stone. Of the several hundred bases recorded across Yorkshire and the surrounding area, only two others have this feature, both from the Level Valley, near Stokesley, Hambleton, about 60 km to the north of Heslington East. The purpose of the second hole isn't known: it could represent a re-positioning of the spindle to account for asymmetrical wear or it could relate to secondary use of the stone, unrelated to cereal milling.

Beehive querns are ubiquitous on sites from the 2nd century BC onwards, SLIDE 3 but there are relatively few in the environs of York, East Yorkshire and along the northern banks of the Humber. The apparently limited local adoption of early rotary quern technology, during the LIA to early Roman period, contrasts strongly with the active usage of beehive querns by their western neighbours, living in the lower reaches of the Aire and Wharfe valley.

Excavations of a workshop at Wellington Row, York have shown that, at some time between AD150-350, two different sizes of lava quern [a 'standard' quern with a diameter of 400mm (+/-40mm) and a 'large' quern of 480mm (+/-40mm)] were being imported from the Middle Rhine quarries. They arrived in York in a semi-finished state, for completion and for subsequent distribution to the military and other elite users (Cruse 2015). A recent MAP excavation at 50-52 Marygate has demonstrated that such hand querns were in use, near to the fortress, at some point between the late 1st and late 3rd century AD (Cruse, 2023).

The Heslington excavations yielded fragments of three recognisable 'standard' lava querns (two from late Roman contexts), together with five small unrecognisable Late Roman pieces, whilst a YAT evaluation also found three more 'crumbs' of un-stratified lava. Where sufficient evidence survived, they had all been worn to exhaustion. From their fragmented state, largely from late Roman contexts, they were probably residual from earlier Roman activity on site.

Disc Hand Querns in Local Stone: SLIDE 4 Disc querns were made from local rock types from the late 1st century AD, copying the imported lava querns, with the design being simplified over the 2nd century AD. Initially they had a 'Standard' diameter of 400mm (+/-40 mm), inherited from the lava querns (Cruse, 2021, 557), but 'Large' disc querns, SLIDE 5 with diameters of 480mm (+/-40mm), are evident at Catterick after AD250 (Cruse, 2021, 563).

At Heslington, the there was one 'small' disc quern (unstratified), but two 'large' hand querns in local stone came from Late Roman context. One of these is of Crinoid Grit. SLIDE 6 A quarry site producing Romano-British rough-out disk querns was recorded by Raymond Hayes and Don Spratt in the 1970s. They are found on settlement sites up to 40 kms from the production site, and none are known west of York. The use of smaller hand-turned querns suggests some limited domestic cereal processing at this time.

The excavations yielded six powered millstones: 'small' millstones (with diam. between 525mm-650mm) and three 'large' millstones (with diam. from 650mm to 800mm), SLIDE 7 like this example in a Jurassic sandstone, all from Late Roman contexts. Such stones were too large for individual manual operation, so will have been mechanically powered. As there is no convenient local stream to feed a water-wheel, it is likely that these stones were driven through a gearing mechanism, powered by either animal or slave operators.

By the Later Roman period, the excellent milling characteristics of Millstone Grit ('MSG') resulted in stones from this source being distributed as far south as the Thames Estuary. This trade implies that stones from Pennine or Peak District quarries were regularly being transported via the Humber and then down the East Coast trade routes. As only one of the Heslington East millstones is unambiguously of MSG SLIDE 8 , with at least two (Nos 13 and 17) being derived from Jurassic sources from the North York Moors area to the north-east, this perhaps suggests that the site's trading links were inclined eastwards, rather than to the west.

With six millstones already known from central York, these Heslington millstones double the amount of cereal processing capacity known in the locality SLIDE 9 . Previous Yorkshire Quern Survey reviews have found concentrations of millstones, with 25 examples from military installations along Dere Street between Aldborough and Binchester and a further 16 millstones on the road between Stamford Bridge to Brough. The Heslington evidence therefore adds to a growing body of evidence that, post-AD250, mechanised cereal handling capacity at key sites along the road system considerably exceeded local requirements, so was presumably involved in providing the Annona supplies to the garrison on the Northern Frontier.

SLIDE 10 This cereal processing capacity appears to be focussed on the lighter soils of the Magnesian Limestone and the Northern Wolds, but this impression may be partly due to the increased archaeological visibility of the limestone landscapes and the archaeological attention given in recent years to the A1 corridor.

The final slide SLIDE 11 is a speculative interpretation of the main supply routes from Central Yorkshire, up Dere Street to Hadrian's Wall, with the potential for movement into the Humber for 4th Century exports to the army on the Rhine.