LOW BORROWBRIDGE:
Continuing investigations at the Roman site in the Lune Gorge

By
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Summary
Following two seasons of excavations on a building to the south of the known Roman fort platform at Low Borrowbridge (see Hamilton Gibney 2012) Lunesdale Archaeology Society undertook a programme of non-intrusive investigation through topographical and geophysical surveys of the interior and immediate environs of the fort. The objective was to discover the state of preservation of internal structures, and to reveal the extent of any possible vicus remains outside the fort. Internally the footings of the central range of buildings are clear and demonstrate a layout similar to other, excavated forts of the late first and second century AD in the north of England. The surveys in the fields surrounding the fort platform failed to find evidence of a structured vicus, but did reveal a series of large rectangular ditched enclosures, which were subsequently excavated and dated to the first to second century AD, contemporary with the occupation of the fort. Their purpose remains unclear.

Introduction
Lunesdale Archaeology Society (LAS) was formed by Annie Hamilton-Gibney in 2011 as part of her work for ACT (Action for Communities in Cumbria). The purpose was to encourage local people to take an interest and pride in their local heritage and to investigate further that heritage. In 2011 and 2012 the society undertook excavations within the walled garden at Low Borrowbridge Farm, Tebay, revealing a substantial Roman period building thought to be a possible mansio (Hamilton-Gibney 2012).

It has previously been suggested (Shotter and White 1995) that the fields to the south of the fort could be the location of a civilian settlement or vicus related to the fort. The presence of the building uncovered in 2011/12 added weight to this suggestion. Between 2014 and 2016 LAS embarked on an extensive study of the environs to search for evidence of the vicus or other related activity outside the fort.

At the same time permission was granted by Historic England to conduct a non-invasive full geophysical survey of the interior of the fort to determine the extent of survival of structures below ground, following centuries of farming on the site. The fort platform was known as ‘Castle Field’ in the 1835 Corn Rent Award (Cumbria Records Office WQ/RC/5) suggesting that there were then upstanding features interpreted as the remains of a ‘castle’. More recently the field has been called the ‘Fair Field’ as it was the site of an annual sheep and cattle market from September 1841 to about 1900 (Garnett 1912). By 1849 the fair was well established and one of the largest in the area resulting in significant, potentially damaging activity across the site.

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The extent of preservation of Roman period remains above ground is limited to the foundations of field walls, especially on the west side of the fort, associated defensive ditches visible to the west and south and the exposed footings of the east gate following excavation in the 1800s. The purpose of the geophysical surveys was to discover the extent of survival below ground.

**Background**

The fort at Low Borrowbridge is located at the confluence of Borrow Beck and the River Lune (grid reference: NY60940127, Figure 1).

**** Figure 1 about here ****

Its internal dimensions are 120m by 90m giving an internal area of approximately 2.75 acres. The name ‘Borrowdale’ derives from the Norse ‘borgh dalr’ meaning ‘valley of the fortification’ (Smith 1967, 138), suggesting structural survival into the Norse period (circa 850-1050AD). The site is marked on the Jefferys’ map of Westmorland 1770 as a ‘castle’. Similarly Nicholson and Burn (1777, 493) refer to the ‘ruins of a castle which hath been moated about, and from the thickness and strong cement of the walls yet remaining seems to have been a place of considerable strength’. These descriptions suggest that there were clearly identifiable upstanding features remaining towards the end of the eighteenth century.

An article in the British Archaeological Journal of 1853 by John Just, an antiquarian historian, quoted by Fergusson (1884) recounted a visit to the fort in 1826. He noted that the farmer and innkeeper, John Noble, had noticed a zig-zag pattern of parch marks in the centre of the fort platform during a particularly dry spell. Noble investigated and uncovered ‘a part of the hypocaust situated below the floor of the houses to supply such warmth as might enable the delicate-bred natives of southern Europe, Asiatics or Africans to pass comfortably the severe winter of the British climate’ (Fergusson 1884, 81). This suggests that archaeological remains may be close to the surface within the fort platform.

In 1883 the fort was the location for the first ever excavations of the newly formed CWAAS (Fergusson 1886). Two labourers were employed to undertake the excavation which included sections of the west wall, the west gate and the east gate as well as the discovery of a ‘pavement of bright red brick’ in the garden of the inn (now Low Borrowbridge Farm) to the south. In 1931-2 Burrows excavated inside and outside the fort but unfortunately his report was never published and does not survive. He also located the red pavement and, according to an eye witness of his excavation, took a ‘weighty pinch bar used on the railway’ to effect a breach in it (Hildyard and Gillam 1951).

The first well documented excavations were undertaken in 1950, providing dating evidence to suggest occupation throughout the Roman period, concluding that the lower rampart walls were Hadrianic (early to mid-second century) while the upper walls were Severan (early third century) and that inside the fort there may have been a smaller fort from an earlier occupation (Hildyard and Gillam 1951). Their conjecture of an earlier fort followed excavation inside the south-west corner which uncovered a ditch interpreted as the possible defensive perimeter of an earlier wooden structure of the Flavian/Agricolan (cAD70-80) period. The LAS excavation of 2011 uncovered coins of Septimius Severus (dated to AD202-210) and his son Geta (dated to AD209) supporting occupation at that time.

In the 1970s the then farm owners, James Wilson and family, were preparing foundations for a new barn south of their vegetable garden when they exposed the remains of walls. They immediately
stopped work and called in local archaeologist and curator of the Museum of Lakeland Life and Industry at Abbott Hall Kendal, John Anstee, who undertook a rescue excavation of the site. He uncovered further structures and a potential furnace area feeding a hypocaust system, which he concluded were part of the bath house of the fort (see Anstee 1975, Hooley, Hicks and Anstee 2016a). It was this building that was further excavated by LAS in 2011 and 2012 and found to be more complex and multi-functional, suggesting its purpose was more likely to be a mansio than bath house (Hamilton-Gibney 2012). The LAS excavations also uncovered again the red pavement (opus signinum) complete with the breach effected by Burrows pinch bar in 1931-2.

In 1991-2 the route of a natural gas pipeline through the Lune Gorge cut through the lower portion of the fields to the south of the fort on the north bank of the Lune. The pipeline trench revealed a cremation cemetery which was excavated by Oxford Archaeology North and found to date from the mid-third to fourth centuries. One striking find was a substantial memorial stone to one Aelia Sentica, the wife of Aurelius Verulus (presumably a high ranking individual from the fort), now on display at Kendal Museum (see Lambert 1996). Unfortunately the memorial was not dated and did not include in the inscription the name of the fort in the Roman period. Despite many conjectures and attempts to chart the relevant Antonine Itinerary the name of the fort remains a mystery.

Topographical Survey
The aerial survey of the fort and surrounding fields was undertaken by Jamie Quartermaine and Pete Schofield of Oxford Archaeology North in spring 2016. The study area was modelled by photogrammetry using aerial photographs taken from a small remote-controlled NAZA F550 unmanned aerial vehicle (UAV), with a 16mega pixel Sony NEX5 camera. This was processed using Agisoft Photoscan software, which provided detailed modelling using an overlap of up to 200 photographs, leading to the creation of a detailed Digital Terrain Model (DTM). The full analyses are available on the LAS website (see Oxford Archaeology North 2016). The hillshade view of the site is shown in Figure 2.

**** Figure 2 about here ****

The survey revealed no surface earthwork evidence for a Roman road (other than Howgill Lane, see below) or a vicus south of the fort. It did, however, reveal a large (approx 117m by 67m), shallow and amorphous-shaped quarry scoop in the southern half of the field. This may be related to localised extraction for use on the farm or possibly for construction of the adjacent railway in the mid-nineteenth century. A small horse-shoe-shaped earthwork (8m by 7m) on the south side of the quarry was interpreted as a possible sow kiln. The field is covered with narrow ridge and furrow cultivation showing that the field was ploughed in the medieval period and later.

Geophysical Surveys
Both magnetometer and resistance surveys were undertaken across the site, including the interior of the fort and the fields to the south. Mike Bartels and Karl Taylor of Oxford Archaeology North conducted the magnetometer survey while volunteers from LAS conducted the resistivity survey. Karl Taylor analysed both sets of data and interpreted the findings. The instrument used for the magnetometer survey was a Bartington Grad 601-2 dual sensor fluxgate gradiometer with a sensitivity of 0.1nT when used in the 100nT range setting. Two instruments were used to conduct the resistivity survey: a Geoscan Research RM15-D resistance meter with PA20 frame set to single twin mode; and an MM Resistivity Meter, model 216M with a bespoke frame set to single twin mode. The full results of the geophysical surveys are available on the LAS website (see Oxford Archaeology North 2016). The areas covered by the surveys are shown in Figure 3 below.

**** Figure 3 about here ****
Fort Interior
The results of the resistance survey for the interior of the fort are presented in Figure 4 and in the interpretation plot in Figure 5.

**** Figure 4 about here ****

The resistance survey plot shows areas of relatively high resistance (shaded dark) and areas of relatively low resistance (shaded light). The central range of buildings can be clearly seen. They are marked as F17 in Figure 5. The layout is very similar to that of the excavated fort at Wallsend (Segedunum) dated to the Hadrianic and Antonine periods (see Bidwell, 1999, 85).

By comparison with the Wallsend fort the building in the centre can be interpreted as the Principia or headquarters building. To its left (on the west side) is the Praetoria, or commandant’s house, while on the right (east) is at least one building, possibly the Horrea (granaries), or Valetudinarium (hospital). To the north and south of this range of buildings appear the cross streets of the Via Principalis and Via Quintana, the latter being aligned with the existing gates to the field which were excavated in 1883 and shown to be in the same location as the original fort gates. Structures (F18 in Figure 5) north and south of the internal roads are less clear but are likely to be the remains of Centuriae (barracks).

There appears to be a low resistance feature circling these buildings but not filling the full extent of the fort platform. This may be the perimeter ditch of an earlier, smaller fort in which these main buildings are located. Indeed, this could be the ditch excavated by Hildyard and Gillam in 1950 in the south west corner of the fort platform. A low resistance linear feature (F19 in Figure 5) leads from the centre of the Principia southwards reaching the existing south wall/fence of the fort slightly to the east of centre. This may be the Via Praetoria.

Since the resistance survey identifies features in the top 50 cm, these substantial archaeological remains are located close to the surface within the fort platform.

Fort Environs
The purpose of the geophysical surveys outside the fort platform was to look for evidence of any vicus or other structures associated with the fort. The interpreted plot of the resistance survey for areas 1 to 4 is shown below in Figure 5. Area 1, the fort interior, has been discussed above.

**** Figure 5 about here ****

Area 2 was surveyed outside the western ditches of the fort adjacent to the railway embankment. Aerial photographs had identified a possible right angled structure here which can also be seen in the hillshade photogrammetry plot (Figure 2). The resistance survey showed two areas of high resistance that could be indicative of underlying structures. The area, however, is very close to a culvert constructed at the time of the railway (mid-nineteenth century) to take a water supply under the railway, from the fells to the farmhouse. It was not possible to draw firm conclusions as to whether the features were contemporary with the fort or with the railway, though their orientation does seem to respect that of the fort ditches.

Area 3 was located in the corner of the field to the north east of the fort, at the confluence of the Borrow Beck and River Lune. There is a deep holloway here that crosses the Borrow to the east of the current bridge and skirts the field on the west bank of the Lune (see Hooley, Hicks and Anstee 2016b, 79). The survey showed compact structural remains both sides of the holloway. Interestingly
the field is named ‘Smithy Hill and Bray’ in the 1835 Corn Rent Award (Cumbria Records Office WQ/RC/5) so this may be the location of a smithy. Alternatively it would be an ideal location for a bath house associated with the fort. Otley (1850, 189) noted that ‘the remains of several buildings have been discovered between the eastern wall [of the fort] and the river’. Further investigation would require excavation within the scheduled area.

The area immediately to the south of the fort and to the north of the cemetery is the best candidate location for a vicus. This is where the probable mansio was located. The smaller field to the west of the mansio and current farm buildings was, however, used as a construction workers’ camp during the building of the M6 motorway in the late 1960s. An extensive workers camp of static caravans was established with service pipes and gravel roads, in use for 4 years, and was bulldozed on completion (see Hooley, Hicks and Anstee 2016b, 145). This is likely to have destroyed any remaining near-surface archaeology. Indeed, the excavation of the mansio showed service pipes cutting through the archaeology (see Hamilton-Gibney 2012, 14), and the geophysical survey of this field (Area 4 in Figure 5) suggests the presence of bulldozed rubble material in the culvert of an earlier beck or drain (shown in green on the figure).

The magnetometer survey results for the other two main fields south of the fort are shown in Figure 6.

**** Figure 6 about here ****

While no systematically laid out vicus was apparent there were a number of features of potential archaeological significance. In particular a series of large, rectangular enclosures were found that lie across the current Howgill Lane, and therefore pre-date it. The lane had been assumed to be on the line of the original Roman road. The features, therefore, either pre-date the Roman occupation, or the road was originally in another location. Two exploratory trenches were cut across Enclosure A (Trench 1 and Trench 2 in Figure 7) in an attempt to date the enclosure and identify its purpose. The resistance survey of the large field to the west also identified a possible structure that was excavated as Trench 3 (Figure 7).

**** Figure 7 about here ****

**Excavations**

Trench 1 uncovered a substantial boundary ditch on the north side of Enclosure A (see Figure 8).

**** Figure 8 about here ****

The ditch had an open, rounded, U-shaped profile, 3.4m wide and 1.6m deep. The primary fill (context 105 in Figure 9), a pale grey-brown sandy silt, had entered the ditch from the south. The primary fill was overlain by a similar secondary fill (106) which was in turn sealed by a thick deposit of orange-brown sandy clay (107). That filled most of the cut apart from a shallow hollow on the north-eastern side filled with a stony, grey-brown, silty clay (108). No trace of a bank associated with the ditch survives though most of the fill appears to have entered from the south. This may have been from eroded earthworks. The final fill (108) may be indicative of later farming activity pushing the remains of a stony bank into the remaining ditch to facilitate ploughing. If this is the case it would suggest that the remaining upstanding bank was to the north, not the south. It remains unclear whether the bank was external to or internal to the enclosure. If it was internal that would indicate an intent to keep animals or people out of the enclosure, if external it would suggest a role in keeping animals inside the enclosure. Under guidance from the Yorkshire Dales National Park
Historic Environment Office a limited amount of metal detecting was undertaken within the enclosure to see whether any remains (such as horse trappings) could give a clue as to its purpose. A 10% walk-over sample merely revealed modern (nineteenth century onwards) farming discards.

Two organic samples suitable for C14 dating were recovered, from the primary fill (105) and the secondary fill (106). These were submitted to SUERC for dating. The primary fill produced an unexpectedly early date of 2896-2680 cal BC (95% probability) suggesting a date in the late Neolithic period. The date obtained from the secondary fill was 25-171 cal AD (95% probability) suggesting the period immediately before, or coincident with, the building and early occupation of the fort.

Trench 2 produced no features or finds and was closed down on reaching an undisturbed natural surface.

Figure 9 shows plan and section of Trench 3 cut across a feature identified through both the topographical and geophysical survey in the large western field.

**** Figure 9 about here ****

The feature was oriented west-south-west/east-north-east and measured 39m by 12m visible to a height of 0.3m. The natural gravels and clays were cut by a north-north-west to south-south-east aligned gulley or ditch, 1.75m wide and 0.25m deep. The cut had sloping sides and a flat base. The base of the feature (context 312 in Figure 9) yielded a charred twig fragment that was submitted to C14 dating through SUERC and produced a date 911-811 Cal BC (95% probability), falling within the Bronze Age. This in-filled feature was cut by a relatively modern stone lined field drain which can be clearly seen in the photograph.

Discussion

The survival of structures within the fort platform is encouraging following centuries of farming activity and other use of the site. The layout follows a pattern familiar from similar period forts in the north of England.

The lack of evidence for a vicus in the large field south of the fort but north of the cemetery may in part be due to robbing out when the farm buildings were constructed. There is documentary evidence that shaped stone from the south wall of the fort was used in the farm buildings (see Ferguson 1886, 2-3) and it is likely that stone from any vicus buildings was similarly used. In addition there could have been extensive robbing and/or disturbance at the time of the railway construction, the quarry also contributing material. At this point in the Lune Gorge the railway occupies a steep man-made embankment. There could also have been loss of archaeological remains when the construction camp for the M6 motorway was established and demolished in the late 1960s/early 70s.

There was no clear evidence, north or south of the River Lune, for structures associated with a Roman road. The rectangular enclosures, underlying the current Howgill Lane and dated in the secondary context to the first half of the Roman occupation, suggest that the lane is not on the line of the original Roman road. Indeed, when OAN observed the crossing of this road for the laying of the pipeline in the early 1990s they noted that no evidence was found for Roman features underlying the more modern surface. They did, however, note a metalled surface, 7m wide and 30m west of the current road which may have been a trackway or the remains of an earlier road aligned with the natural position for a south gate of the fort (see Lambert 1996, 87). In November 2016 LAS excavated two 1m x 2m test pits approximately 50m north on a line of sight approximately from this...
metalled surface to the centre of the south wall of the fort and came down on a cobbled surface that may have been part of the road (LAS 2016).

Conclusions
The high degree of preservation of remains within the fort platform confirms the need to continue to protect the site from intrusive farming and/or other development. It is worth noting that the M6 motorway construction camp was established outside the fort but within the restricted (scheduled) area. Despite that scheduling the camp damaged the archaeology of the mansio and possibly also the vicus.

The purpose of the rectangular enclosures identified in the large fields to the south of the fort remains unclear. The U-shaped profile of the ditch in Trench 1, and the lack of certainty as to whether the associated bank was on the inside or the outside, are of little help in determining the purpose. It does not, however, have the steep-sided V-shaped profile characteristic of Roman military ditches (see Jones 2012). The late Neolithic date obtained from a sample from the primary fill is intriguing. However, the long narrow shape of Enclosure A is atypical of other known enclosures of that period and the fill lense is relatively shallow. The probability is that the material was residual within the ditch, pointing to human activity on the site in the late Neolithic but not indicative of its original construction. The early/mid Roman date from the secondary fill immediately above the primary, together with the shape of the enclosure, suggests a more likely use in conjunction with occupation of the fort. An enclosure for grazing military horses if the fort was manned by a cavalry unit, a possible parade ground for exercising the troops, or a field for cultivation of crops such as wheat or barley for consumption by the garrison, are likely, but unproven, interpretations.

The lack of evidence for a vicus in the fields to the south of the fort is, of course, not evidence that there was no vicus on the site. It is worth noting, however, that across the Lune from the fort lies the Brockholes site excavated in the 1970s by John Anstee (see Anstee, Anstee and Hooley 2018) that has been dated to the mid-first to mid-third centuries AD. A few hundred meters south of the Lune crossing are the remains of an unexcavated, and hence undated, settlement morphologically similar to other settlements of the Romano-British period (see RCHME 1993). It is possible that these settlements provided the services generally associated with vicus activity.

Recommendations for Future Research
As with many investigations of this type, the work completed to date raises more questions than it answers! Here we list some of the issues we believe worthy of further consideration. They are not exhaustive, rather indicative:

1. Within the fort platform the geophysical surveys offer further support to the contention that a smaller defensive structure is contained within the larger one. The smaller feature identified may be an earlier fort related to the Agricolan campaigns as suggested by Hildyard and Gillam (1951) and by Shotter and White (1995). However, this cannot be confirmed without ‘ground truthing’ through excavation in the fort interior.

2. It also remains unclear whether the fort was occupied by a cavalry or infantry unit. Again this could be resolved through excavation of the barrack blocks. If the barracks are of the layout typical of a cavalry unit, with room for horses as well as men, the purpose of the rectangular enclosures may become clearer.
3. The fort bath house is yet to be located. Anstee believed the building in the vegetable garden to be part of the bath house but LAS investigations (Hamilton-Gibney 2012) suggest this is more likely a *mansio*. If it was not the bath house, where is it? One possibility is Area 3 in the north east corner of the field at the confluence of the Borrow Beck and the Lune. The compacted structural remains identified through the geophysical surveys occupy an obvious location for a bath house. An exploratory excavation could identify whether this area is worth investigating further.

4. The purpose and exact morphology of the large rectangular enclosures in the fields south of the fort remain elusive. The lack of definitive evidence as to whether the bank associated with the ditch was on the inside or outside, make interpretation difficult. Further excavation of a fresh section of the ditch, perhaps along the north-west perimeter to the south of the scheduled area, might help to resolve these issues.

5. Excavation of the High Carlingill site may yield dating evidence to show whether or not it was contemporary with the Roman occupation of the fort and did, indeed, provide the services normally associated with a *vicus*.

The fort (or forts) at Low Borrowbridge offer many opportunities to advance our knowledge of the Roman occupation in the north west, south of Hadrian’s Wall.
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(by kind permission Oxford Archaeology North)
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