West Haggs Farm, 2017-18

What does the overall assemblage tell us?

- With its tight site chronology of AD360-400, the Haggs Farm assemblage is a novel resource for quern studies, as few comparable quern groups from this period have been studied.
- Whilst the wide diameter of the two beehive upper stones suggests a local adoption of Roman traits, their fragmentation before deposition seems to indicate a continuity of pre-invasion traditions. As such behaviour appears inconsistent with the bulk of the remaining assemblage – it could indicate that the beehive fragments had been obtained from a somewhat earlier (2^{nd} or 3^{rd} century AD?) adjacent site.
- The site has a comparatively large number of disc querns made from local, as opposed to imported, rock
- Unusually, the Trapain Law-type ('TL') upper, together with their probable lower stones, are the dominant component within the disc quern assemblage
- In northern England, such TL upper stones have strong links with the military and their road network.
- There are a few sites, where TL querns are found distant from the road network. They seem to focus in the Craven area of Carboniferous Limestone, which in medieval times supported a lead mining industry.

How does this data influence the site interpretation?

- The stone-faced yard suggests a site focused on pastoral agriculture – rather than on cereal production.
- The locally manufactured quern debris is dominated by Traprain Law-types, which are indicative of some form of Late Roman official and/or military involvement.
- In Rob Collins' discussion (2012, 58-64) of the *limitanei*, the soldiers who manned the northern forts in the 4^{th} century, he notes that their supply systems 'were increasingly reliant upon local and regional provisioning'. Thus, 'by the mid-4^{th} century, the frontier was predominately supplied with Crambeck Ware and calcite-gritted ware from East Yorkshire' (ie within the province) at the expense of ceramics from southern England such as Thames-estuary wares and BB2 (ie from outside the province).
- Collins (2012, Fig 3.3B) also gives the PAS coin distribution. This shows that, by AD 364, coins were no longer being lost west of Dere Street, suggesting that any taxation payments from the Dales must have been 'in kind'. Intriguingly, most TL querns have also been found on, or to the west of Dere Street.
- Finally, Collins identifies tanning pits at Binchester, together with cattle bones which were C14 dated to the late 4^{th} – 5^{th} century AD, as suggesting that Binchester acted, not as a military garrison, but 'as a military factory for the *dux Britanniarum'*, focussed on the 'industrial-scale production of leather products that were probably for military consumption.'
- The absence from the excavations of any military accommodation or of weapons and armour argues against the occupants 'enforcing' the provision of taxation in kind to the authorities on Dere Street.
- The presence of *styli* is additional evidence that the residents' activities included record keeping.

Possible Scenarios

Against this backdrop, the Haggs Farm quern debris could be explained as the end-products of food-processing for official work-parties (but not necessarily soldiers), who were responsible for either:-

a) providing supplies of meat and cattle hides to the *limitanei* in the Dere Street forts (such as Bincester) and/ or
b) facilitating the extraction of minerals from the area for use in the workshops along Dere Street.

John Cruse
5/2/19

Summary: Non-Rotary Querns

Date	2018	2018
Find No	SF 17	SF 31
YQS No	8058	
Est Surviving	20-35%	45-65%
Length mm	>110mm [est 200-300mm]	>165mm [est 200-300mm]
Width mm	170	145
Thickness mm	40-50	70
Profile of G/S – Length-wise	Flat	sl. concave
- Width	Sl Concave	Flat
Weight kg	4-6	4-5.5
Most Likely Function	Rubber	Rubber?

Comments On Saddle Querns & Rubbers:

- The continued use of individual examples of these items into the Late Roman period has been noted elsewhere and is presumed to reflect a need to process certain foodstuffs in a manner for which rotary querns are unsuited.

Summary – Rotary Querns

Date	SF No	YQS No	Type	U/ L	%	Diam (mm)	Rim Ht (mm)	Est Wt (Kg)	Usage (%)	Lith
2018	33	8055	Beehive	U	13	400	>120	28	?	S/S
2018	23	8060	Developed Beehive	U	15	385	>80	21	?	S/S
2018	21	8064	Disc	U	11	c.360	>70	21	40	S/S
2018	39	8057	Disc	U	13	460	40	14	80-90	MSG
2017	5	7599	'Traprain Law' Disc	U	24	400	45	14.5	50-75	MSG
2018	20	8063	'Traprain Law' Disc	U	12	c.410	43	14	55-75	MSG
2018	29	8039	Traprain Law' Disc	U	40-45	485	40-50	19	55-90	MSG
2011/7	11/ 16	5286	'Traprain Law' Disc?	U	c.35	550	50	27	25-75	MSG
2017	4	7601	(TL?) Disc	L	c.45	430	90	23	25-50	MSG
2017	6	7600	Disc	L	10-15	c.500	65	32	50	MSG
2018	42	8065	Disc (Rough-out?)	L	25	420	110-120	52	Nil?	MSG
2018	30	8059	(TL?) Disc	L	25	450	40	21	70-90	MSG
2018	34	8056	(TL?) Disc	L	15-20	470	45-50	22	40-70	MSG
2018	25	8053	(TL?) Disc	L	17	490	55-60	28	60-70	MSG
2018	29	8054	Disc	L?	2-3	>120	<55	c.11	>70	MSG
2017	10	7602	Disc (poss Beehive?)	L	c.15	>360	c.70	22	50?	MSG
2018	18	8062	Disc (poss Beehive?)	L	15	c.360	60	16.5	55-65	MSG

Beehive Querns:

- Both upper stones have had the top of their hoppers deliberately removed, presumably before they were then split radially. Such treatment is typical of LIA/early Roman users, uninfluenced by Roman habits.
- As their diameters are markedly in excess of that of a typical LIA/ early Roman beehive (ca 280-320mm) and close to typical dimensions for a Roman disc quern (ca 400mm), they are probably Developed Beehive querns, perhaps manufactured in the 2nd century AD or later.
- Unfortunately, the removal of the upper hopper negates our ability to estimate the extent of their usage.
- As they were reused in late 4th century contexts, they could well have reached the end of their primary use some considerable time before they were subsequently incorporated within the stone layer.

Imported Lava Querns

- Lava querns are strongly associated with military and elite Roman sites, which seem to have had preferential access to imported supplies during the earlier phases of the Roman occupation. By the fourth century AD, such sites seem to be more self-reliant on local quern supplies, manufactured within the province. Assuming that the absence of lava querns from the site isn't a reflection of their vulnerability to attack by acidic soils, it suggests that, at this late date, the area was probably only receiving minimal imports of lava querns.

Traprain Law-type ("TL") Disc Querns

- Haggs Farm is valuable as the only UK site where TL querns have been tightly dated to the late-4th C AD.
- Out of 32 civil UK Roman sites for which YQS has records, Haggs Farm has the sixth largest collection of disc querns made from local rocks.
- The diameters of TL upper stones have a bimodal distribution, with 40 being 'normal' hand querns (with diameters in the range 350-440mm) and 26 being 'large' hand querns (between 440-550mmm).
- As Haggs Farm has produced two 'normal' and two 'large' querns from similar contexts, this suggests that the size of the quern isn't chronologically significant.
- The recognition that the local Lower Howgate Edge Grit was being used to make some of the querns, together with the presence of an apparently unfinished G/S on a lower stone rough-out, both suggest these TL querns were being manufactured in the vicinity.
- With the majority of disc upper stones from Haggs Farm (4 of the 6) being of TL-type and made from local MSG, it is probable that some (if not most) of the seven lower disc querns made from MSG will also be of the TL-type. We know from the only recorded TL-type quern pair from Drumblade, Grampian, that its lower stone lacks any features which could differentiate it from other types of disc quern. As SF 25, 30 & 34 are all MSG lower stones, within the 'large' TL diameter range, it would seem reasonable to characterise them as 'probable' TL-style base stones. This recognition appreciably increases our data-base on such stones.
- The estimated degree of quern use provides some comforting conformation, as the known TL-type upper stones and also their probable lower stones, both have usages typically averaging around 60-65%. This suggests that the upper and lower stones had had comparable histories, being equally well-worn, prior to discard.
- The absence of any intact querns reflects the general tradition of fragmentation prior to deposition. In most cases the breakage was random, often breaking through the handle-slot (SF 5 & 21), but disc base SF 4 was an exception, as 95% of its grinding surface edge deliberately removed.

Where Else Have TL-style Querns Being Found?

Southern Britain

- Haggs Farm has four potential examples, out of the 68 recorded upper stones from the UK of this type, so the site has now yielded the joint second largest assemblage from any site recorded by YQS, only being exceeded by Carmarthen (7) and being equalled by Portchester fort (4).
- Late Roman Carmarthen was a *civitas* capital, whose defensive walls were strengthened in the mid- to late-third century AD (James, 2003, 196). From the limited number of fourth century finds, Webster felt able to conclude that there was 'a hint of a considerable level of official interest in Carmarthen' in the fourth century (James, 2003, 28) – but couldn't explain why.
- Portchester, Hants was a 'Saxon Shore' fort. Excavations found 'little convincing evidence for structures in situ'. Its roads were re-metalled AD c.325-345, but its function was uncertain (Pearson, 2002, 146-9).
- so, in southern Britain, TL querns have 4th century links with some 'official' sites with storage potential, which were possibly associated with the distribution of military rations ('*annonae*') – largely derived from late Roman taxation in kind.

Northern England

- The sites producing TL-type querns [+ distance from the nearest Roman road in km] are given below.
- The commonest type of find site is a Roman fort (16 examples known from 14 different forts), with four of those being on Dere Street. Of the 13 civil find-spots, 6 come from sites within 2km of the Roman road network, a location with the closest links into the Roman economic system (Smith et al, 2016, 280).
- The vast majority of TL finds are from Dere Street or the 'military' area to the west of this North-South road.
- Haggs Farm, together with three other sites in Craven, N Yorks, are conspicuous in being over 10km from a Roman road, a separation usually marked by the 'minimal economic integration between the population in the

countryside and those in urban and military centres' (Smith et al, 2016, 273). One linking factor (which may be worth investigating) which could explain this abnormal rural 'official' activity may be:-
a) the availability of lead and other metals from the Carboniferous Limestone area and/or
b) the demand for meat and/or cattle hides at the military sites along Dere Street

Military sites:
Catterick, N Yorks YQS 3273, 5159 & 6900 [Dere St fort]
Binchester, Co Durham, YQS 1102, [Dere St fort]
Piercebridge, Co Durham, YQS 1066, [Dere St fort]
Castleford, W Yorks, YQS 3274, [Dere St fort]
Bainbridge, N Yorks, YQS 544, [fort]
Manchester, Lancs, YQS 2169 [fort]
York, YQS 6443, [outside fort]
Adel, W Yorks, YQS 2029 [nr 'fort' vicus]
Chester-le-Street, YQS 6315 [fort]
Vindolanda, Northumberland, YQS 2955 [HW fort]
South Shields, T&W, YQS 2917 [HW fort]
Workington, Cumbria, YQS 7725 [nr HW palisade]
Ravenglass, Cumbria, YQS 6378 [fort]
Watercrook, Cumbria. YQS 6388 [fort]

Civil sites in the Dales:
Haggs Farm, N Yorks, YQS 5286, 7599, 8039 & 8063 [14.5kmm]
Conistone-with-Kilnsey, N Yorks: YQS 2088 – rural settlement [14.4km]
Arncliffe, N Yorks, YQS 6955, [11km]
Greenhow Hill, N Yorks, YQS 608 – a medieval lead mining area [10km]
Morton-in-Craven, YQS 2100 – [4km]
Barningham, Co Durham, YQS 3741, [2.3km]
Brougham, Cumbria, YQS 8085 [0.2km]
Carkin Moor, N Yorks, YQS 7492, [0.1km]

Other Civil sites [Between Mersey/Humber and HW]
Dalton Parlours, W Yorks: YQS 2164, 2178 & 2167 – civil villa with a large quern assemblage [4.4km]
Stockton, Teeside, YQS 3742, [1km]
Wittington, Lancs, YQS 2251 – [1.4km]
Dishforth, N Yorks, YQS 3263 – on Dere St [0km]
Hayton, E Yorks, YQS 5583 – on York-Brough road [0km]

Cumulative Completeness of Haggs Farm Quern Assemblage

- the degree of fragmentation at Haggs Farm has been assessed and compared with that for the disc querns from local sources at Catterick fort.
- The pattern appears roughly comparable at both locations, with Haggs Farm having fewer pieces of <10%, presumably due to the yard constructors preferentially selecting larger fragments for re-use.

% survival	Beehives		Lava Discs		Local Discs		Millstones		vs	Catterick Local Discs	
	No	Σ%	No	Σ%	No	Σ%	No	Σ%		No	Σ%
<1		0			1	7					
1-5		0				7				3	13
6-10		0				7				1	18
11-20	2	100			8	60				6	45
21-30					3	80				5	68
31-40					1	87				3	82
41-50					2	100				4	100
51-60											
61-70											
71-80											
81-90											
91-100											
Σ	2		0		15			0		22	

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Collins R, 2012, *Hadrian's Wall and the End of Empire: The Roman Frontier in the 4th & 5th centuries*, Routledge, Abingdon

James H, 2003, *Roman Carmarthen: Excavations 1978 – 1993*, Britannia Monograph No 20, SPRS, London

Pearson A, 2002, *The Roman Shore Forts: Coastal Defences of Southern Britain*, Tempus, Stroud

Smith A, Allen M, Brindle T & Fulford M, 2016, *The Rural Settlement of Roman Britain*, Britannia Monograph No 29, SPRS, London

Which items should be illustrated and then retained - and why?

- a representative collection of the best examples should be retained to enable future researchers to study the sources of the stone in more detail, or to investigate possible feed-stock preservation on the grinding surface.

Beehive: SF 33: To demonstrate the deliberate removal of the top of the hopper.

TL-style Disc Upper: SF 29: As the best preserved example: with its collared hopper and handle-slot.
Plus SF 5, 1+16 & 20: To show the range of quern sizes and profiles in this regional unique sample.

TL-style Disc Lower: SF 4: Is the best preserved (45%) of the possible base stones.

Disc Base Rough-out: SF 42: For its evidence of near-site manufacturing and apparent failure to complete.

2018 Catalogue

Context and Date of Assemblage:
"The quern finds and the majority of the pottery finds" were "all found [on the] western edge and the south west area of the [2018] excavation" and both these contexts are spot-dated to AD 360-400 (D Brooks 6/1/19)

Probable 'Rubber' SF 17 Context B20/6

Description: if the normal length of a rubber is 275mm (+/-75mm), then this is a 20-35% fragment. Its 'upper' surface and long sides are those of a natural slab. The Grinding Surface ('G/S') is worn smooth, being slightly concave across its 'width', but flat along its 'length'.
Lithology: Fine grained sandstone.
Dimensions: Length >119mm: Width 170mm: Thickness 40-50mm: Weight 1.33kg (Est intact 4-6kg): YQS 8058

Probable 'Rubber' SF 31 Context 48
Description: On the same criteria, this is a 55% (+/-10%) of a rubber, roughly broken in half. Its assumed 'upper' surface is an un-worked natural curve, with the long sides roughly dressed: The G/S is smooth and worn, being flat across the width and slightly concave lengthwise.
Lithology: Fine grained sandstone.
Dimensions: Length >165mm: Width 145mm: Max Thickness 70mm: Weight 2.65kg (Est intact 4.0-5.5kg): YQS 8061

Probable Beehive Upper Stone SF 33 Context 33
Description: ca 13% fragment, with almost total removal of the hopper and (then) the remaining core divided radially: Hopper removal involved multiple impacts: A small section of the concave lower section of the hopper survives: External face is a neatly pecked hemisphere: G/S is horizontal, with the outer 40mm smoothest and with concentric wear on the central area.
Lithology: Fine grained sandstone, with bedding plane parallel to G/S/
Dimensions: Diam 400mm: Height >90mm (ca 160mm): Hopper Diam >120mm (160mm): Depth >35mm (100mm): Feed-Pipe diam >10mm (25mm): (Tentative estimate in brackets): Weight 3.675kg (est intact 28kg): YQS 8055.
Comment: Assumed to be a beehive, as G/S is horizontal and hopper removal is more typical of beehives than disc querns. Nonetheless, as a typical beehive has a diameter of 32mm (+/- 4mm), this is a very wide G/S.

'Developed' Beehive Upper Stone SF 23 Context 62
Description: ca 15% fragment: A slanting, horizontal blow has removed all of the hopper, with the core (then) divided radially (as SF 33). The vertical, external face is peck-dressed to a height of 50mm, before a 30º bevelled, smoother, but also peck-dressed, surface is severed by the hopper removal. The G/S is flat, horizontal, with worn, peck0dressing. A handle hole is worn into the G/S – suggesting that it was well worn.
Lithology: Fine grained sandstone.
Dimensions: Diam 385mm: Height >80mm (est 100mm): Handle hole ca 30mm outer diam, length 60mm: Weight 3.416kg (Est intact, ca 21kg):
Comment:The wide diameter and unusual, bevelled profile suggest a 'Developed' beehive, influenced by disc quern technology.

Disc Upper Stone SF 21 Context 51
Description: ca 11% fragment: Broken radially, through the handle slot: Upper surface is damaged and abraded: it was apparently flat, with a long radial handle slot inset into it: length 125mm: depth 20mm: Width >20mm: The edge is vertical: G/S is worn flat, but was originally pecked. 30% of the G/S edge has been removed
Lithology: Fine grained sandstone
Dimensions: Diam 360mm: Height Rim >70mm, centre 83mm: Hopper width assumed 100mm: Weight 2.315kg (Est intact 21kg): Implied usage 40% worn: YQS 8064
Comment: The damaged G/S edge makes it difficult to estimate the diameter, which could be understated.

Disc Upper Stone SF 39 Context 67
Description: 13% fragment: Broken radially, with an impact scar on the G/S edge of the hopper: Upper surface is flat, but lacking the usual finish; the hopper is smooth and slightly concave: The edge is slightly inclined inwards: the G/S is flat, worn concentrically
Lithology: Medium grained, well sorted gritstone: Millstone Grit
Dimensions: Diam 460mm: Height of rim 40mm, centre 35mm: Hopper diam 160mm: depth 35mm: Feed-pipe diam c.80mmL Weight 1.841kg (est intact 14kg): Implied wear 80-90%: YQS 8057
Comment: Its lithology is similar to the Traprain Law upper stones, but it lacks the characteristic hopper collar: Unlikely to be from a Traprain Law base stone, as this would be thicker in the centre.

'Traprain Law' Disc Upper Stone SF 20 Context 85
Description: c.12% fragment: Broken radially, with damage to hopper collar: The upper surface is pick-dressed flat, with a shallow (5mm high) collar to a slightly concave hopper. The outer edge is pick-dressed vertical: The feed-pipe is shallow (20mm): The G/S is roughly parallel to the upper surface and is worn concentrically. It was concave, but too little survives to estimate the extent.
Lithology: Coarse to very coarse-grained, well-cemented, sandstone: probably a Lower Howgate Edge Grit of the Millstone Grit group (TB).
Dimensions: Diam c.410mm: Height Rim 43mm: Centre 45mm: Hopper width 120mm: Depth 30mm: Feed-pipe diam c.60mm: Weight 1.683kg (est intact 14kg): Implied wear 50-70% worn: YQS 8063
Comment: Although SF 5 has some similar dimensions, its more prominent collar and its convex feed-pipe are sufficiently distinctive to be able to rule out it being from the same quern.

'Traprain Law' Disc Upper Stone SF 29* Context 64
Description: 40-45% fragment: split roughly diagonally, with deliberate removal of the collar from one side of the handle slot: Upper surface is neatly finished and gently convex: The hopper collar is 30mm wide, 20cm high, whereas the handle slot collar is 30mm wide, 15mm high: The radial handle slot is 116mm long, 40mm max width and 20mm depth: The rim is vertical and thicker than at the centre: Hopper is slightly concave and the feed-pipe is squarish: G'S is concave (30mm), with concentric wear.
Lithology: Medium grained, well sorted gritstone.
Dimensions: Diam 485mm: Height Rim 40-50mm: Centre 30-40mm: Hopper width 160mm, Depth 50mm: Feed-pipe diam 100mm: Weight 8kg (est intact 19kg): Implied wear 50-90% used. YQS 8039
:
Probable Disc Lower Stone SF 18 Context 51
Description: 15% fragment, fractured radially, with 100% of outer G/S edge removed: Worn, but with no concentric wear to confirm its likely diameter: Its base is peck-dressed, with some surviving at the lower part of the outer edge. As the outer 80mm of the base is flat, it is assumed that this determined the orientation of the stone, which therefore had a convex G/S and probably a perforated central 'eye'
Lithology: Medium to fine grained sandstone: Probably Millstone Grit
Dimensions: >320mm (Est c.360mm): Height Rim 60mm, Centre 70mm: Weight 2.515kg (est intact 17.5kg): Implied wear 55-65% used. YQS 8062.
Comment: Initially interpreted as a beehive base, but this was rejected, as it shows no sign of a spindle hole and it is too thin, too light and probably has too large a diameter.

Probable Disc Lower Stone Rough-out SF 42 Context 21
Description: 25-30% fragment, broken chordally, with 40% of the G/S being removed (along a bedding plane): G/S is slightly convex, but it appears unworn (no concentric wear) and the is no evidence of a central 'eye': Edge is peck-dressed vertical: Base has a very irregular, un-worked surface (suggesting a lower stone intended)
Lithology: Medium grained, with sparse quartz pebbles (15mm max): Millstone Grit.
Dimensions: Diam 420mm: Thickness 110-120mm: Weight 13kg (est intact 45-50kg): YQS 8065
Comment: From its apparently unused G/S and its massive weight, this is assumed to be a base rough-out (as upper stones rarely exceed 30-35kg weight) – however, there is the necessary space for a central perforation.

Disc Lower Stone SF 30 Context 64
Description: 25% fragment: after two, opposing chordal removals, this was then halved: the G/S was smoothly worn, convex (15+º), with the inner 75mm radius damaged: the rounded edges were peck-dressed: the outer 140mm of the base was flat and horizontal, with the inner 85mm radius being concave.
Lithology: Coarse- to very coarse-grained, well-cemented, sandstone: probably a Lower Howgate Edge Grit of the Millstone Grit group (TB).
Dimensions: Diam 445mm x 455mm: Height Rim 40mm, centre >60mm: Feed-pipe perforation, diam top 20mm, base 60mm: Weight 5.421kg (est intact 21kg): YQS 8059: Implied usage 55-65%
Comment: From its lithology and its diameter, this is a good candidate for being the lower stone of a Traprain Law-type upper stone.

Disc Lower Stone SF 34 Context 48
Description: 15-20% fragment: broken radially: the G/S has worn concentrically and is convex (12º): the edges are vertical, being rounded into the neatly pecked, flat base.
Lithology: Fine to medium grained sandstone: Millstone Grit.
Dimensions: Diameter 470mm: Height rim 45-50mm, centre 85mm: The damaged feed-pipe perforation is conical: diam at base is >30mm (est top ca20mm, base ca50mm): weight 3.865kg (est intact 22kg): YQS 8056: Implied usage 40-70%.
Comment: Could also be paired with a Traprain Law-type upper.

Disc Lower Stone SF 25 Context 64

Description: 17% fragment: two, opposing chordal removals, then halved: the G/S is damaged at the eye and its rim: the edge is vertical and the base is roughly dressed horizontal for the outer 150mm, with the inner area slightly more concave and more coarsely dressed.
Lithology: Medium- to coarse-grained, well-cemented, sandstone: probably a Lower Howgate Edge Grit of the Millstone Grit group, whose nearest outcrops are nearby, around Fremlington Edge (TB).
Dimensions: Diam ca.490mm: Height rim 55-60mm, centre 90mm: Feed-pipe perforation diam top 70mm, min 35mm, base 60mm): Weight 4.836kg (est intact 28kg): YQS 8053: Implied use 63-70%
Comment

Disc Lower Stone SF 29* Context 64

Description: 2-3% fragment of 'eye': radially broken. G/S is worn smooth: base is un-worked and irregular.
Lithology: Medium grained, well sorted gritstone: Millstone Grit.
Dimensions: Diameter >120mm: Central height 55mm: Eye Perforation diam: top 45mm, base ca 90mm: Weight 0.28kg (est intact ca11kg): Apparently well used. YQS 8054.
Comment: Found with featureless fragment: 55x60x60mm, weight 0.21kg. SF 29 appears to be the result of a deliberate fracture of the eye surround. The eye minimum diameter and unworked base both suggest this is a lower stone.

- there are two different querns labelled ST 29
- (TB) – lithology identification by Tony Benfield – the remainder by RJC