ROMAN·ROADS·RESEARCH ASSOCIATION

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MILLE·VIAE·DUCUNT·HOMINES·PER·SECULA·ROMAM

FROM THE EDITOR

Big news enclosed in this bumper Autumn edition is the release of the Scotch Corner excavation report coming from the road works widening the A1 to motorway standards. It has long been known that Scotch Corner was a junction between RR8, Dere Street underlying the A1, and RR82 that closely follows the modern A66 over Stainmore towards Penrith and onwards to Carlisle. However the extent of settlement at the junction and the development of the settlement from native to Roman at a surprisingly early date is a new insight, as is the development of the Roman roads around and through it. The open access report is a vital read especially if you're interested in how the early Roman conquest progressed. At over 800 pages and almost a Gigabyte of data it is a meaty tome that takes a while to download and go through but it is well worth the effort. The enormous scale of the work, organisation and record keeping undertaken by Northern Archaeological Associates both here and at the nearby site at Catterick is quite remarkable.. Thank you David Brear for summarising, highlighting the links and letting us use what he put to *Roman Yorkshire*.

Also enclosed is a continuation of David Ratledge's lidar review of East Anglia (as interesting as ever), confirmation of the course of RR46 and RR52 by Tim Lunt between Poole and Bath from the recent release of lidar data and an insightful analysis of road building by Paul Smith who gives us a logical argument as to where temporary camps may have been constructed to house the road builders. Also enclosed is another article from Anthony Durham suggesting what may have happened to Roman roads in the sub Roman era. Interesting, controversial and thought provoking as ever.

Thank you to all the contributors for the good material, please keep sending me more!

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IN THIS EDITION

RRRA Projects; Latest Updates

Other roads in the news; bits and pieces

RRRA Projects, update

Roman Roads in East Anglia; a Lidar reappraisal

By David Ratledge

Introduction

In the last issue we looked at the Roman road junctions around the Roman sites in Suffolk. In this article we will take at look at some of the interconnecting routes in Suffolk. I will not include all of them, just ones where significant gaps have been filled or where new stretches have been located. The newly discovered road from Ixworth to Scole has previously been covered here so is not repeated.

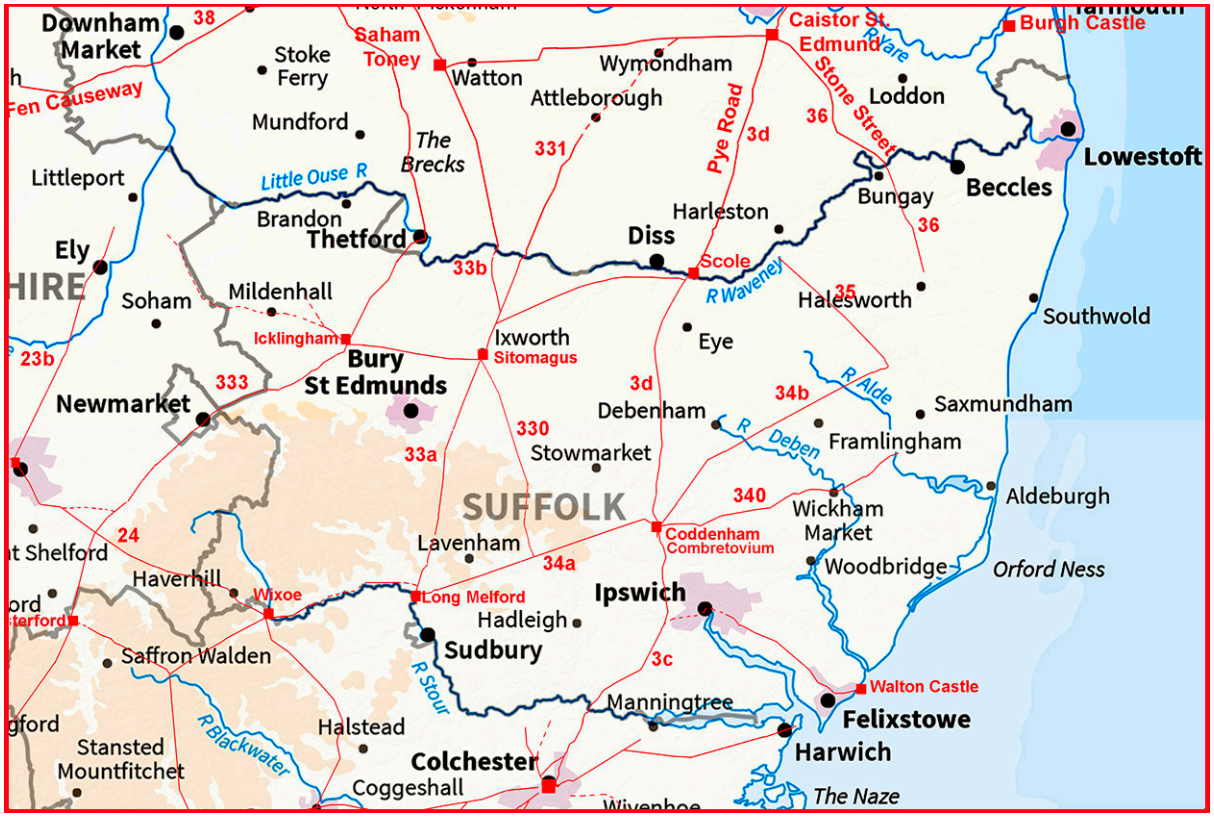

Fig. 1: The Roman Road network of Suffolk and northern Essex compiled following a lidar reappraisal.

Scole to Coddenham to Colchester, Margary RR3

This was possibly East Anglia's most important route directly linking Caistor St Edmund to Colchester and London. We looked at Coddenham last issue and we will begin there on the road to Colchester. The route initially follows the west bank of the River Gipping before heading south-west towards what was probably the lowest practical bridging point of the River Stour at Stratford St Mary.

The big puzzle with this road was around Stratford St Mary but I believe we can be reasonably confident as to its route there now. lidar shows its course approaching Stratford St Mary (figure

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Roman Roads in East Anglia; a Lidar reappraisal, continued

Continued from page 2

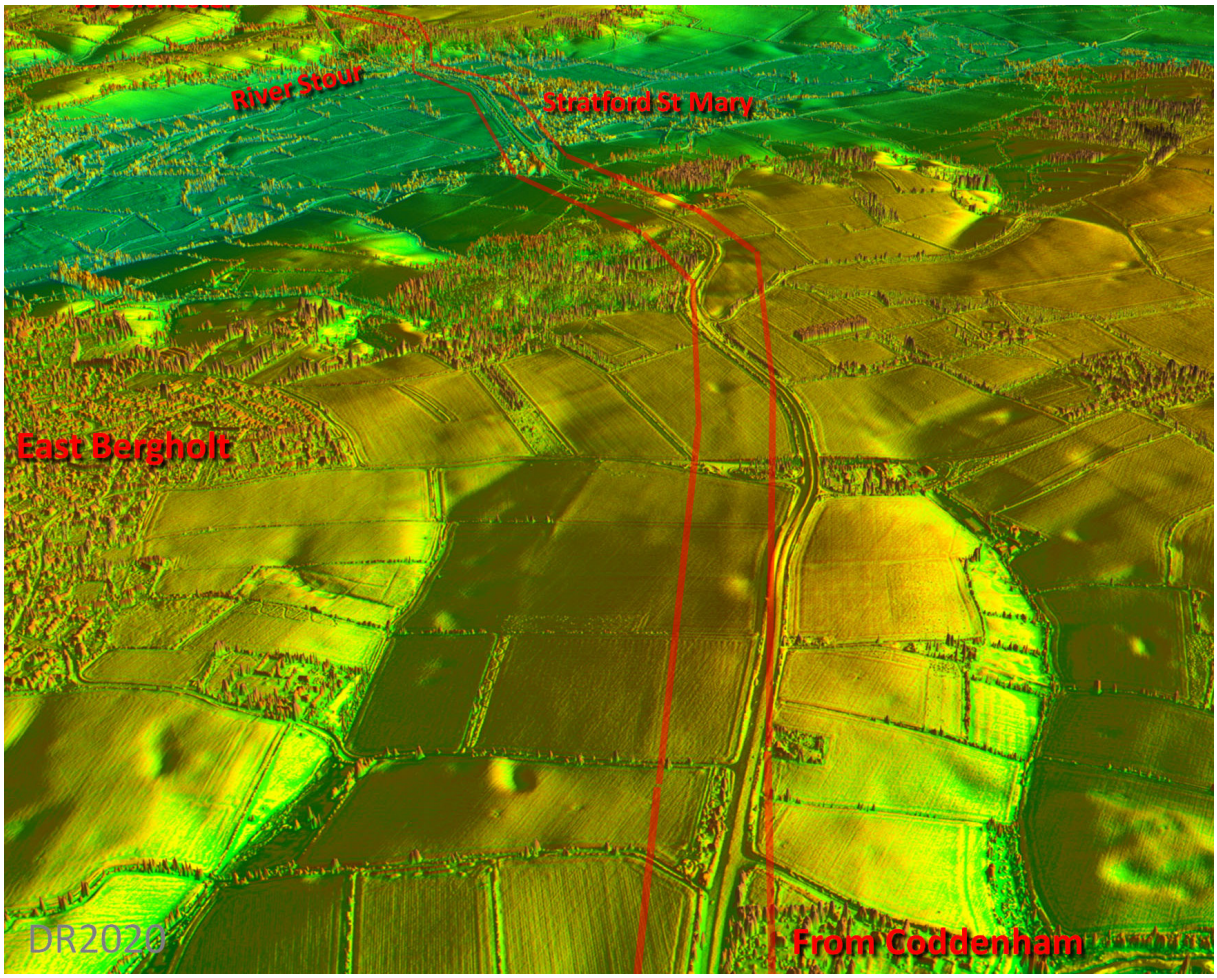

Fig. 2 Previously assumed to be under the A12, Margary 3 is obvious in the fields either side of the modern road. It makes a turn for the crossing of the River Stour at Stratford St Mary – this name is, of course, a big clue to the road being located here. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

2) and its climb up from its crossing of the River Stour (figure 3). Across Stratford St Mary it needed a bit of interpolation.

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Roman Roads in East Anglia; a Lidar reappraisal, continued

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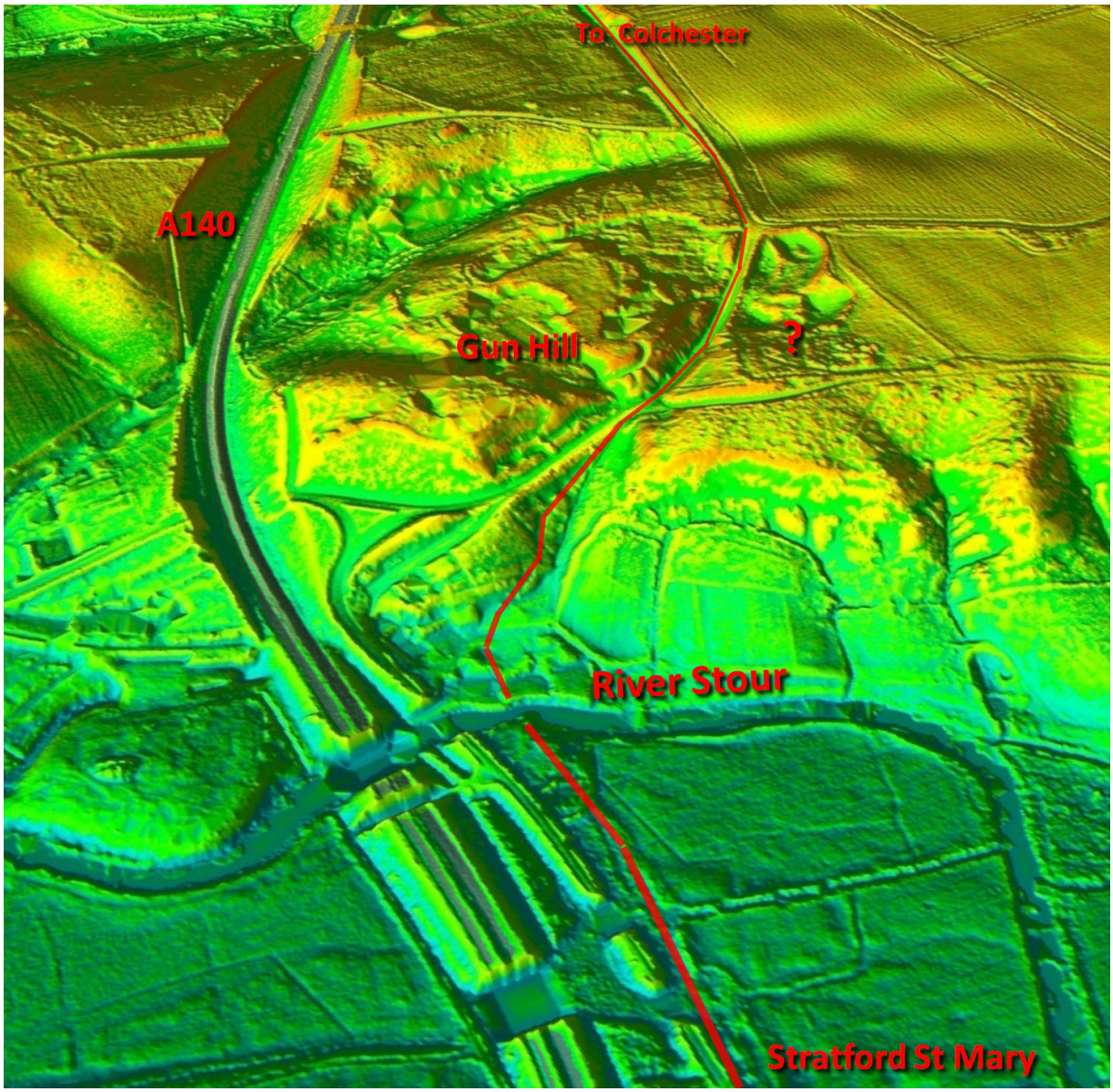

Fig. 3 The bridging point of the River Stour was upstream of the modern bridges. The climb up Gun Hill used a natural valley. The question mark is a possible location that was spotted for Ad Ansum. The latter means at the bend and it is directly above the bend in the River Stour. Note this is a DTM lidar view with all vegetation and buildings absent, so the modern road bridges are missing. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

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Roman Roads in East Anglia; a Lidar reappraisal, continued

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Coddenham to Stratford St Andrew, Margary RR340

We covered the possible destination of this road in a previous article – Aldeburgh was thought the most likely. But its first 4 kilometres were lost between Coddenham and Clay Lane. However, the alignment of Clay Lane is well to the south of the Coddenham site, which was probably the reason that the course of the road from the fort was lost. As a result conventional wisdom plotted the road carrying straight on, well to the south of the fort rather than turning towards it. But turn it did, and quite a big one, and then took a course from the end of Clay Lane to the fort.

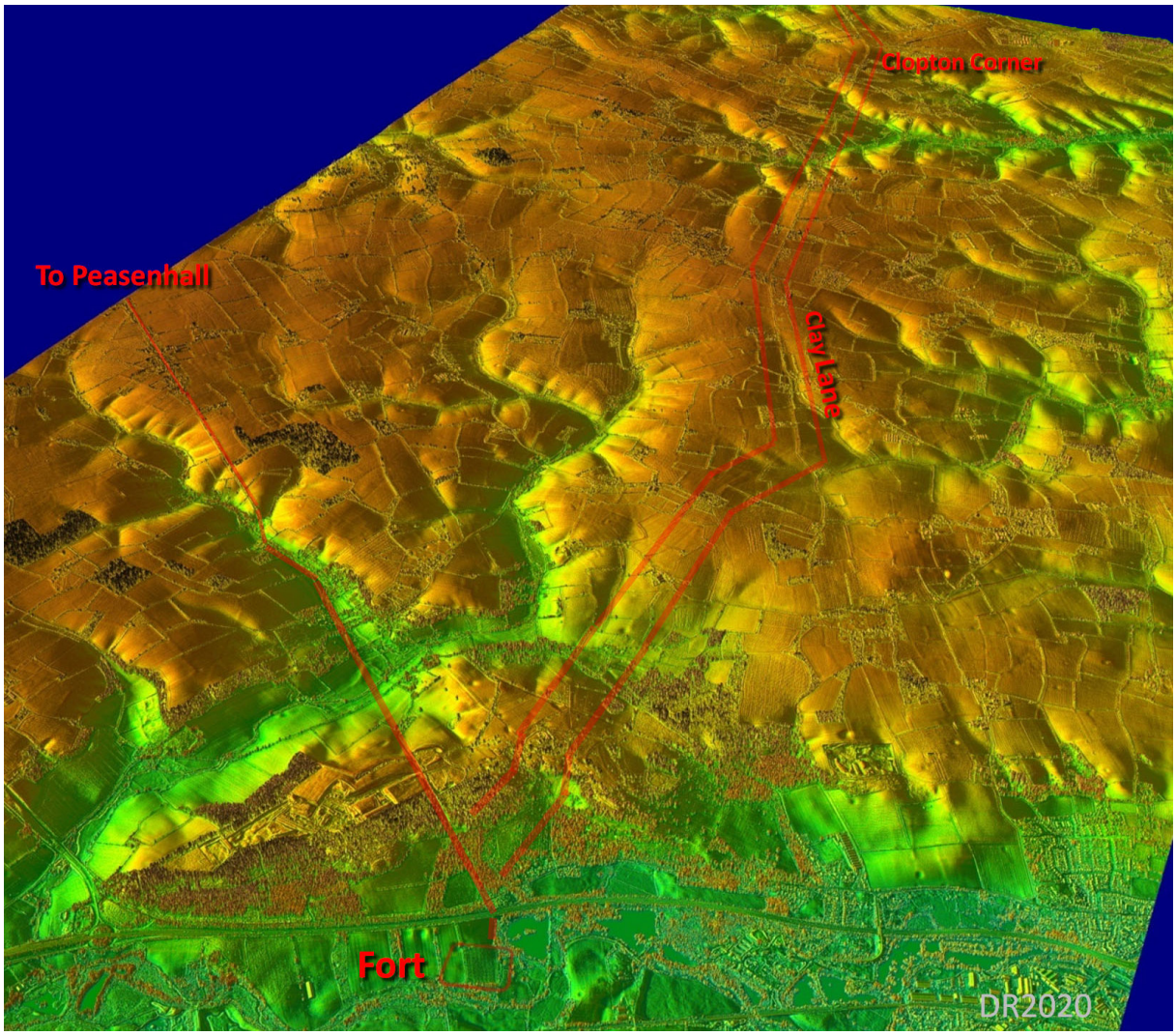

Fig. 4: The missing link from Coddenham fort/settlement to the known section at Clay Lane. The previously assumed course of this road was a straight-on extension of Clay Lane that ended up well to the south (right) of Coddenham. In the distance the road makes another turn at the aptly named Clopton Corner. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

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Roman Roads in East Anglia; a Lidar reappraisal, continued

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Ixworth to Bildeston, Margary RR330

Thanks to lidar we now have the definitive route for this road. One section from Hightown Green to Hitcham, along Hares Lane and Dale Road, was previously known for certain but elsewhere there had been much speculation as to its course especially around Woolpit.

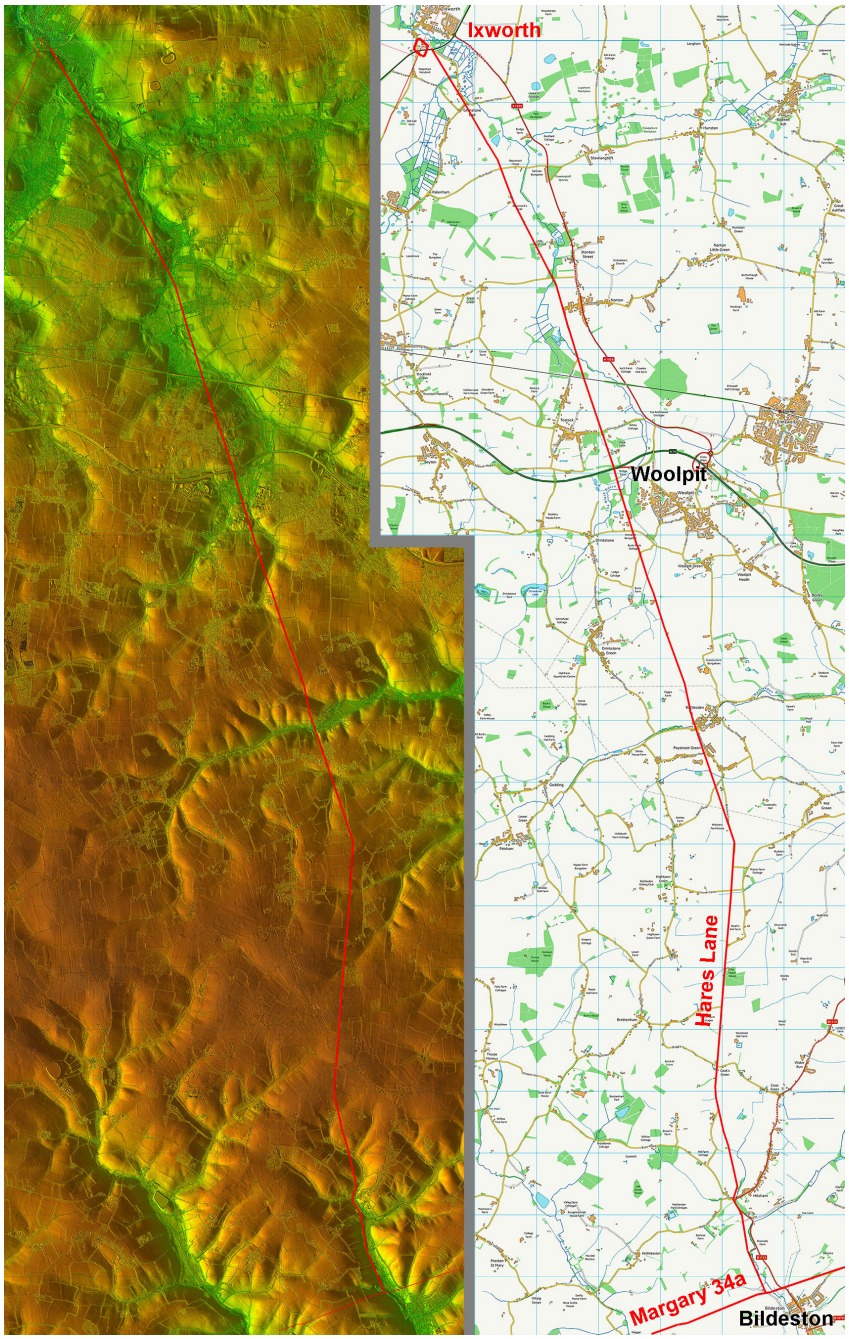

Fig. 5: Lidar image and Opendata map of the route. The Hares Lane section was always well known. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

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Roman Roads in East Anglia; a Lidar reappraisal, continued

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Even its northern end had more than one suggestion with a direct link to Peddars Way, bypassing Ixworth, often postulated. However, there is no lidar evidence supporting this. Ixworth was its northern origin and Bildeston its southern end where it formed a junction with Margary RR34a. The route at Woolpit turned out to be along the worryingly named Deadman's Lane.

The only slight doubt remaining is at the Bildeston end. Did this road join Margary RR34a west or east of the stream there? There was slightly more evidence for west so that is where I have

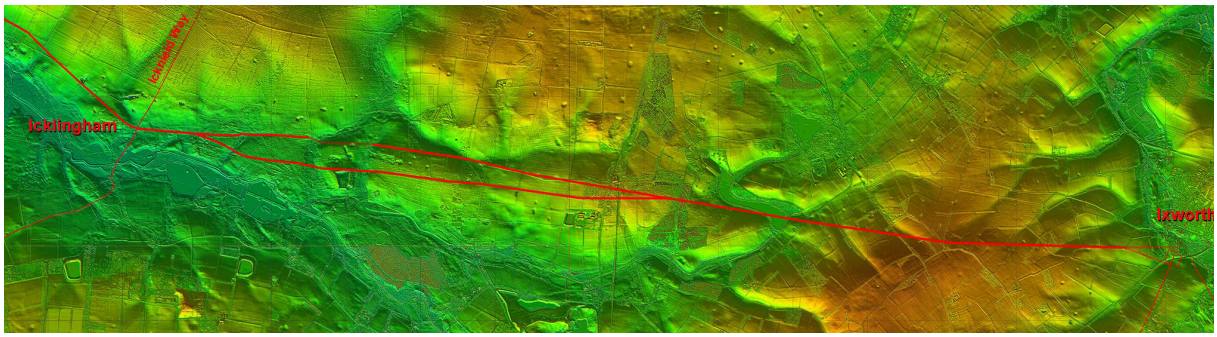

Fig. 6: There is lidar evidence for the two routes so perhaps there were indeed two roads, although perhaps not at the same time. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

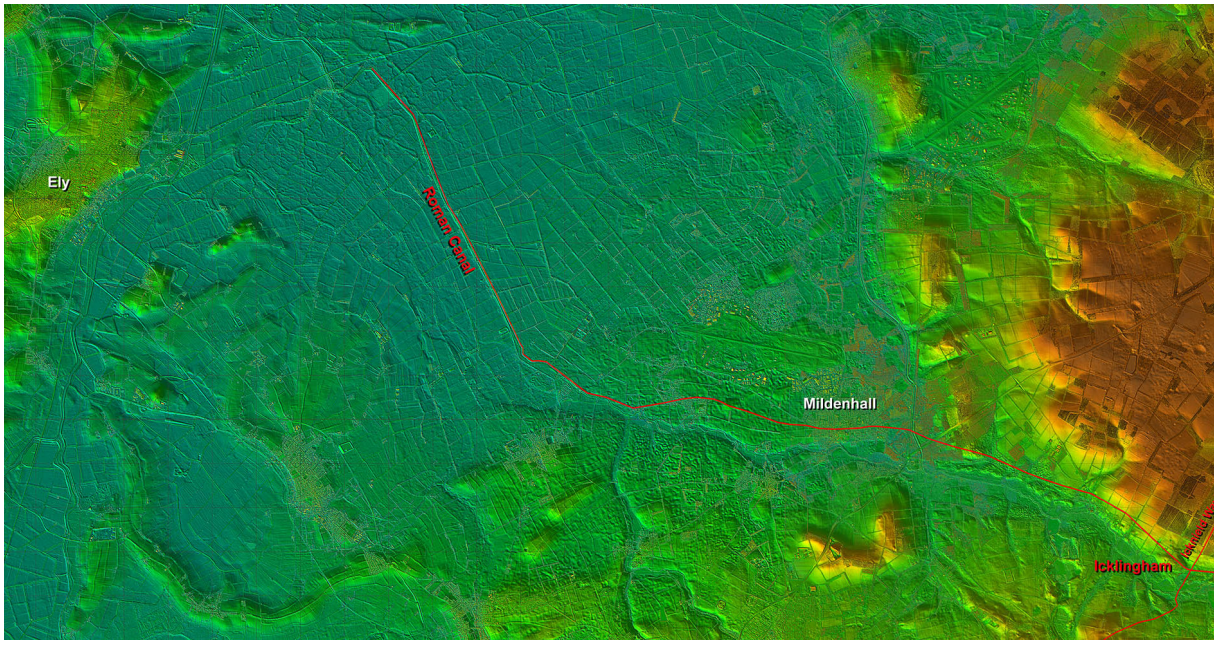

Fig. 7: The probable extension of the route west from Icklingham. In crossing the Fens then building the road on the canal bank is precisely what the Romans also did with the Fen Causeway. Littleport is north of Ely (just off the map) on a tongue of dry(ish) land. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

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Roman Roads in East Anglia; a Lidar reappraisal, continued

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plotted it but I wouldn't rule out the east side either.

What about the road continuing on south past Bildeston? So far I have not spotted anything to support this – and I have looked several times!

Ixworth to Icklingham

Ixworth and Icklingham were certainly linked by a direct Roman road but approaching Icklingham there appears to have been two routes - a northern and southern one. It is not unusual to have duplicate Roman alignments - I have come across them several times before. It probably means that within the Roman occupation a second road was deemed needed

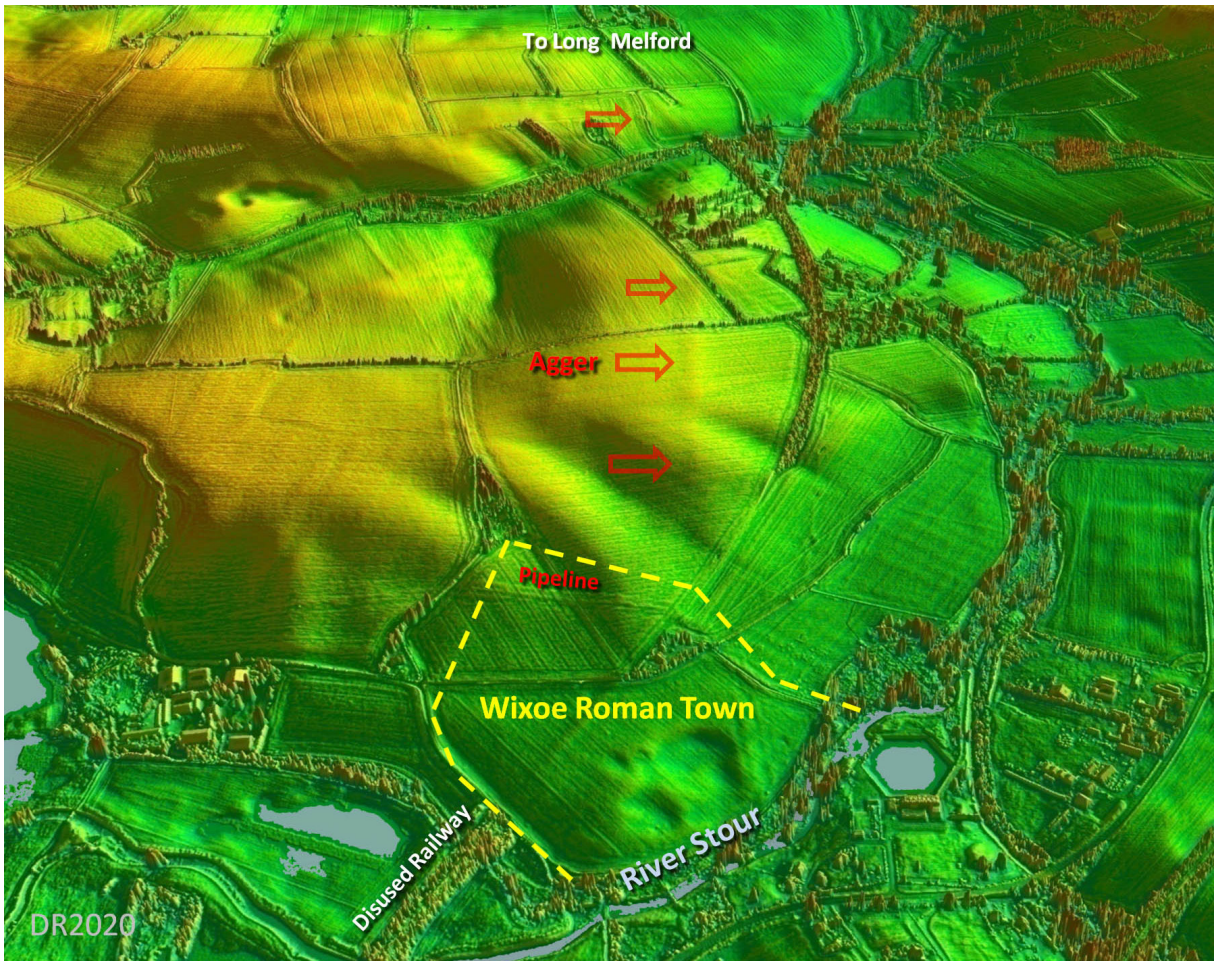

Fig. 8: Oblique lidar image showing the road agger leaving Wixoe in the direction of Long Melford. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

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Roman Roads in East Anglia; a Lidar reappraisal, continued

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usually as an upgrade for the original route.

Passing through Ampton there are the remains of the road agger visible in the Woods there. However, the Ordnance Survey's line for the road here appears incorrect with the lidar data not supporting their line. West of Ampton Woods approaching Ingham then the two parallel routes begin. The road continues on west of Icklingham through the Roman settlement and on to Mildenhall and then almost certainly along the bank of the Lark Roman Canal. Perhaps Littleport in the Fens was the ultimate destination.

Wixoe to Long Melford, Margary RR34a

An elusive route that has long been suspected but proof was definitely lacking. The Ordnance Survey mark a straight section of the modern road from Long Melford to Cavendish as “Roman Road” but that was about it.

However, working from the Wixoe end (figure 8) then lidar does show evidence for an agger

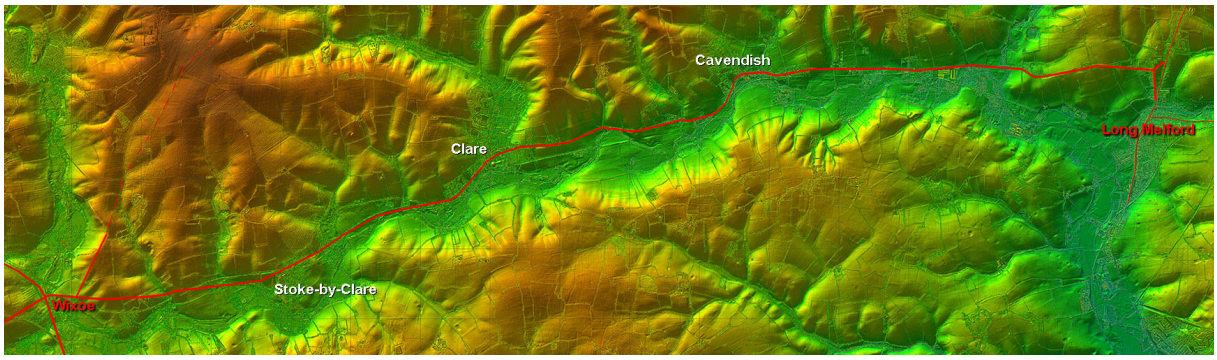

Fig. 9: The full route plotted on a lidar background. The road follows the north side of the Stour valley, which places it just inside Suffolk.. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

as far as Clare. Putting these 2 clues together then a route can be postulated largely following the modern A1092 between Clare and Cavendish (figure 9) and connecting the two ends up.

Perhaps still a bit speculative but where else can the road from Wixoe be going?

Conclusion

This has just been edited highlights of Suffolk’s Roman roads – there was simply not enough room for all of them. The plan for the next edition is that we will look at some of the “new” roads in Essex.

to be continued.....

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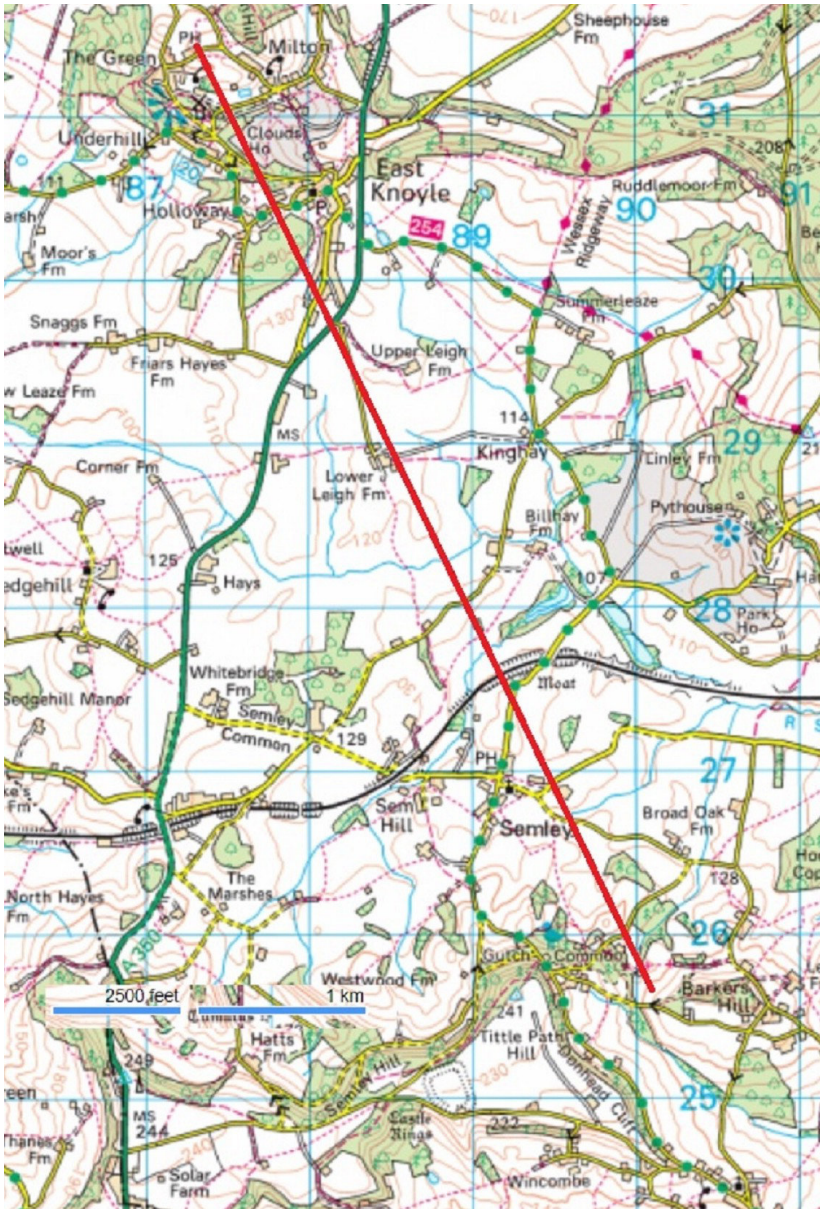
RRRA Projects, update

The Poole to Bath Road (Margary RR46 and RR52)

From Tim Lunt

Beginning at Poole harbour on the south coast the road (Margary RR4d) passes through Lake Farm fort to Badbury Rings (ST96410301) and the start of this route to Bath. A well-authenticated single alignment then takes it 10 miles north west to the edge of the Nadder valley (ST91881813), east of Shaftesbury. Here it swings across Ashmore Down and



OS map overwritten with a red line showing the course of RR46 between Semley & East Knoyle

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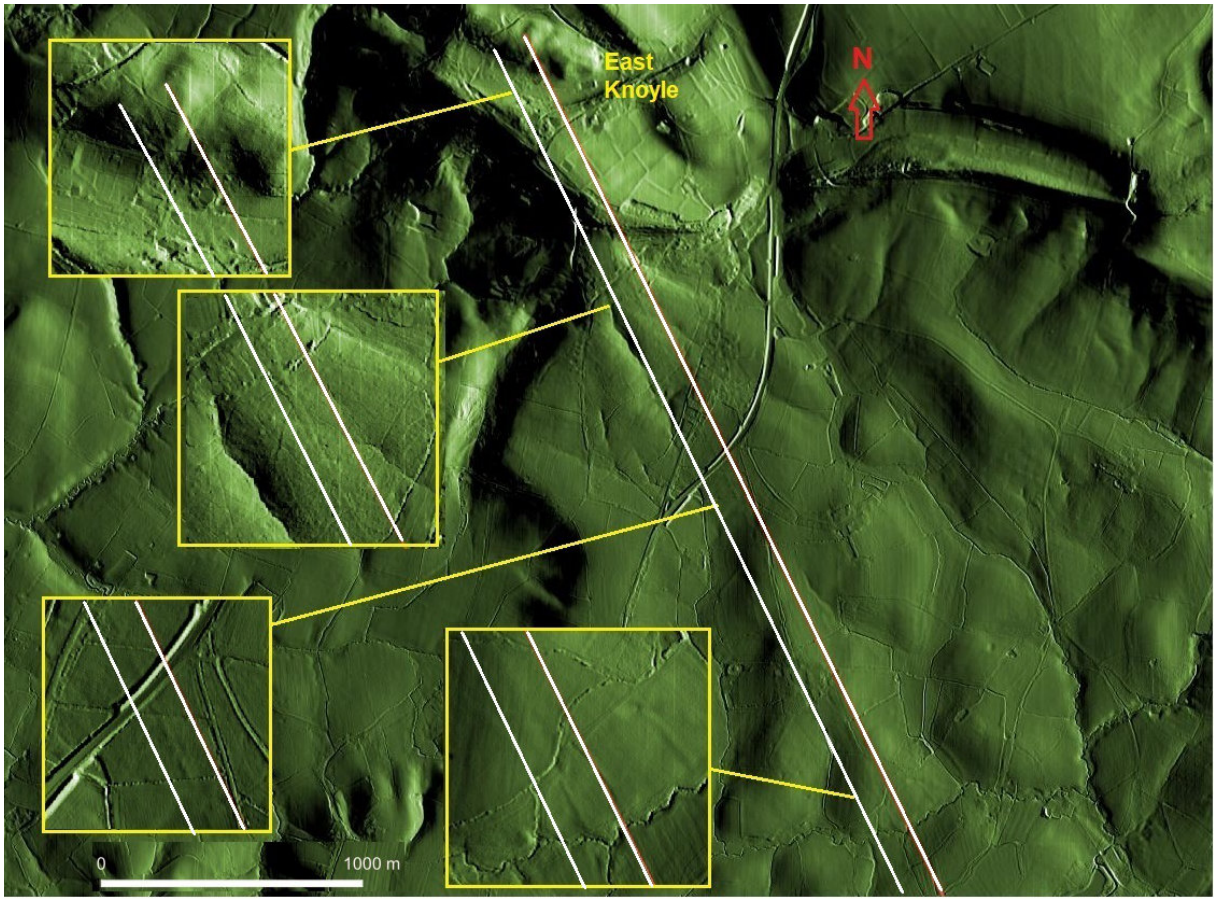
The Poole to Bath Road (Margary RR46 and RR52), continued

Continued from page 10

descends to the river Nadder where the agger is last seen by Lower Berrycourt Farm (ST90952349). From this point the road line is not clear but it would have climbed up through Donhead St Mary towards Semley and the next probable short section (ST90062568) recorded by the Ordnance Survey (OS) on older maps. Some evidence exists in HER records of possible road surfaces around Donhead discovered during excavations but they are all conjectural and show no common route.



Lidar image showing the course of road RR46 between white parallel lines with detail insets near East Knoyle. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

A look at the lidar for this gap at Donhead did not produce any further results but could show a direct alignment covering about 3.6 miles from the OS section south of Semley to the high ground at Barns Hill in East Knoyle (ST87363129) on a heading of approx 334 degrees. The enclosed images show the line on the OS map for the area and highlight the anomaly on the lidar, a possible agger, showing at intervals along the route.

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The Poole to Bath Road (Margary RR46 and RR52), continued

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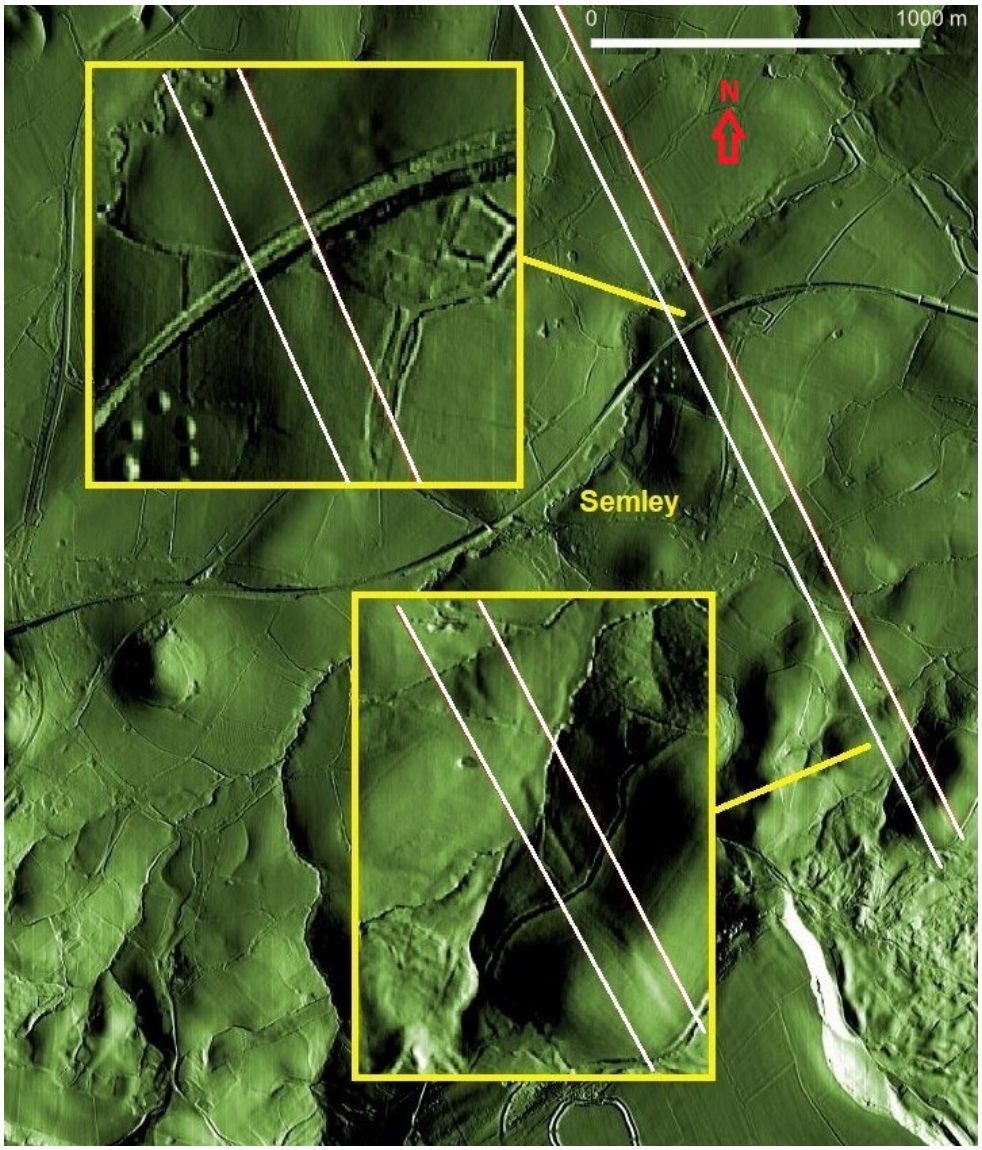
Beyond East Knoyle the road has been assumed to cross Keysley Down to meet the Lead Road (Margary RR45b) near Kingston Deverill before continuing to Bath. No evidence for this section to Kingston Deverill has been substantiated and this is the case for much of the remaining route to Bath.



Lidar image showing the course of road RR46 between white parallel lines with detail insets near Semley. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

Other roads in the news; bits and pieces

Making friends at Scotch Corner

From David Brear

The second of three monographs in Northern Archaeological Associates' series detailing their excavations along the A1 (not counting the Healam Bridge report!) during its improvements, is now out — *Contact, Concord and Conquest: Britons and Romans at Scotch Comer*. Every issue in the series contains new facts for archaeologists to ponder but this recent deluge of data genuinely illuminates known history.

Period 1 The Iron Age background, copyright Northern Archaeology Associates.

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Making friends at Scotch Corner, continued

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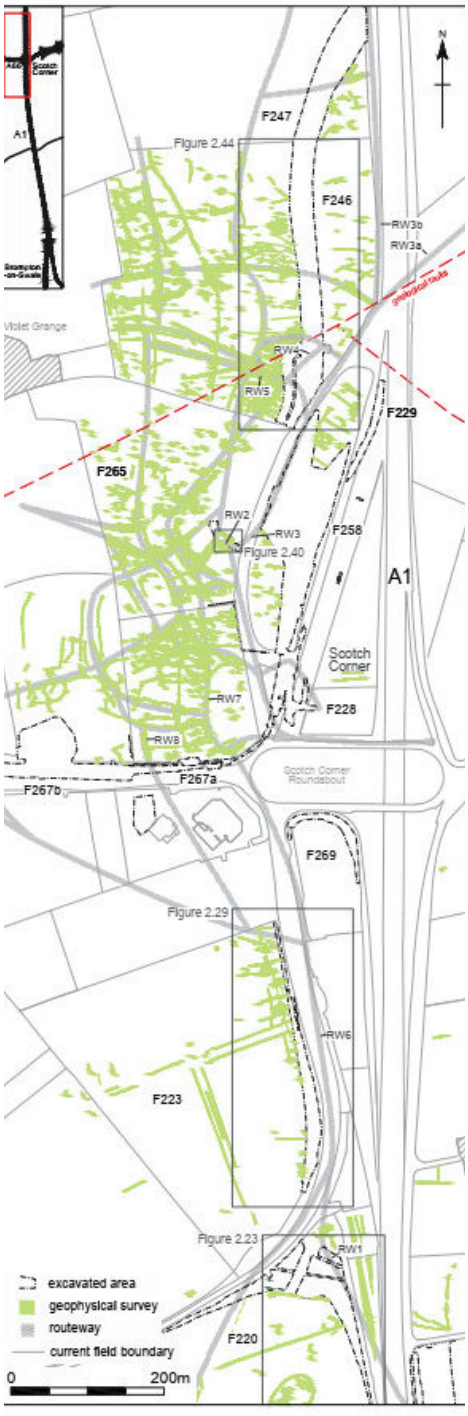

Overview of excavations, copyright Northern Archaeological Associates

The story of the Roman conquest of the North has been well known (and well discussed) since Tacitus. The Brigantes had been well-known to the Romans—an ally, perhaps, since Claudius' victory in AD 43, then the surrender of the brilliant resistance leader Caratacus by the Brigantian queen Cartimandua in AD 51, the suppression of her former husband Venutius' raids in the mid 50's, his apparent quiescence during the Boudiccan rising in 60/1, his rebellion during 69 and subsequent rescue of Cartimandua leaving Venutius in charge, and the eventual conquest of Brigantia by Cerealis in the early 70's. It had been thought that during this lengthy period not much Roman was going on at Scotch Corner, although high-status early Roman goods were well known from the massive oppidum at Stanwick and nearby Melsonby. Investigation before the 2006-7 improvements to the A66 had found extensive Iron Age settlement and had dated the nearby north-south Scots Dyke to the early-middle Iron Age instead of confirming the arguably more exciting early Medieval interpretation, but the only suggestion of early Roman activity was a squarish enclosure and other features near Scotch Corner, which produced pre-Flavian pottery and some Iron Age/Roman radiocarbon dates, much like Stanwick. There was no suspicion of large-scale earlier Roman activity. When fieldwork prior to the construction of the Leeming to Barton A1 motorway began in 2013, involving a 12-mile transect through the archaeology of North Yorkshire, it was thought unlikely to produce much new knowledge. In fact, the largest excavation in the North has produced a flood of information—a major roadside settlement at Healam Bridge, occupied into the fifth century, a large cemetery at Bainesse where burials continued at least as late as the midfifth century, a new settlement at Scurragh House, detailed information on the development of the vicus at Cataractonium—and a substantial and wholly-unsuspected late Iron Age early Roman settlement at Scotch Corner, where the first contacts with Rome and their evolution could be studied on a 'green-field' site. The earliest period (c.55BC–c.AD15) is indicated by local

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Making friends at Scotch Corner, continued

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Structure 47 in foreground of field 246, copyright Northern Archaeological Associates

populations constructing unenclosed roundhouse settlements supported by mixed agriculture. The growing economy promoted exchange networks from the coast and further inland and just 5km away at Stanwick the local Brigantian tribal elite developed a power centre where disparate groups could gather and a Brigantian elite could attract Roman diplomatic attention. By period 2 (c.AD15– c.AD55) Stanwick was receiving lavish consignments of exotic Roman and Continental imports which were redistributed to satellite communities such as Melsonby and Scotch Corner, connected physically by a series of earthworks forming Scots Dyke. These communities developed specialist metalworking: the famous 'Stanwick' hoard of copper-alloy objects was probably stowed within a workshop enclosure at Melsonby. At Scotch Corner local copper extraction supplied the manufacture of metal alloy pellets and possibly even coins for Queen Cartimandua and her forebears, the most northerly application of such technologies,

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Making friends at Scotch Corner, continued

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reflecting Stanwick-Scotch Corner's exceptional wealth and social preeminence. Just one indication of this is a broken amber statuette, the torso of a male actor. Parallels are known at Pompeii but this is currently the only example found in Britain and was probably carved from Baltic amber in the workshops of Campania sometime in the 1st century AD. In the drip gully of Structure 47 was a lead object which indicates an uncommonly early use of the material, and perhaps exploitation of local mines. These may also have produced a lump of azurite for use as a pigment, but powdered Egyptian blue pigment, a compound known to have been produced in southern Italy around the 1st century AD, and a pink pigment made from rose madder, would have to have been imported. While Rome expanded its control over Wales, Cartimandua enjoyed the fruits of her treaty ('wealth and the self indulgence of prosperity', according to Tacitus), delivering Caratacus to Rome in AD51. There is some ambiguity about the train of events, but it seems this was the trigger for revolution: '... Venutius collected some auxiliaries, and, aided at the same time by a revolt of the Brigantes, brought Cartimandua into the utmost peril.' Roman troops saved Cartimandua but the political insecurity is visible in the archaeology at Scotch Corner: the coin manufacturing ceases, inhabited enclosures are abandoned and a new 'ladder' system is introduced. Although occupation continues throughout period 3 (c.AD55–c.AD70) the commodities imported now arrive via military networks and, together with Roman building materials, indicate a possible stationing of troops locally. In the Midlands and South-east the rebellion of Boudicca threw into doubt the survival of the province; in Yorkshire, apparently, all was quiet, although the fact that Petronius Turpilianus received ornamenta triumphalia in 65, presumably for a military campaign, might suggest otherwise. Political instability among Roman forces in AD69 may have suggested an opportunity for Venutius to rebel again: Roman forces 'contrived to rescue the Queen from her peril. Venutius retained the kingdom, and we had the war on our hands.' During period 4 (c.AD70–c.AD85/90)

Period 4 Roman roads, early and permanent, copyright Northern Archaeological Associates

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Making friends at Scotch Corner, continued

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Petillius Cerialis finally extended Roman control over Brigantia. Stanwick and Melsonby were deserted and Scotch Corner was radically reconfigured, with a surveyed grid system which shifted at least twice in response to the changing course of Dere Street's extension to the northeastern frontier, complementing the road forged westwards over Stainmore during the earliest stage of Roman advance. The engineered roads, which sometimes perpetuated earlier native routeways, were the most obvious sign of Roman cultural dominance but the standardisation of size of new rectangular buildings confirms this. Some larger apsidal and winged structures near the central road junction are the focus of administration and the site of conspicuous displays of consumption. A single pit (26002) contained an outstanding assemblage of artefacts— a collection of placed objects, which included a dupondius of Vespasian minted in AD71, an as of Titus under Vespasian from AD77–8, a black glass counter, a very rare and incomplete copper-alloy, hinged Colchester derivative 'dolphin' brooch produced during the second half of the 1st century AD, and the only complete example from Britain of a miniature iron-bladed sword in a copper-alloy scabbard with a ribbed bone hilt. It represents a hybrid British/Roman weapon, reflecting the distinctive short-lived fashion for Roman soldiers to use hybrid swords during the conquest period in Britain up until the Flavian period. In nearby pits were an incomplete iron finger-ring with small oval intaglio in opaque red jasper showing a leaping lion, a silver denarius minted in Rome for Vespasian between

Roman road 6 sectioned heading north east from the modern Scotch Corner roundabout. View looking south east. Work underway alongside live traffic. Copyright Northern Archaeological Associates

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Making friends at Scotch Corner, continued

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January and July AD70, glass sherds of a blue/green globular jug or jar produced in the late 1st or early 2nd century, and a very rare type of copper-alloy acorn shaped seal box with tinned and punched feather decoration. The status and role of the settlement remain elusive: elements of native and Roman traditions existed in a confused amalgamation. Like the roads and settlement layout, however, artefactual and environmental materials demonstrate that Roman military imperatives triumphed over native traditions. Cattle and sheep butchery reflected military practices and Continental disc quern and millstone technology was emulated for food production, which involved adoption of mortaria and a boom in olive oil consumption, while dining with imported ceramic and copper alloy vessels supplanted earlier wine fuelled feasting events. By period 5 (c.AD85/90–c.AD135/150), following Agricola's withdrawal from Caledonia, all this was abandoned, leaving only the road junction, a possible stable, and a small compound with a building. By c.AD135/150 the commercial/supervisory role of Scotch Corner had moved elsewhere, to the fort and vicus at Catterick a few miles south, and to the Brigantes' civitas capital at Aldborough. This book, freely available on an Open Access basis, will be quarried by researchers for decades. A single instance of the sort of data the excavation

Field 223 looking south. Work underway alongside roadworks. Copyright Northern Archaeological Associates

has provoked—on a limited area of the site people were eating fish, a highly unusual practice in Iron Age Britain. At Skeleton Green, Puckeridge–Braughing, where coin pellet moulds were also produced, fish were also eaten. Hannah Russ, the zooarchaeologist, also points out that fish sauce was a basic part of Roman cuisine and that its adoption is an indication of

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Making friends at Scotch Corner, continued

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Copper-alloy acorn-shaped seal box, copyright Northern Archaeological Associates

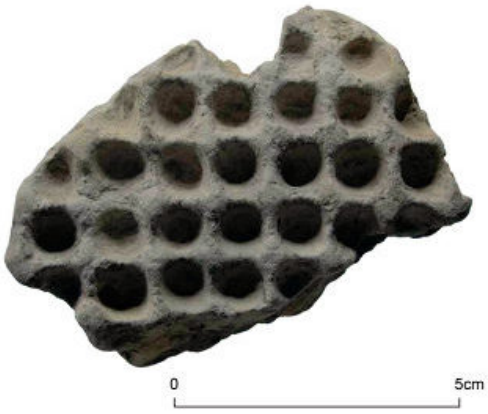
Miniture sword, iron bladed in a copper-alloy scabard, bone handle. Copyright Northern Archaeological Associates

Romanising culture. The material reports and concluding synthesis amply demonstrate how complex and intense activity was around Scotch Corner. The excavated remains represent a small fraction of the archaeological resource that survives in fields lying west and north of the roundabout. The Foreword was written by Professor Colin Haselgrove, most recent excavator of Stanwick, who rightly describes this book as 'a monograph that challenges preconceptions of the Iron Age-Roman transition in Britain and that is destined to become a standard work of reference to which archaeologists will return time and again as they debate the processes at work during this exciting formative period of our early history'.

Contact, Concord and Conquest: Britons and Romans at Scotch Comer, by David W. Fell *et al*, Northern Archaeological Associates Monograph, Volume 5 Available from Archaeology Data Services downloadable here

Further reading

3,000 years of death in the Vale of Mowbray A Roman Roadside Settlement at Healam Bridge: The Iron Age to Early Medieval Evidence. Available from Archaeology Data Services, downloadable here



Pellet mould for coinage, copyright Northern Archaeological Associates

Amber statuette of male character, copyright Northern Archaeological Associates

Other roads in the news, bits and pieces

Building RR191 Greensforge to Pennocrucium - RR191 – 22.37 km [13.9 miles]

By Paul Smith

In 1960 I was one of a group of volunteers at Lullingstone Roman Villa in Kent during the final years of excavation there. One afternoon a small group of us were asked to pile into a Land Rover with a collection of tools. A local landowner had been up in a light aircraft and seen a playing card shaped crop mark on his land. We were sent to investigate. I still recall the results: a Roman temporary camp had been constructed on the North Downs overlooking the Darent Valley. We found a spectacular V shaped ditch with a square ankle breaker neatly cut into the chalk.

Sometime after the excavation the leader of our group talked to us about the dig. He told us:

i. there were no roads in Britain before the arrival of the Romans

ii. Roman roads were straight and built by the military at the time of the invasion and as the army moved west and north

iii. without fail the Roman army built a camp every night when on the move.

Sadly, in writing this much, I have revealed my age but I'm happy to acknowledge our understanding has moved on since those times. Now, we know there were roads in Britain before the arrival of the Romans and straight roads were a Roman preference not an obsession. However, I have yet to read an argument that road building was anything other than a job for the military and the idea that the army built a camp every night when on the march still finds general acceptance. Perhaps I have read the wrong books and articles, but I have not yet read any detailed information about the use of temporary camps during the construction of roads.

Consider RR191 the road between the Roman military forts and complexes of Greensforge and Pennocrucium. Both places are in Staffordshire. They are 22.37 kms apart or 13.9 miles as the 'imperial crow used to fly.

John Peddie (188-189) tells us the Commandant of the Royal School of Military Engineering calculated the man-hours per 100 metres needed for the construction of a tactical roads over

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Building RR191 Greensforge to Pennocrucium - RR191, continued

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four types of ground. The estimates were: for grassland: 40 man hours per 100 metres, for forest: 600 man hours, for heathland:450 man hours and for swamp: 625 man hours.

The tactical road Peddie described would have been constructed to the following standard:

a. a cleared width of 8.6m with all trees and scrub cut to ground level

b. a levelled carriageway of 2.6m marked by timber kerbs

c. minimal or non-existent drainage

d. a corduroy surface over swamps

A tactical road to this standard could not have been built without a substantial workforce. We will never know what types of ground existed between Greensforge and Pennocrucium at the time of the road was built and we will never know how many soldiers built the road. For these reasons we will never know how long the road took to build. The same is true of the Roman road you are researching or interested in.

I ran some calculations based on a best guess as to the types of land the Romans might have met in building RR191. If there were 10 km grassland (44.7%), 10 km heathland (44.7%), 2 km forest (8.94%) and .37 km swamp (1.65%) a tactical road might require 63,313 man-hours. I acknowledge the figure is based on guess work but bear with me. It is equally hard to know exactly how much more time would be needed to turn a tactical road, as described above, into a wider road with agger, engineered surface and drainage ditches etc. It seems reasonable to assume that these additional requirements might double the man hours needed. So, double the original number and you have 126,626 man-hours to create an engineered road from Greensforge to Pennocrucium. To make a simplistic calculation: 500 men working 9 hours a day could complete the task in about 28 days.

However, this calculation does not reflect reality, as will be seen, and the lack of reality is not related to my guess work about terrain or the percentage increase in man hours needed to produce an engineered road. The next section of this article needs some working assumptions, they are my assumptions and again they are probably wrong; but it actually won't matter as you will discover. The assumptions will illustrate the problems revealed when a simple series of calculations are exposed to practical reality. I have assumed a 10-hour working day over 7 days a week and I have given each soldier a break of one hour a day; perhaps 30 minutes around midday and 3 x 10 minutes for a drink, either while working on site as the work progressed or as a break while marching to and from work.

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"Travel to work time" is a concept which we are remarkably familiar with in the modern world, but which must have created some considerable logistical problems for the Romans when developing or maintaining roads. A Roman surveyor would have set out the route prior to the start of the construction of a new road and, if the road works started at the gates of the fort at Greensforge, the time to reach the site on Day One might have been as little as 10 minutes. It is easy to imagine a squad of soldiers sallying forward with all the tools and equipment they needed and it would even be possible for one of their number to pop back for an item that had been forgotten, or for lunch and refreshments.

We do not know exactly how fast Roman soldiers marched but, but Steve Kaye considers

> *"the British Army supposedly has a standard on-road, march velocity of 3 mph (4.8280 kph or 1.3411 m/s)*

I'm going to stick with imperial measurement at this point. 3 mph is an ideal figure because it makes my next point with absolute clarity: for each 3 miles of road completed the construction area would be one further hours march away from the fort and, of course, it's not just one hours march to work at the start of the day but also another hours march back to the fort at the end of the working day. So, at 3 miles from the fort 2 hours of the day are spent marching not road building.

I don't imagine the Romans would have understood the modern concept of Health & Safety but they certainly would not have put the lives of troops at risk unnecessarily. There would be a need for any workforce, no matter how big or small, to be guarded whilst at work. For the sake of argument, I have stuck with the 500 soldiers I calculated could have built RR191 in 28 days. (see above.) I have assumed they would need a guard on site of 40 soldiers to ensure that they were working in a reasonably secure environment. It would make sense if the guard duty were shared around; every soldier would then get a break from the strenuous work of road building. I have also assumed the commander of the fort, which had been their point of departure, had men spare to guard the fort.

Before moving on I want to acknowledge that my figure of 500 men may be well wide of the mark. An entire legion might have been put to work to meet the strategic need to develop a road with great speed; imagine the need to develop Watling Street when the Romans pushed toward Wroxeter prior to dealing with Caractacus. It is equally possible that a smaller number of men might have been deployed to build the road. I will return to my figure of 500 men and explore alternatives later.

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Kms of road completed	March distance in kms	March time in hours	Working day in hours	Time on site in hours	Rest on site or during the march (hrs)	Time road building in hours	Man hours per day available	Number of days to complete a Km of road
2	4	0.83	10	9.17	1	8.17	3759	1.5
4	8	1.66	10	8.34	1	7.34	3378	1.7
6	12	2.49	10	7.51	1	6.51	2997	1.9
8	16	3.31	10	6.69	1	5.69	2616	2.2
10	20	4.14	10	5.86	1	4.86	2234	2.5
12	24	4.97	10	5.03	1	4.03	1853	3.1
14	28	5.80	10	4.20	1	3.20	1472	3.8
16	32	6.63	10	3.37	1	2.37	1091	5.2
18	36	7.46	10	2.54	1	1.54	710	8.0
20	40	8.29	10	1.71	1	0.71	329	17.2
22	44	9.11	10	0.89	1			

Fig 1: The table above shows a simplistic calculation of the impact of 'march to work time' as a road is constructed. Calculations based on a workforce of 460 men working on site and a further 40 (unproductive) men guarding the workforce.

As the table above demonstrates the time spent road building decreases as the time spent marching to work and from work increases and, as work progresses the time on site gets shorter. Without some alternative thinking the Romans would have been faced with the ludicrous situation somewhere between 21 & 22 Kms [13 & 14 miles] of road completed where each soldier would just have time to drop a stone on the road surface before turning round and heading back to base. Obviously, things were not done like that.

It is impossible to know what the Romans would have done about the problem demonstrated in the table above. Certainly, at some point, the working day becomes inefficient. Somewhere between 9 & 10 kms [say at 6 miles] distant from Greensforge a point would be reached where, by my calculations, out of a 10 hour working day the work force would only have 5 hours available to construct the new road, with 2 hours spent marching to the work site, 1 hour available during the day for breaks and a further 2 hours spent marching back to the base fort. Too much time is being spent travelling to and from the roadworks and not enough time spent road building. If the destination for the road was a second fort and that fort had spare accommodation it would obviously be possible to split the road building team in two. Alternatively, the workforce could be doubled to get the road completed in half the time. Both teams could then work towards the mid-point of the new road from both ends. If this were to

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happen the spreadsheet (Fig 1) would still apply but, given that there are now two teams at work, progress with road building would also start from the other end of the developing road.

The only other solution (and the only solution if no 'second' fort exists at the road's destination) is to reduce "travel to work time" by building a temporary camp. This would enable the road to be built more quickly and would keep the road building workforce safe. Indeed, it is not difficult to imagine that a whole string of temporary camps might have been built as the longer tactical roads were developed, particularly if a road is being built towards a destination with no existing fort or in difficult terrain. Building a camp must have been even more necessary on the borders of the Empire where the military had yet to establish proper control or in times of turmoil when the army were not sure of the friendliness of the local population.

If it is true that, without fail, the Roman army built a camp every night when on the march then it is self-evident that temporary camps were built quickly. This must have happened in the time available between the completion of a march and the time to turn-in for the night. Fortunately, Steve Kaye offers convincing data on the time it took the Roman army to build a temporary camp. He used the rates for digging and rampart building, mostly derived from early 20th Century British Army manuals, to calculate that a legion marching in single-column, on-road, would complete the creation of a camp (with a ditch 2.5 m wide and 1 m deep, with an ankle-breaker 0.3 m deep and 0.25 m wide) in 2 hours 42 minutes. This would be achieved by four diggers and four rampart-builders from each contubernium. A contubernium, the smallest organised unit of soldiers in the Roman Army, was composed of eight legionaries.

But building a temporary camp creates a further problem. The day after moving from Greensforge to the temporary camp the commander of the work force faces yet another choice. Does he have the camp destroyed by back filling the ditches with soil from the banks or does he get some of his force to guard the camp? If he opts for the "back fill option" the men would have to build another camp at the end of the next day's work. If, as I imagine, the commander opts to guard the camp he has traded a loss of workforce for a longer working day on site. Re-running the calculations with 34 soldiers left to guard the temporary camp would increase the number of days to complete a kilometre of road. The new figures look like Fig. 2 below.:

If a whole string of temporary camps had been built during the work on a length of road then those camps not in use could be destroyed. In an interesting article on his web site RRRA member Mike Bishop argues that all major Roman invasion routes in Britain follow existing native trackways, an assumption which seems seldom to have been voiced. As he puts it:

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Kms of road completed	March distance in kms	March time in hours	Working day in hours	Time on site in hours	Rest on site or during the march (hrs)	Time road building in hours	Hours per day available	Number of days to complete a Km of road
0	0	0.00	10	10.00	1	9.00	3852	1.5
1	2	0.41	10	9.59	1	8.59	3675	1.5
2	4	0.83	10	9.17	1	8.17	3497	1.6
3	6	1.24	10	8.76	1	7.76	3320	1.7
4	8	1.66	10	8.34	1	7.34	3143	1.8
5	10	2.07	10	7.93	1	6.93	2966	1.9
6	12	2.49	10	7.51	1	6.51	2788	2.0
7	14	2.90	10	7.10	1	6.10	2611	2.2
8	16	3.31	10	6.69	1	5.69	2434	2.3
9	18	3.73	10	6.27	1	5.27	2256	2.5
10	20	4.14	10	5.86	1	4.86	2079	2.7

Fig 2: A simplistic calculation of the impact of march to work time as a road is constructed. Calculations based on a workforce of 420 men working on site plus a further 40 (unproductive) men guarding the workforce. A further 40 (unproductive) men are guarding the temporary camp. © Paul Smith

> *"this has to be true if we are not to believe that parties of - presumably rather nervous - road-builders were sent out in advance of battle groups to prepare the way."*

Let us leave RR191 for one moment and assume a road is being built from point A to point B and there is no existing fort at point B. However, there is a native trackway linking the start and end points. In these circumstances the building of the road could be speeded up by adopting the strategy illustrated in Fig 3 below. The first 5 Kms of the road are built from point A. Then camp 1 (shown in green) is built at suitable site somewhere near the 10 Km [6 mile] point, subject of course to an adequate supply of fresh drinking water. The length of road from Km 5 through to Km 15 is then constructed from camp 1. On completion of Km 15, camp 2 is built at or near Kilometre 20 [12 miles] and the process repeated. Adopting this strategy would ensure

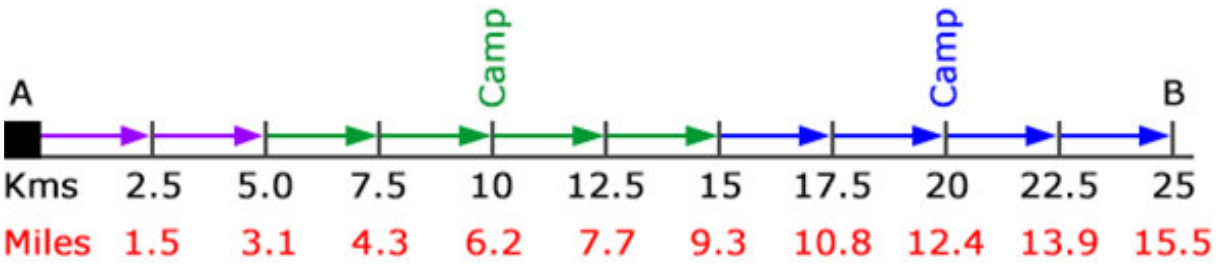

Fig 3: Diagram showing how building kilometers 5 to 15 could be completed from the temporary camp 1 positioned at or around Km 10. Building kilometers 15 on could be completed from temporary camp 2 positions at about KM 20. This strategy would reduce march to work time to a maximum of around 1 hour. © Paul Smith

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that the troops never had to march more than 1 hour at the start and end of the day ensuring that they had at least 7 working hours on site.

Now let us return to RR191 where the theoretical model shown above is immediately found wanting. And wanting first because Pennocrucium (point B) is 22.37 km [13.9 miles] from Greensforge (point A). If you moved my point B 2.5 km closer to point A the spacing of the proposed two camps would become illogical but that problem would easily be resolved by placing the 2 camps at roughly the 5 and 10 mile points (I still think in miles) or by moving camp 1 to the halfway mark and dispensing with a second camp. The second problem is that, as described below, there is no available water source to allow camp 1 to be moved closer to Greensforge.

I calculate that an engineered RR191 could have been built with an original force of 500 men and using two camps in approx. 35 day. Alternatively, if, at the same time a similar size workforce had started road construction from the fort at Pennocrucium road could have been

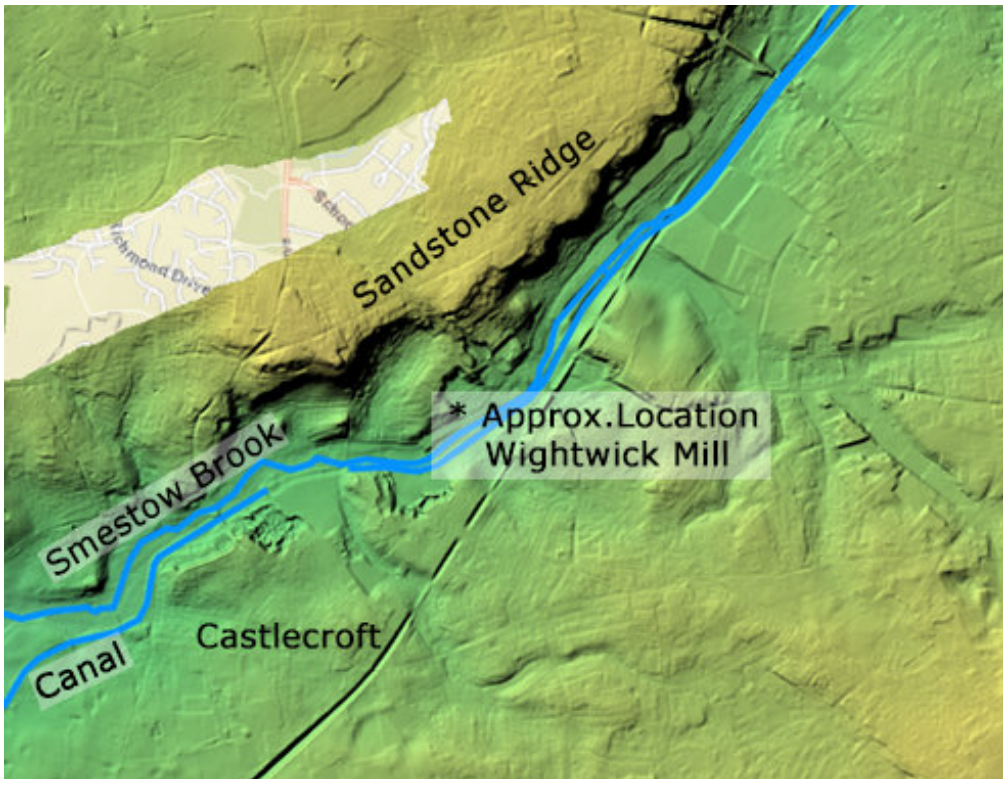

Fig 4. Screen shot showing the sandstone ridge at Tettenhall. To the south - Smestow Brook and Castlecroft, the location of a possible temporary camp. The second water course in the screen shot is a canal. © Paul Smith. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved.

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completed in 17 days. In making the calculations I have assumed only one temporary camp at about the halfway point i.e. at about 11.2 Km [6.95 miles]. A work force starting road construction from Greensforge would have crossed the Wom Brook at about 3.3 km [2.05 miles] north. The next water source they would encounter is the Smestow Brook at just over 10.2 km [6.3 miles] north of base camp (Pennocrucium to the Smestow is about 12.5 km). The Smestow rises in Wolverhampton and runs north-east to south- west. To the south of the river are the districts of Castlecroft, Smestow Valley, Compton and Finchfield. By my reckoning this area would have been the ideal place for a temporary camp if, of course, the Smestow Brook provided sufficient water. There is a pronounced sandstone ridge north-west of the Brook at Tettenhall (see screen shot above) and it is highly unlikely the Romans would have built a temporary camp on the northern bank; imagine carrying drinking water from the river up to the camp.

There is no indication of a temporary camp on lidar or on aerial photographs of this area. It could well be that the place name Castlecroft is not evidence for a Roman camp. However, this is a useful reminder of the importance of considering place names when searching for evidence of Roman activity on old maps.

It is interesting to pause at this point and calculate how many men a temporary camp might accommodate. In an ideal world we would be able to take a temporary camp, suitably placed on the road network, and calculate the number of occupants with some accuracy. This would help us gain an indication of how many legionaries would have been used to build the road. However, this approach is beset with problems. A few of these are detailed below:

- There is no agreed figure for the density of soldiers the Romans would have expected to accommodate per hectare. Steve Kaye describes a form of consensus which has now been reached in selecting: "*three figures of density of soldiers per hectare that reflect the likely range the Roman army may have used. These are 480, 690 and 1,186 and are based on various studies of known temporary or siege camps, the historical sources, coupled with knowledge of 18th and 19th century use of army camps."* Kaye then dismisses the 1,186 density as simply *"too compact, leading to numbers of occupants that seem unlikely."* As an example, the temporary Roman Camp at St Leonard's Hill in Scotland occupies an area of 66.71 hectares. A density of 1,186 soldiers per hectare would give an occupancy of 79,106 soldiers. Almost twice the number of soldiers that Graham Webster estimates invaded Britain in 54 BC.

- Auxiliary forts are scattered across Britain; we can only assume that there are also an unidentified number of temporary camps for auxiliary soldiers. Auxiliaries, depending on the

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unit may have required more space because, for each soldier, an area of land is also needed for a horse. However, we are unable to identify which of the known temporary camps were used by legionaries and which used by auxiliaries.

- There is no standard internal layout for temporary camps, no standard width for the roads in the camp or for the intervallum (clear ground) between the soldier's tents and the camp rampart.

- To confuse matters further some camps are so large (see above) that they were clearly only intended for a huge force of men. Other temporary camps are so small they have been postulated as being practice camps. i.e. camps built for training purposes (or punishment) and never occupied.

Let us consider how a change in the number of men in the workforce affects the time to complete a section of road.

Workforce	700	600	500	400	300	200	100
Guards	40	40	40	40	40	40	40
First 5 Km	660	560	460	360	260	160	60
At camp	32	32	32	32	32	32	32
Working from 5Km on	628	528	428	328	228	128	28
Time to complete a 15 Km road using 1 camp (in days)	16	19	24	31	44	76	307
Time to build RR191 (44.25 Km long)	49	58	71	92	132	233	1013

Fig 5. Time in days to build a 15 km road using between 700 and 100 men to construct, guard the workforce and guard temporary camps. The bottom row shows the time to build RR19 - the road from Pennocrucium to Whitchurch © Paul Smith

There are a couple of issues that the senior staff in the Roman army would need to consider when allocating men to complete a section of road including:

- The strategic importance of completing the road

- The availability of men (particularly during the campaigning season)

You can decide for yourself what size workforce you would allocate to build the road you are researching. I appointed myself as commanding officer at Greensforge. Knowing I would want

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to have the flexibility to move the men in my command up to Pennocrucium as quickly as possible I would have thrown a lot of men at the job. But I might be misguided.

MC Bishop (2014) considers the time of year that roads were built:

> *". . . . . it might seem logical that, once the campaigning season was over in the autumn, the army would withdraw to winter quarters and send out detachments to undertake road building on the grand scale. The Romans knew that idleness is the greatest enemy of the professional soldier, and road construction was one way of avoiding this problem. However, the Highland military roads of the eighteenth century were normally built during the summer season, usually between April and October. There is certainly good reason to suspect that, although Petilius Cerialis invaded Brigantia in AD 71, the final form of Dere Street was not constructed until at least AD 85, when Roman forces were starting to retreat from Scotland. This would allow fourteen years to construct 140 km of road between York and Corbridge."*

Temporary camps have been recorded the length and breadth of the Roman Empire, but the area with the largest number of recognised camps is that of the island of Britain, with nearly 500 now known (Jones, 2012). A large number are known across the north of England but very few are known in the south east. An explanation could be that there may have been more ploughing in the south and ploughing that was sustained over a longer period. Then there are large areas in the south that have been built over or, perhaps, the lack of camps in the south-east is an indication that (once things calmed down after Boudicca was defeated) the Romans felt safe in the south whereas they never felt safe in the north.

It is worth considering that every known camp in Britain would be the site of a temporary camp; after all on the first day the legions arrived in an area they would have built a temporary camp; this original camp probably still exists under the deepest archaeological layers of even the largest forts or towns.

If temporary camps were used to protect the army during road building, as described here, and the arguments for their use put forward in this article are valid, there should be far more camps in the south and the east. To return for a moment to the beginning of this article it is worth noting that the camp south of Lullingstone in Kent is not listed in any of the literature. How many others are missing?

In this article I have attempted to use reasonably practical data to gain some insight into how the Romans did things. I have no doubt that readers will disagree with some of the numbers I have chosen. It would be very interesting to hear from RRRA members who can offer their own opinions or help apply their own professional or historical knowledge. For example, someone

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with an passion for military history might know what number of guards the Victorian British/ Indian army on the NW frontier recommended in its manuals to secure a camp. Please email me to let me know what you think and maybe together we can develop a better understanding of how things were done.

I would urge members of the RRRA to explore the routes of known roads to see if we can discover associated temporary camps. This might help us understand the "how" part of Roman road building a lot better. We could then explore the location of temporary camps positioned off the known road network to look for associated roads. Perhaps the RRRA would benefit from the development of a comprehensive data base of all the known and suspected marching camps in the UK?

It was, I think, Tony Robinson who said something like: "If you put 4 archaeologists together you get 5 opinions". Disagreement and pressure-testing each other's arguments are precisely what makes academics tick. Let me know what you think by emailing

paul@paulesmith.co.uk

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Other roads in the news, bits and pieces

The Afterlife of Roman roads

By Anthony Durham

Editors Note; Antonine Itineraries continue to generate a lot of alternative thought. The apparent errors in distance summation irritate our basic desire for mathematical accuracy. However, they are a unique historical source from Roman times and we need to keep an open mind on alternative interpretations. Our regular contributor, Anthony Durham, follows his previous submissions on other iters and here presents a radical alternative view to that generally accepted.

Some Roman roads have never been found, even though there is strong evidence that they did exist. Here I describe a case where a road may have been deliberately cut in the Early Medieval Age, so that its natural traffic stopped or found other routes.

From the city of Cambridge, five Roman roads recognised by Margary radiate like spokes of a wheel. There ought to be a sixth, heading north-east, to fit this piece of *iter 5* of the Antonine Itinerary:

Duroliponte – xxv – Camborico – xxxv – Icinos

Camborico ought to be easy to find, because the whole route to *Icinos* ought to be a dead straight line. The stated distance of 25 + 35 = 60 Roman miles, multiplied by 1.48, equals 88.8 km, almost identical with Google Maps' figure (89.6 km) as the crow flies from the Roman fort on Castle Hill in Cambridge (*Duroliponte*) to the Roman town at Caistor St Edmund (*Icinos*), near Norwich.

Before drawing conclusions from Itinerary mileages, one must bear in mind three issues. First, Roman distances were generally measured from the administrative limit of a settlement, not its centre, as explained by Warwick Rodwell (1975) and also spotted in Spain by Gonzalo Arias. Secondly, a conversion factor of 1.48 km per Roman mile (of 5000 feet) relies upon estimations of the Roman foot (296 mm, Duncan-Jones, 1980), which, from measuring inaccuracies, could be uncertain by maybe a percentage point or two. Thirdly, most manuscript-copying errors are, in my experience, readily understandable in human terms. Any remaining discrepancies must be caused by modern investigators mis-identifying places.

In their classic book, Rivet and Smith (1979) recognised that *Camborico* must be somewhere near a crossing of the river Lark, but they suggested putting it at Lackford, with a known Roman settlement. This would put a kink in the road and mess up the mileages too much. Rivet and Smith wrote more than 40 years ago, when people still believed that Celtic meant the same thing to modern linguists (how the medieval Welsh and Irish spoke) as it did to

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ancient Romans (nasty, violent, northern barbarians). That belief led to many unsatisfactory consequences, among which was their proposed translation of *Camborico* as 'curved ford'.

An article like this cannot afford the space to spell out all its logic, and if you want fuller information about any name briefly mentioned here, please look it up in my website www.romaneranames.uk. Please write in if you think any analysis can be improved, because I am obsessive about seeing what the evidence actually shows, rather than what theory suggests. It is an ongoing scandal that so many modern commentators still kow-tow to obsolete dogma.

The best translation of *Cambo-* has been discussed for years, but French investigators are probably right in suggesting 'alluvial plain alongside a river course', related to Latin campus. Amending *-rico* to *-rito* is unnecessary, not least because ancient **riton* probably did not mean 'ford', as commonly suggested, but rather it meant 'stream'.

Conceivably, ancient *-rico* could be related to the modern words rich and regal. That would fit the affluent late-Roman estate nearby shown by the fabulous Mildenhall Treasure hoard, which can be viewed in the British Museum, with a replica in Mildenhall Museum, which is dead on the line of *iter 5*. And the Lakenheath Warrior found under the US air base) helps to show that an apparently Germanic elite was present earlier than the classic story of Hengist and Horsa suggests.

A better idea may be that *-rico* is related to modern rack or reach (Old English *ræc*), whose core meaning was to stretch out. That name element may even survive in the name Rakebottom Farm, east of Mildenhall at about TL770768, which is in the right place to be *Camborico*. Sailors use the word reach to mean a straight course maintained for a while. Maybe, therefore, in Roman times a navigable channel connected *Camborico* to the Fens and the sea. Map 1 shows this area, where red lines are Roman roads recognised by Margary, who comments at one point on the lack of military-style road engineering in East Anglia.

On the map below, blue lines represent rivers, *as they flow now*, and it is a big challenge to guess where what is now well-drained farmland may have been underwater or intermittently soggy in Roman times. The red dashed line represents the missing Roman road from Roman Cambridge near the castle mound) to Caistor St Edmund (the excavated remains of *Venta Icenorum*, near Norwich).

As much as two-thirds of the distance from the river Little Ouse to Rakebottom may have formerly been open water (named as Redmere in Fig. 1 of Seale, 1980) and beyond that there

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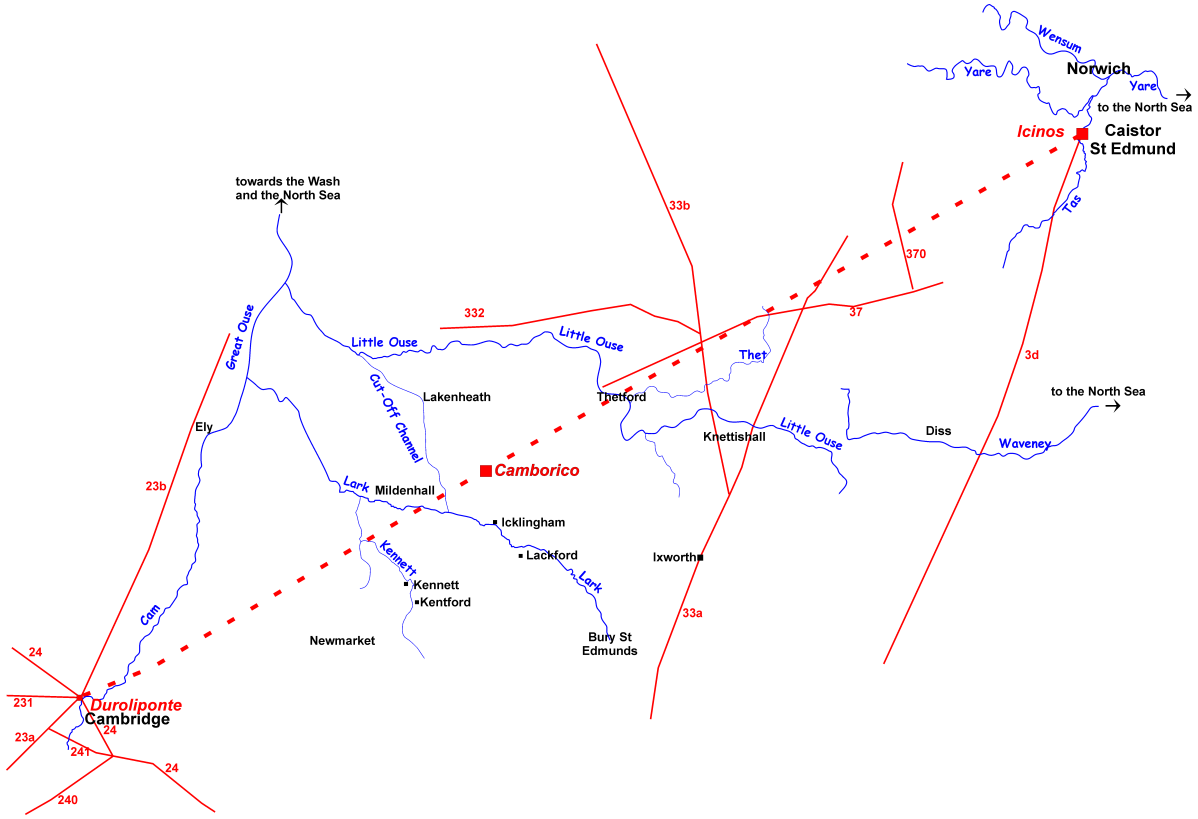

is a finger of low ground. On balance, however, I think it is unlikely that cargo boats could reach all the way to the *iter 5* Roman route, and therefore it is most likely that *-rico* and Rake- refer to the road beyond Mildenhall and through Thetford. That road is so straight and flat that you could almost imagine you are on the American prairies, while traversing what may be geologically an ancient lake bed. As far as I know, no one has ever found or suggested a Roman site at Rakebottom, but a roadside inn might be logical

The whole subject of Roman river transport is under-researched, and it cannot be repeated too often that roads were only part of the Empire's transport network. In this part of East Anglia, humans have messed about so much with drainage over the centuries that it is hard to know how much used to be wet. A straight stretch of the river Lark is recognised as a Roman canal, most of the river Kennett was diverted into the river Snail, and the Cut-Off Channel is modern, dug in the 1950s.

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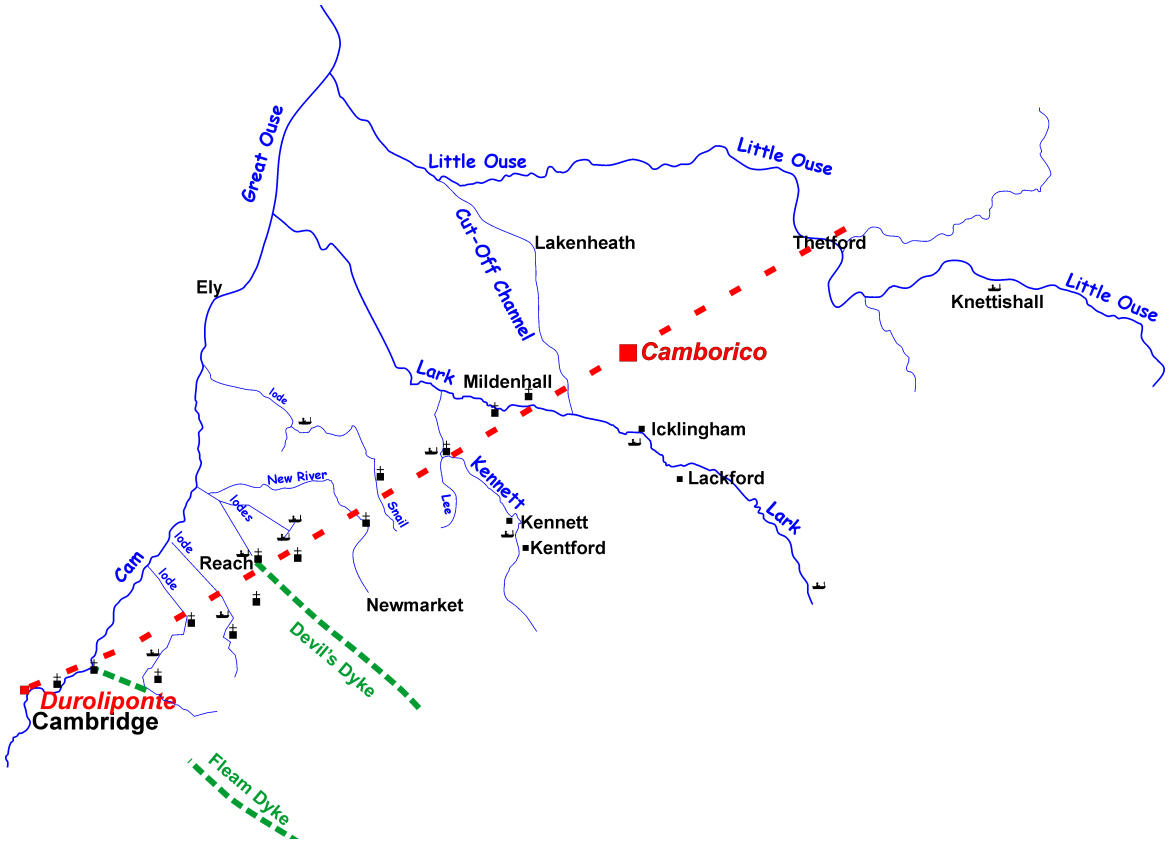
Until quite recently, most of East Anglia's agricultural exports moved on water, and much of the necessary engineering may have started in Roman times. An intriguing marker for early road-meets-river sites lies in dozens of place names whose core is K-vowel-N, as in the Roman name *Cunetio*. The river and place called Kennett near Mildenhall here is an identical twin of Kennet near Mildenhall in Wiltshire. Map 1 has another good example at Knettishall, where two Roman roads crossed a navigable river.

The military importance of this piece of *iter 5* may have lasted only a few years after Boudicca's defeat in AD 61, as the Romans probably made sure that only compliant local leaders remained in the rich farmland of *Iceni* territory. A Lidar map (kindly provided by David Ratledge based on recently released data) shows no obvious sign of an engineered Roman road. That



is not inherently worrying for the stretch from Mildenhall to Norwich, which may partly lie under the modern A11 and partly be in the braid of ancient trails on top of chalk known as the Icknield Way. The main interest lies in the first part, from Cambridge to Mildenhall, so Map 2 goes into more detail about it, based mainly on information from the Internet, but supplemented by my own experience living in Cambridge many years ago.

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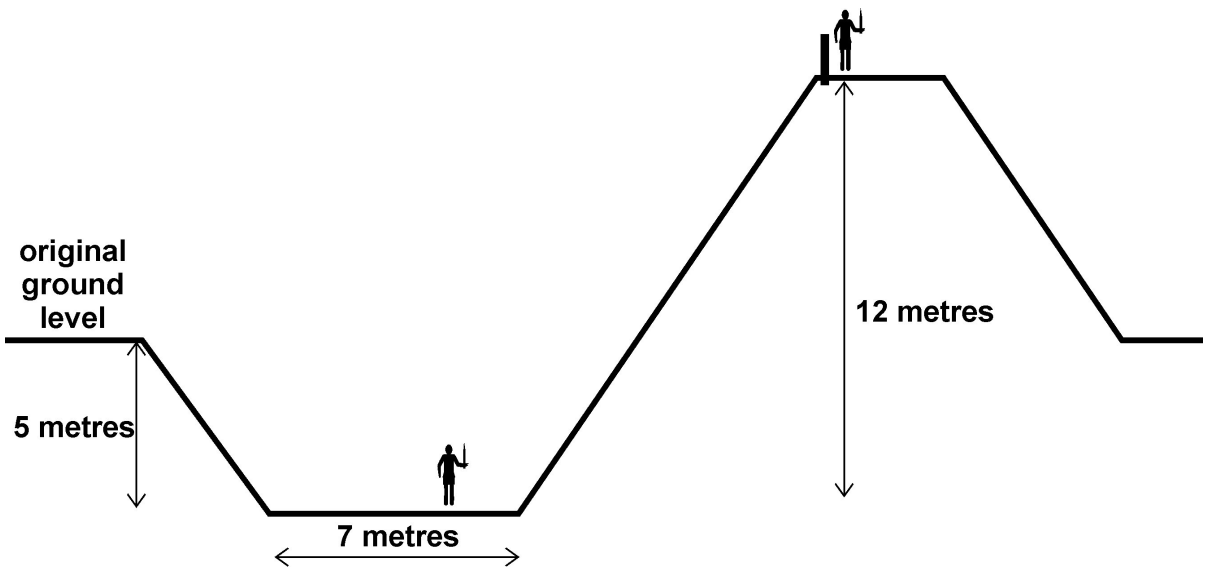
The suggested route runs initially north of the river Cam, through Chesterton, before a slight dogleg to cross the river towards Fen Ditton and Quy, followed by a dead straight line towards *Icinos*. The modern B1102 road is a bendy equivalent of that initial route, which trickles along the edge of formerly wet ground, through a string of villages (the Swaffhams, Bulbeck, Burwell, Fordam, Freckenham, and Worlington) into Mildenhall. It passes a remarkable succession of early churches, plus many river ports, represented by a little man-in-boat symbol. Some of those ports were still actively shifting heavy cargoes in living memory, but majority opinion suggests that the waterways leading to many of them (known as lodes) were artificially dug in Roman times.

An initial military road might have been surveyed as straight as possible on dry ground, but organically became wiggly under the pressures of civilian life after it stimulated the growth of fen-edge settlements along it. Or was the road deliberately cut? Almost all of Britain's major Roman roads were blocked with dykes at some point during the Early Medieval Period as explained by Jim Storr (2018). Dykes served to stop military incursions (by cavalry or formed-up infantry) or bands of thieves retreating with loot.

In Cambridgeshire, four main dykes are known (Malim *et al.*, 1996). Two are shown in Map 2, as dashed green lines, and two more are off the map at bottom left. The shapes of these dykes suggest that they defended the Anglian people of Norfolk and Suffolk (former *Iceni* territory, later Danelaw) against attacks from the heartland of Roman Britain. This runs contrary to the traditional picture of Germanic, pagan invaders as the Bad Guys in Early Middle Age fighting.



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Nearest to Cambridge is the Fleam Dyke, which actually consists of two sections separated by what may have been a swamp. Its north-west end, at Fen Ditton, is anchored against the river Cam and the fen edge. After that comes Devil's Dyke, which ends at Reach. Its builders seem to have been dead serious about blocking any movement, because it is over 11 km long, and startlingly high, as the diagram above shows.

It is beyond doubt that the main dykes were built around the transition from Roman to Anglo-Saxon rule. One can read, in Proceedings of the Cambridge Antiquarian Society, how thinking has evolved over the decades as archaeological evidence has built up. At first the dykes were thought to be pre-Roman, perhaps of a similar age to three hill-forts with serious defensive ditches (Arbury, War Ditches, and Wandlebury) that surround Cambridge. They may indeed mark Iron-Age tribal boundaries, but to understand what survives now one must think about later military events as discussed by Storr.

Originally this article was going to have a long second part dealing with the end of the Itinerary's *iter 1*, which runs through the East Riding of Yorkshire thus:

Eburacum leug VI Victrix – vii – Derventione – xiii – Delgovicia – xxv – Praetorio

I was planning to explain that *Praetorio* (Latin for 'at the general's tent') must be at modern Bridlington and that part of the road leading there was cut by dykes. Having never set foot in east Yorkshire I needed to read Ramm (1978), Hyland (2009), Roberts et al. (2009), and much else on the Internet. This led to an amazing discovery, which will force a big change to history books.

For centuries, the great foundation myth of the English people has been the *Adventus Saxonum* 'arrival of the Saxons'. Various early texts describe two brothers, *Hengist* and *Horsa*, landing with 3 boatloads of warriors in AD 449, and then fighting a series of battles against Romano-Britons led by Vortigern. Manuscript accounts of those Early Medieval events are peppered with twenty or so proper names, which historians struggle to relate to modern geographical names and real people.

The core of the problem is that when the Venerable Bede wrote in AD 731 he knew almost nothing about events in late-Roman and Early Medieval Britain. The true origins of people in eastern England were effectively hidden in a Black Hole with Event Horizon around the plague of Justinian in the ad 540s. Bede did his best to make sense of genealogies and battle lists, using what he could read in Caesar, Gildas, and some Christian writers, but most modern historians are wary of taking his *Adventus Saxonum* story too seriously, though it probably had some basis in real events.

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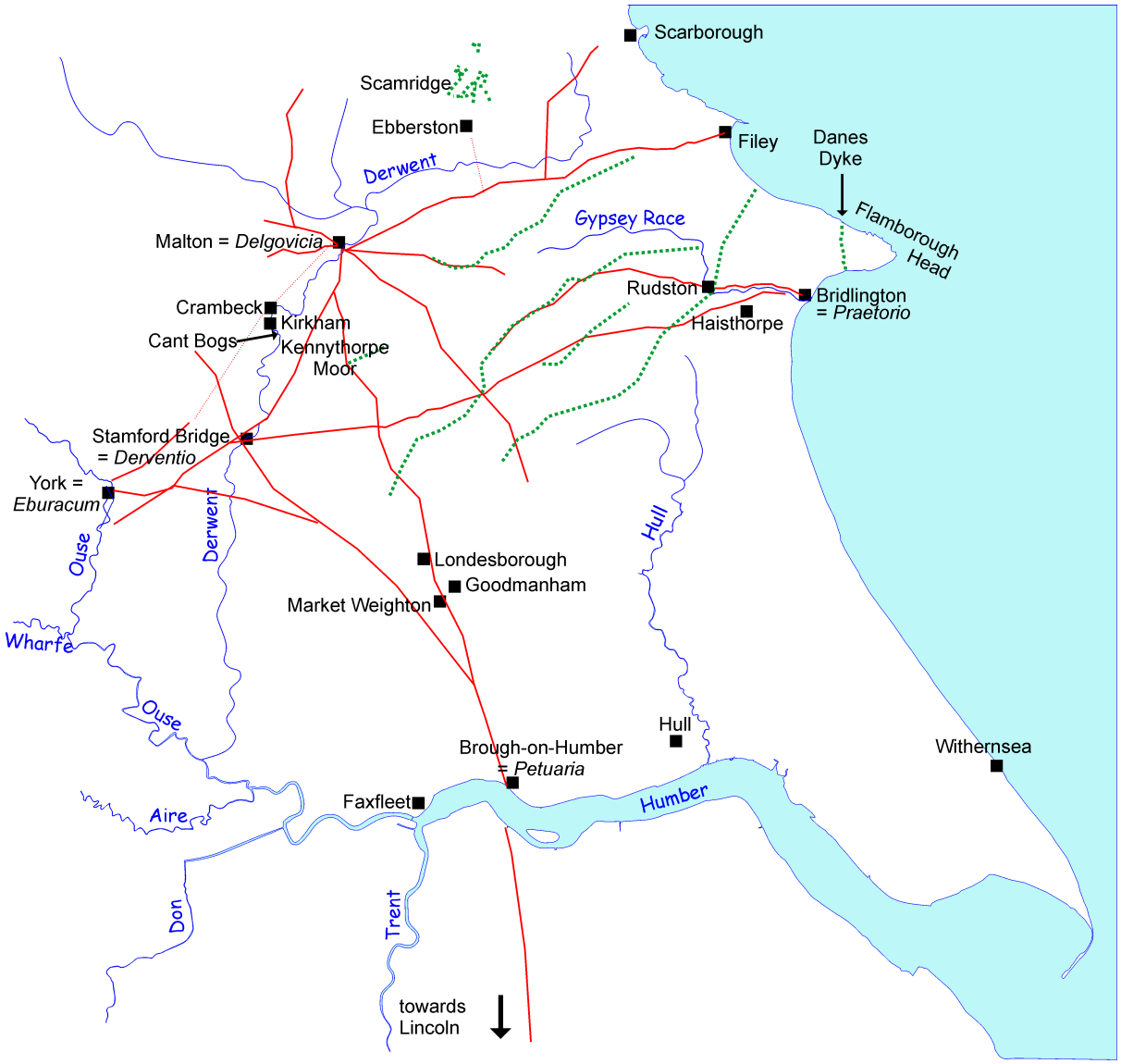

The crucial point missed by everyone is that Kent (or *Cantium*, or Kennett, etc) is a generic name, which means something like 'sticking out' and shows up in 50 or so places around Britain. It could apply to the white headland of Flamborough Head as easily as to the white cliffs of Dover. Bede seems to have jumped to the conclusion that *Cantuarii* dwelled in Kent and supposed that Saxons arrived in ad 449 much like Augustine arrived on Thanet in ad 596.

Once the penny drops that *Hengist* was a Yorkshireman, all those difficult names tumble like a row of dominoes into making sense. Obviously, not all the resulting suggestions are equally

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convincing, and some may prove to be wrong, but no worrying counter-arguments have emerged from digging deep into old manuscripts and detailed geography. I have written up full details in a 5500-word academic article, which will take time to get published, but please ask for a preview copy if you are interested. For now, Map 3 shows east Yorkshire with some of the key sites included and the same colours as above.

As one example of an interesting name, take the battle of *Crecganford*, whose losers fled from *Centlond* to *Lundenbyrig*. The site usually suggested is Crayford, on the border of Kent with London. I live just along Watling Street from there and have long had doubts, but only now has Kirkham, beside the river Derwent, near the Roman pottery factory at Crambeck, emerged to fit *Crecganford*. And Londesborough, next to a great pagan temple, is a perfect fit to *Lundenbyrig*.

Jim Storr suggests that the kingdom of Deira expanded from a nucleus in a huge promontory-fort base between Danes Dyke and Flamborough Head. There may be more than a grain of truth in Gildas' story of Saxon hard men invited in from the Continent and then rebelling, but it also looks as if those horsey-named leaders may have had deep roots in the horse-burial Arras culture of east Yorkshire.

My favourite single name that has now been demystified is *Lapis Tituli* (Horsa's memorial in the east of *Cantia* according to Bede) for which the Rudston Monolith (Britain's tallest standing stone) could be a strong candidate. It is truly remarkable where asking naive questions about Roman roads can sometimes lead.

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Other roads in the news, bits and pieces

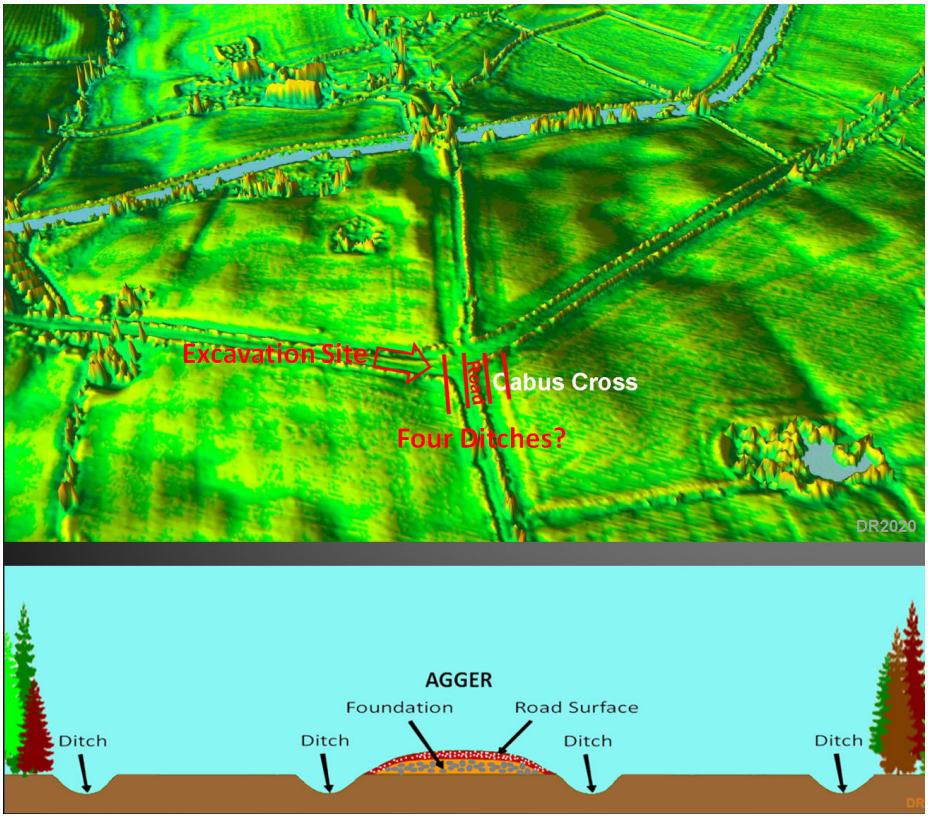
Walton-le-Dale to Lancaster Roman Road - Excavation at Cabus Cross Roads 2020

From Simon Milward-Hopkins & David Ratledge

A small exploratory excavation was carried out this year at Cabus Cross Roads, just north of Garstang, Lancashire, on the Walton-le-Dale to Lancaster Roman Road RR70d. Lidar had indicated there was a good chance the Roman road had survived there.

Initially, 3 small trenches were dug on the grass verge between the modern road and hedge but little was found. With the farmer's permission and encouragement, work moved closer to the current farm track entrance and lane, and road construction material began to appear close to the surface. Work then moved into the field where the remains of the road were discovered alongside the farm access track, on its western side. Approximately a third of the Roman agger was under grass with the remainder still being used in the farm track. The excavation in the pasture revealed the agger was edged with larger kerb stones on its west side.

Lidar shows a huge width to the road and a four ditch road layout would seem to be the best explanation with the stone agger in the middle third (see diagram). There is a known Roman



Oblique lidar view of the potential three lane road at Cabus crossroads with an illustrative impression of how this road may have been constructed. Lidar data © Environment Agency copyright and/or database right 2020. All Rights reserved

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Walton-le-Dale to Lancaster Roman Road

- Excavation at Cabus Cross Roads 2020, continued

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Road in Lancashire with 4 ditches at Red Scar in Preston. There are also some Lidar clues that the four ditch layout continues along Kiln Trees Lane to the north of the excavation site.

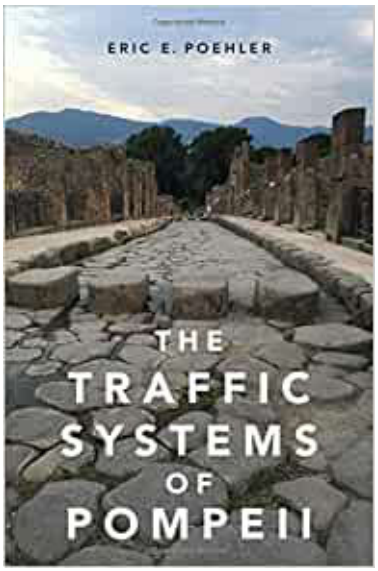
Sadly the farm track has now been surfaced with tarmac though fortunately not before some informal recording photos were taken of the possible Roman remains. With the farmer's permission it is hoped further work may be undertaken in the autumn.

Other roads in the news, bits and pieces

Books related to Roman roads

Collated by Dave Armstrong

Two books related to the traffic using Roman roads. These are not new publications but could give an insight to what a road structure was subjected to. Thanks to David Picker Kille for highlighting these. The Amazon summaries are given below.



This is the first sustained examination of the development of road infrastructure in Pompeii — and its implications for urbanism in the Roman empire. Eric E. Poehler, an authority on Pompeii's uniquely preserved urban structure, distils over five hundred instances of street-level "wear and tear" to reveal for the first time the rules of the ancient road. From his analysis of curbstones, cobbled surfaces, and ruts emerge the intricacies of the Pompeian traffic system and the changes to its operation over time. Later chapters probe the impact of design and infrastructure on social roles and hierarchies among property owners in Pompeii. The final chapters set the road system into its broader context as one major infrastructural and administrative artefact of the Roman empire's deeply urban culture. Poehler marshals evidence from across the Roman world. His measured and thoroughly researched answers make this study a critical step forward in our understanding of infrastructure in the ancient world.

The first book to ever examine ancient Roman traffic, this well-illustrated volume looks in detail at the construction of Roman road, and studies the myriad of road users of the Roman Empire: civilians, wagons and animals, the cursus publicus, commercial use and the army. Through this examination, Cornelis van Tilburg reveals much of town planning in ancient cities: the narrow paths of older cities, and the wider, chessboard-patterned streets designed to sustain heavy traffic. He discusses toll points and city gates as measures taken to hamper traffic, and concludes with a discussion as to why the local governments' attempts to regulate the traffic flow missed their targets of improving the infrastructure. This book will interest any student, scholar or enthusiast in Roman history and culture.