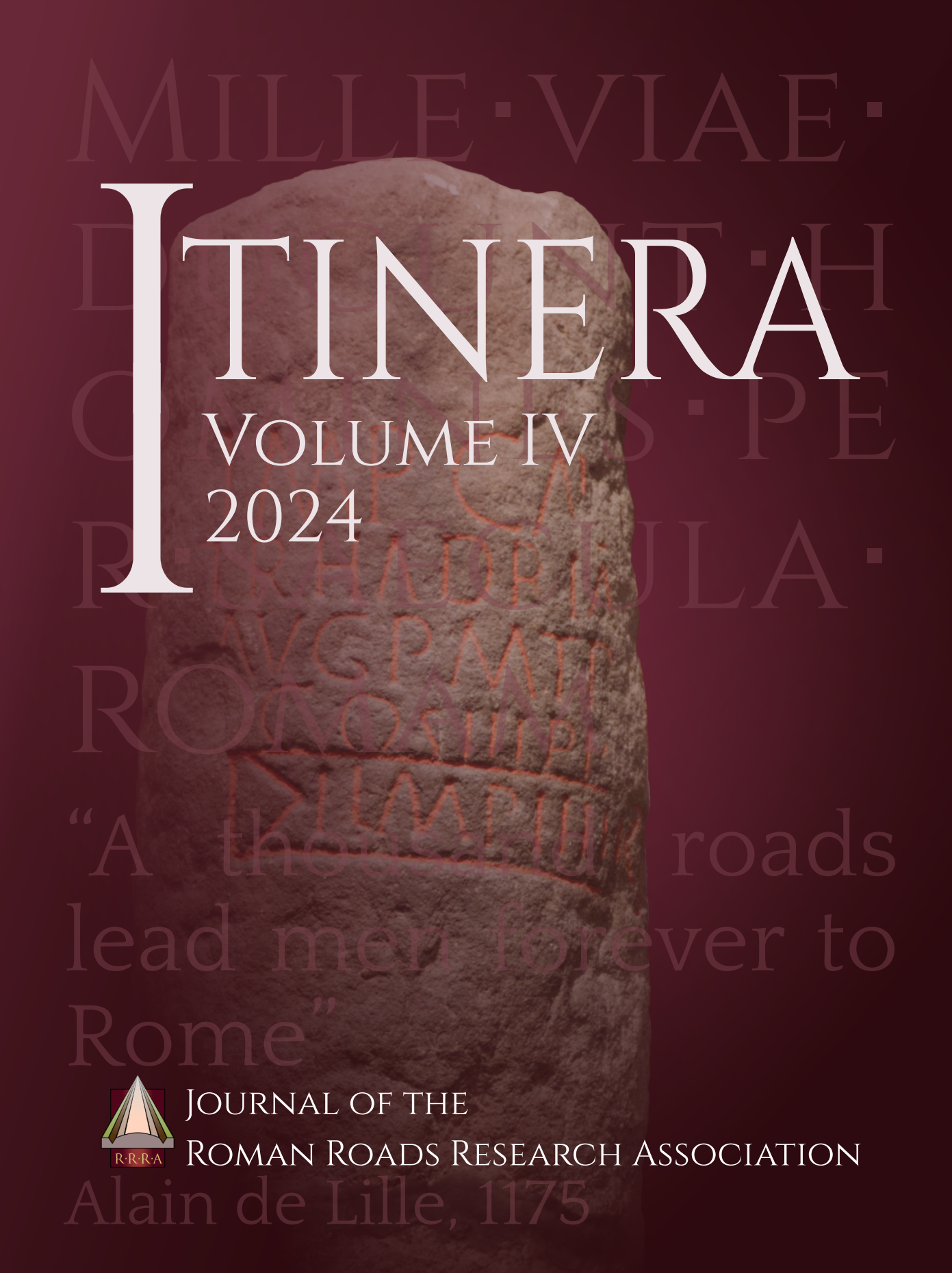


ITINERA

Volume IV
2024

"A thousand roads lead men forever to Rome"

Alain de Lille, 1175

Journal of the
Roman Roads Research Association

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About the Association

by Mike Haken



The late Hugh Toller and I founded the Roman Roads Research Association to provide a focal point for what we thought was a fairly small group of individuals with an interest in the study of Roman roads and connectivity throughout the former Roman province of Britannia. I'm not sure that Hugh, who sadly died in 2016, could have imagined that at the end of April 2024 we would have an international membership totalling 556, a figure that continues to grow. We are a very broad church, ranging from those with just a general interest in the Roman period, through to professional archaeologists from both commercial and academic sectors, not forgetting those those like myself who have had a lifelong passion for the subject (some might say obsession!). The Association welcomes all new members, whatever their background.

The continuing growth in membership may well have been fuelled, at least in part, by some of the things we have achieved. For example, we have just concluded the fourth season of our online lecture series, which we launched in 2021 during the pandemic. As part of our key policy of ensuring that our work is always made as accessible as possible, our talks are open to everyone, are always free of charge, and regularly attract audiences of 200 people or more from across the world. Another excellent programme for our fifth season is being prepared by our Secretary, Dave Armstrong, and details will be released soon. You can catch up with previous seasons on our YouTube channel.

Since 2018, we have conducted over 200 Ha of geophysical survey with our own gradiometer cart, accurately identifying the course of many roads and examining Roman period sites along them. Our most recent survey, assisted by a group of local volunteers from Southwell (SCAG), was near East Stoke (*Ad Pontem*) in Nottinghamshire. This confirmed the location of the junction of RR59(x) from Ancaster with the Fosse Way, making the existence of RR59(x) now beyond dispute. We always welcome suggestions for other potential survey sites, no matter where in the country they might be.

Above all, however, our greatest achievement is *Itinera*, the only journal in the world dedicated to the study of Roman roads and transportation infrastructure. Published entirely in house by our large team of volunteers, we are proud that our standards are as high as most academic publishing houses. Indeed, As Rob Entwistle points out in the following Editorial, it is a measure of our growing credibility that *Britannia*, a journal of the Roman Society, guides authors of reports on Roman roads that would have previously been published in *Britannia* towards *Itinera* instead.

Looking forwards, the wealth of new research and discoveries that have been reported by *Itinera* have, if nothing else, highlighted the urgent need for an accurate map that reflects the true state of knowledge of the Roman road network in Britain, and the sites it served, since the national maps that do exist are either decades out of date or simply inaccurate and misleading. To rectify this situation we will soon be recruiting volunteers to assist with a nationwide project which aims to accurately redraw the map. In line with our Open Access policy, the results will all be made freely available.

Finally, I am sure that our enthusiastic membership will enable us to continue to expand and develop our activities, ensuring that the next decade is even more productive than our first decade has been.

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Editorial

Robert Entwistle



The late Hugh Toller, co-founder of the RRRA with Mike Haken, was sadly lost to Roman road research when the Association was only a year old. Earlier I had become aware of his work through his part in identifying the long-sought line of the Lune valley Roman road out of Lancaster, my native town. Identifying it through Lidar and on foot, he followed its route up and over Lancaster Ridge towards Caton and the southern flank of the Lune valley.

It is therefore a pleasure to see David Ratledge's contribution to this volume of *Itinera*, a memorial to Hugh's work in the Exeter region, developed in the light of further studies. It is appropriate that this same volume contains a significant paper by Mike Haken identifying *viae vicinales* in the north-east Midlands which perhaps should no longer be regarded as somehow 'lesser' or 'minor'.

Itinera has a record of examining different aspects of Roman road studies, not necessarily restricted to our corner of the Roman empire. The 2024 volume sees a new contribution from the Spanish archaeologist and presenter, Isaac Moreno Gallo: the first publication in English of his work analysing road construction methods and transport development. His trenchant views provide a counterbalance to other accounts, reminding us that the evidence of the trowel is always subject to interpretation.

A new departure for this volume is the incorporation of a 'Focus' section with multiple papers exploring a single theme. The subject is the Devil's Causeway – a road which branches off Dere Street just north of Hadrian's Wall to head (via Learchild fort) determinedly towards modern-day Berwick and the mouth of the Tweed – where no Roman site is known. This theme originated in a 2023 conference held in Berwick-upon-Tweed and coordinated by Dr Lindsay Allason-Jones and the Border Archaeology Society with support from the RRRA, exploring the riddle of the road. Expert presentations have been developed into these papers. We would be happy to repeat, in future volumes, similar suites of papers focused upon a single theme or aspect: suggestions for themes and contributors would be welcomed by the Editor.

As always, this volume treats different geographical parts of Britannia, ranging from the south-west (Exeter) to the north-east (Berwick). Paul Booth explores aspects of the Roman road network in the Oxford area, Mike Holmes considers issues around the River Glynde in East Sussex, and Nigel Rothwell examines the possibilities for a Thames crossing linking St Albans and Silchester.

In a full volume, however, we regret the lack of papers on Wales and Scotland, even though these countries are represented in our annual round-up across Britain. Potential contributors suggesting interesting papers on these areas of would find us warmly receptive. *Itinera* continues to welcome every submission from contributors established or new, and if necessary, will endeavour to advise authors where further work is needed for key improvements. A short proposal to the Editor of what is intended, before making a full submission, is often helpful.

Editorial

We take pride in a professional standard of production maintained entirely through the work of volunteers: our editorial board (Mike Haken, Dave Armstrong, Mike Bishop and Paul Booth, all of whom contribute endless hours to the production of each volume); our academic advisor (Pete Wilson); our index compiler (Chester Forster); and postmaster (Chris Webb). Without the dedicated work of the whole team Roman studies would be the poorer.

We are greatly heartened by the respected position that *Itinera* has achieved in the short period of its existence. The long-established journal, Britannia, acknowledges this in specifying that submissions on Roman roads for their annual update section should be limited to brief summaries of the main points of interest if accounts are also published in *Itinera*, with our journal cited for those fuller reports.

An important part of our role, alongside publicising research, is (through the RRRA) the regulation and classification of new discoveries, as Margary's original system of nomenclature strains to adapt to an expanding known road network. This volume therefore contains a list of newly attributed numbers and a proposal from Mike Haken on the classification of non-standard Roman roads.

This year we have taken the decision to slightly reduce the font size to bring *Itinera* more into line with other similar journals and to control printing costs. Even so, readers will find that 2024 marks a bumper issue: the largest volume we have yet produced.

We trust that RRRA members and all readers will enjoy and profit from this 2024 volume of *Itinera*.

Robert Entwistle

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Verulamium to Calleva Atrebatum: RR163 and the River Thames Crossing

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Abstract

A substantial section of agger built Roman road was revealed in Hodgemoor Woods, Seer Green parish, Buckinghamshire, on lidar data obtained for the Chilterns Conservation Board in 2018/19. The orientation of this linear earthwork feature is aligned with Verulamium (St. Albans) and Calleva Atrebatum (Silchester), but some distance from the previously accepted Margary route RR163 between these two Roman centres. Subsequent investigations showed this to be the best-preserved section of Roman road within the Chilterns, and together with other remote sensing data have enabled the course for the road to be re-evaluated.

A revised route has now been convincingly traced from Verulamium through Hertfordshire and Buckinghamshire to the River Thames, replacing that previously described by Margary. However, the route still presents something of a conundrum, as there is no documentary evidence for its existence and little modern excavation evidence, and yet the road must make a significant crossing over the Thames. Remote sensing data have helped clarify the route(s) north of the Thames, and evidence is presented favouring a principal heavy traffic crossing point at Bourne End, Buckinghamshire, to Cock Marsh, Berkshire; with a new branch road RR163C(x) also identified leading to a plausible crossing point between Mill End, Buckinghamshire, and Remenham, Berkshire. Evidence of the probable continuation of the route(s) south of the Thames is also considered, however this road is just one part of a complex network of major and minor routeways intimately linked with the evolving use and development of the landscape, and full clarity on the continuation of the route(s) from the Thames through Berkshire to Calleva is still absent.

Introduction

A length of *agger*-built Roman road with roadside quarry ditches was identified as a linear earthwork feature in Hodgemoor Woods (SU 96839 93642), Seer Green, Buckinghamshire, visible in lidar data acquired by the Chilterns Conservation Board (CCB) 'Beacons of the Past' project (BotP) in 2018/19 (Figure 1). This is the best-preserved section of Roman road within the Chilterns Area of Outstanding Natural Beauty (AONB). Its orientation is aligned with a section through Pollards Wood (SU 99226 95508), Chalfont St. Giles, recognised on Environment Agency lidar data (Gover, 2017), thus forming an extended length of road on a direct alignment with *Verulamium* (St. Albans) to the northeast. The dimensions and *agger* built construction of this section are suggestive of a major road,

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typical of those Roman roads which provided rapid and efficient connections between major centres, setting an expectation for this road being of some significance. The route has therefore been investigated beyond the limits of the CCB data, in the directions of *Verulamium* and *Calleva Atrebatum* (Silchester). This paper examines the evidence and proposes a new route, with a new branch route, from *Verulamium* to the River Thames, with consideration of the continuation of these routes beyond the Thames. A location map and the dataset are illustrated in the following sections, covering previous studies (Figure 2), and the lidar data and interpretation (Figure 3).

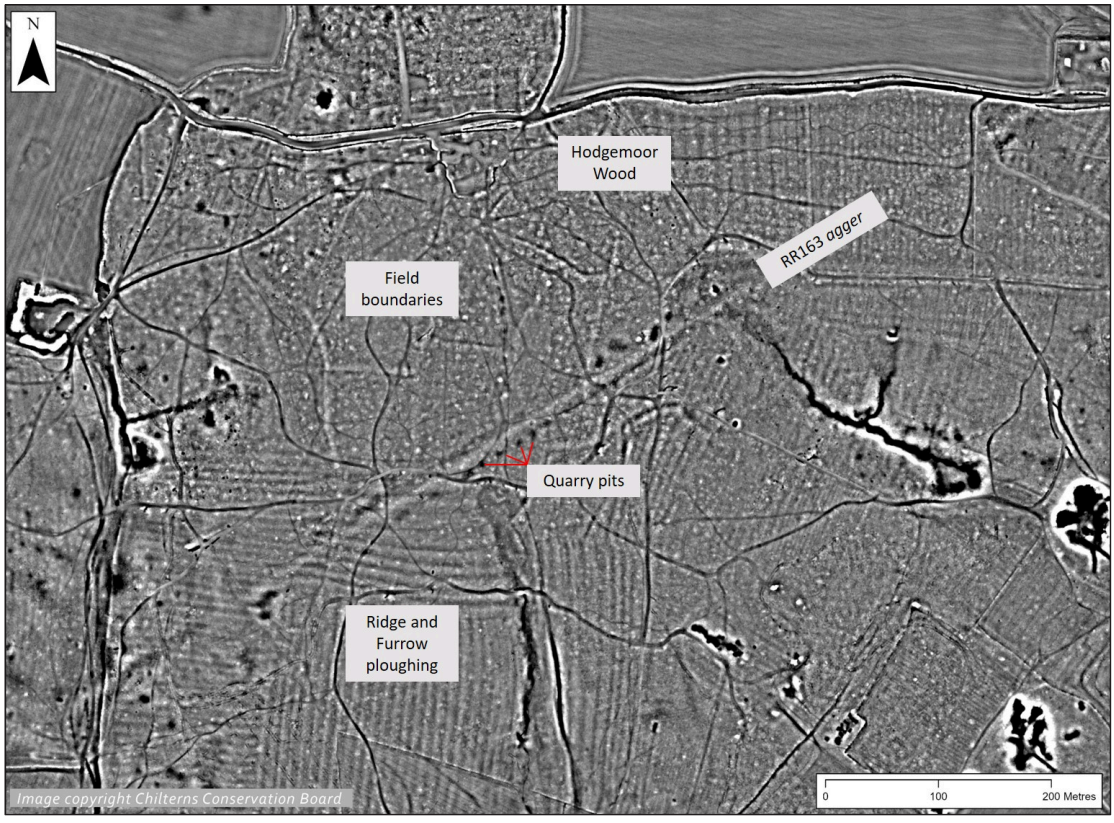


Figure 1. The RR163 linear earthwork through Hodgemoor Woods (see Figure 2 for location), CCB LiDAR data 'Local Relief Model' (LRM). (© Chilterns Conservation Board).

The course of a route between two such significant and neighbouring *civitas* capitals, in a part of the province of *Britannia* settled during the Early Roman period, has been speculated on by previous researchers, though there is an absence of any firm historical evidence for such a route. The northeast to southwest trend of an alignment between these two Roman *civitates* cuts orthogonally across the predominant drainage pattern of the Chiltern hills (see Figure 2), though mostly the river valleys are broad and shallow with gentle gradients. However, for heavy traffic several significant obstacles are presented, not least of which is the River Thames, but also numerous other river valleys, and several relatively steep chalk escarpments.

The departure and arrival destinations at *Verulamium* and *Calleva* have been the subject of much study and are well documented (see *e.g.* Niblett 2001; Fulford 2021), so the purpose of this paper is to

consider the connecting route, principally north of the Thames, and the location of the Thames crossing point(s). The Viatores (1964, 136-150, 375-377) *Roman Roads in the South-East Midlands* provides the baseline historical description of the route, with an assumed Thames crossing point at Hedsor Wharf. Margary (1973, 180-181) adopted this route description in his 3rd edition *Roman Roads in Britain,* though he had little confidence in tracing the continuance of the route south of the Thames. The newly identified section in Hodgemoor Woods lies 1.5 km northwest of their route, and its alignment suggests a River Thames crossing(s) is likely to be further upstream from theirs.

An extensive network of Roman routes through the Chilterns, and within the vicinity of the Middle Thames valley, is likely. There are few large Roman settlements, and very little evidence for military activity, but there are numerous known Roman villa sites, with additional potential sites being recognised in remote sensing data. There is also an emerging understanding of intensive Iron Age / Romano-British agricultural land-use throughout the region, and a network of roads and routeways would have been necessary to connect and service this. Evidence suggests that the entrances into *Calleva Atrebatum* were in use at different dates, which leaves open the possibility that different cross-country routes may also have been in use or preferred at different times. Whether one (or more) of these routes provided the principal route between these two major Roman centres has been an open question, the crux to determining the route(s) being the Thames crossing point(s). However, this cannot be considered without regard also to the route options south of the Thames, through Berkshire. This paper seeks to offer a view on the best solution fitting the evidence, whilst recognising the many remaining uncertainties. So extensive are the remnant mounded field boundaries and modified topography that many aligned earthwork and 'fossilised' landscape features of uncertain date can be identified in the lidar data, and these can be used to support alternative hypothesises, some of which are also examined here.

Research into the route north of the Thames, primarily through Buckinghamshire, was driven by the insights provided by the availability of the high-resolution CCB lidar data. This has been supplemented with aerial photographic (AP) evidence, Environment Agency (EA) lidar data, published documents and grey literature, and some ground investigations. Since the 1960s, very little excavation activity has taken place which could inform the route. Notably there is a dearth of development-led excavation work in the vicinity of the proposed route along most of its course. Using the available data, the route can be traced, with reasonable confidence but some interpretation gaps, southwest from the 'Silchester Gate' of *Verulamium* to the outskirts of Kings Langley, Hertfordshire. The new route proposed here then departs increasingly from the Margary / Viatores route, in the direction towards Beaconsfield, Buckinghamshire, and the valley of the River Wye.

A principal heavy traffic route continuing along the Wye valley, probably crossing the wide River Thames floodplain at Bourne End close to the confluence with the River Wye, is favoured in this account. However, there is no definitive evidence of this and having investigated all the likely crossing points between Hedsor Wharf upstream to Reading, it is probable that more than one crossing point existed. Indeed, it is quite possible that multiple Thames crossing points were in use from prehistoric times, when the Thames may have been more easily fordable, continuing through to the Middle Ages, but the focus here is on the principal crossings most likely to have been engineered to carry heavier traffic and for efficient Roman administration. Data are therefore also presented in support of a probable second major crossing point connected by a branch route off the proposed main route.

As indicated elsewhere in this volume, the label RR163C(x) has been reserved for this branch route following the protocol laid out in Armstrong (2021, 282). However, in documenting this it has become clear that the Margary naming convention is restrictive in the absence of a full description of the Roman route network. This newly assigned label provides a useful reference by which to locate the road, as it establishes a relationship with the primary road, but we cannot definitively know whether this is a segment of a separate road having a different origin and destination, though we can determine that it is part of a complex route network.

The lidar data support the Chilterns being cut by just a few strategically important Roman roads of national significance (Akeman Street, Watling Street, RR22, RR163), with other Roman roads being of minor local use, possibly reusing prehistoric routeways (Rothwell and Peveler, 2023). Booth (2011, 10) also observed a similar development of routeways from the late 1st and early 2nd centuries AD in the Upper Thames region, potentially in response to changes in land holding. By analogy it is probable that many minor routes also form an extensive network through Berkshire, south of the Thames, connecting to *Calleva,* and also through other settled parts of *Britannia*.

Travelling southwest from *Verulamium*, the onward routes for RR163, from a Thames crossing at Bourne End, probably continued via Knowl Hill; or for RR163C(x) from a crossing at Mill End, Hambleden, continued southwards, potentially joining up with RR163 to cross the River Loddon. There are two principal options from there: west towards Reading, then south to enter *Calleva* by the North Gate; or south via Fair Cross to join the 'Devil's Highway' (RR4a), then west to enter *Calleva* by the East Gate. The East and North Gates represent significant entrances, though Fulford *et al.* (1997, 167) record evidence for the temporary blocking of the road from the North Gate in the late 2nd century AD, which may indicate that they were in use at different times and that the East Gate was the more important entry point.

The proposed new route(s) for this road helps explain several significant features in the landscape. These include the engineered terrace-ways at Cock Marsh (see Figure 10) and Juniper Lane (Figure 11), the prominent raised earthwork feature and footpath crossing the floodplain at Hollands Farm, Bourne End (Figures 9 and 10), and potentially the siting of extensive Roman settlement complexes at Hambleden (Figures 12 and 13), Sarratt Bottom (Figure 5), and also Knowl Hill / Weycock Hill in Berkshire, though these all form part of a more complex interplay of Romano-British land-use and communication. It also highlights the absence of discovered evidence for Roman occupation in the vicinity of the confluence of the Rivers Wye and Thames. That a complicated picture emerges, with numerous possible interpretations, is not surprising given extensive human intervention in the management of the watercourses, intensive agricultural use and modification of the land, and the gradual 'fossilisation' of ancient trackways and field systems into the modern landscape.

The Romans in the Chilterns

The Chilterns AONB region lies broadly within the Late Iron-Age Catuvellauni tribal area. In the years following Caesar's campaigns in 55 and 54 BC this area grew progressively wealthy (Branigan 1985, 5), and by 20 BC it appears to have become a single federation having a consistent cultural and economic identity, centred around the Iron-Age *oppidum* of *Verlamion* (St. Albans). Caesar's actions had probably resulted in pledges of loyalty from beyond the immediate areas in which he had campaigned, establishing enduring and friendly relationships with influential local leaders, and drawing some into

Rome's sphere of patronage (Hingley 2022, 41, 47). There was also a substantial trading relationship between southeast *Britannia* and the Continent, which included the export of grain, livestock, gold, silver, iron, hides, slaves, and hunting dogs, and the import of a wide range of luxury goods, pottery and foodstuffs (Hingley 2022, 59-60). It is therefore likely that by the Claudian invasion of AD 43 the region already had an association with Roman culture. The *oppidum* became the Roman *municipium* of *Verulamium*, and several villa sites were established in the valleys to the west of the town from the mid-2nd century onwards, some occupying pre-conquest farmsteads. The readiness of such sites to develop quickly into high-status villas suggests the rapid assimilation of Roman ways and material culture by the native elite (Zeepvat and Radford 2007, 3, 12).

The tribal capital shifted to the *oppidum* of *Camulodunon*, which became the Roman *castrum* of *Camulodunum* (Colchester), though *Verulamium* remained an important political and economic centre. There were other Roman settlements close by, including at Wheathampstead and Braughing, but apart from Dorchester-on-Thames, none were of significant size. The recognition of abundant small Romano-British coaxial / accreted field systems in the BotP lidar data suggests an intensity of farming across the region, and settlement can be considered largely rural.

In AD 43 Roman occupation forces probably advanced from the south coast along the course of what became Watling Street (Webster 1980), as well as from other south coast landing sites. The main invasion force advanced towards the Thames, enroute to *Camulodunum*, where they waited for the arrival of Claudius. Claudius took over command, crossed the river and led his legions through pacified territory to the *oppidum*, where he received the submission of several British kings (Hingley 2022, 71-74). The ensuing treaties established friendly relations with several of the kingdoms in the south of *Britannia*, leaving the local rulers to continue to lead their people, but with the condition that when its ruler died the territory would be absorbed into the Roman province. This practice facilitated a largely peaceful transition to Roman rule and thus there is little evidence within the Chilterns of Roman military activity.

The main military base for the wider region was established at Alchester (near Bicester) by AD 44 (Sauer 2006, 14), strategically located at the approximate boundary between the Catuvellauni to the east and the Dobunni to the west, and at the intersection of what would become Akeman Street (*Verulamium* to *Corinium Dobunnorum*) and RR160 (*Calleva* to *Lactodorum*). This was the base of *legio* II *Augusta*. A fort may have been established at *Verulamium*, though Niblett and Thompson (2005, 147-149) cast doubt on this. There was probably a fort at Dorchester-on-Thames, and possibly one also at *Pontes,* although dating of these have led to suggestions that they may relate to the aftermath of the Boudican revolt (Booth *et al.* 2007, 36) of AD 60/61. By AD 47 the army had gained control of the region southeast of the Severn - Trent line (Branigan 1985, 37) approximately the line of the Fosse Way, and the army withdrew from Alchester between AD 50s and mid-AD 60s (Sauer *op cit*). The possible *Verulamium* fort was abandoned by AD 49, and in the years to AD 60 the town was transformed through broad social and administrative changes. Over the following century the town became one of the most important in the province.

The tribal territory of the Atrebates lay to the south, across the Thames. The tribal centre for the northern part of their territory was at the *oppidum* of *Calleva*, with a probable southern centre also at *Noviomagus,* in the vicinity of Chichester. Following the Roman occupation, *Calleva Atrebatum* developed into a major centre for trade and administration, also becoming one of the largest towns in *Britannia*, a communications hub with connections to the principal Roman centres across the southern part of the province.

Verlamion and *Calleva* were both probably established by about BC 20. Coin finds at *Calleva* demonstrate that in the Late Iron Age there were strong connections between the two kingdoms (Fulford 2021, 99). Fulford also advances the theory that the timing of their establishment, together with other similar *oppida* in the south of Britain, coincides with the intensive campaigning of the Roman army in *Germania* which would have required substantial procurement and logistical supply chains (Fulford 2021, 111). Both *oppida* were controlled by tribal kings with close Roman connections, and developed 'more or less directly' into Roman cities (Lambrick 2009, 373-375). The lack of evidence for military occupation suggests peaceful assimilation with little local resistance, the tribes being relatively easily incorporated into the Roman systems (Niblett 2001, 54-55). Consequently, there was probably little need to develop infrastructure to support significant military presence. However, Tacitus (*Annales* XIV 33) recorded that 'ruin fell on' Roman *Verulamium* during the Boudican revolt in AD 60/61, following which it was 15 years before reconstruction began in earnest. An inscription recording the building of the forum-basilica dates to when Agricola was governor (AD 78-85), and may record the earliest stone building, or to later rebuilding (Niblett 2001,73-77). Following the Boudican revolt, an efficient connection between these two major Roman centres may have become strategically more important, and there is evidence (Stead and Rigby 1989, 10) to date the southwest exit from *Verulamium* to around AD 60.

Previous studies

The Viatores group, chaired by Margary, investigated the major roads and 'lesser routes' in the South-East Midlands. The Viatores (1964, 136) describe the route between these two Roman centres as a major gap in 'modern' knowledge (Figure 2). The route is not documented in the Antonine Itinerary (Rivet and Smith 1979, 150-180), which describes some of the main Roman roads and stopping places, although the road must have been of some strategic importance. Margary's 3rd edition (1973) directly incorporated the Viatores' work.

Several antiquarian researchers refer to, and have described, elements of possible routes for the road. Within Roman *Verulamium* Watling Street forms the *cardo maximus*, running northwest to southeast alongside the basilica. Grover (1870, 48) described an intersecting road, from Watling Street towards the Southwest gate, as the 'famous... Camlet Way,' thus forming the *decumanus maximus*, alongside the basilica and the forum. Codrington (1903, 69) notes that 'nothing is known in either direction' of its route. Bannard (1926, 76-78; 1931, 65-67) described the Camlet Way as a route from *Camulodunum* to *Verulamium* to *Calleva*. At the *Calleva* terminus, Urban (1836, 535-537) outlined a route eastward towards *Londinium*, part of which was favoured by Margary as the southern end of RR163.

Branigan (1985, 64) noted a road leaving *Verulamium* and heading through the Chilterns. This would have exited the 'Silchester Gate' (Wheeler and Wheeler 1933, 176) which is described as substantial, about 22m wide and perhaps 11m high, comprising a single portal flanked by pedestrian entrances and protected by square towers, less lavish than those guarding the Watling Street entrances, but built in the same manner as the town walls (Branigan 1985, 70). Niblett and Thompson (2005, 78) consider the dating evidence for the town walls to be rather meagre, but suggest a possible date in the earlier part of the 3rd century AD.

From *Verulamium,* heading southwest, Margary (1973, 181) and the Viatores (1964, 147) targeted a River Thames crossing point at Hedsor Wharf, which lies on the line of the direct alignment, beyond

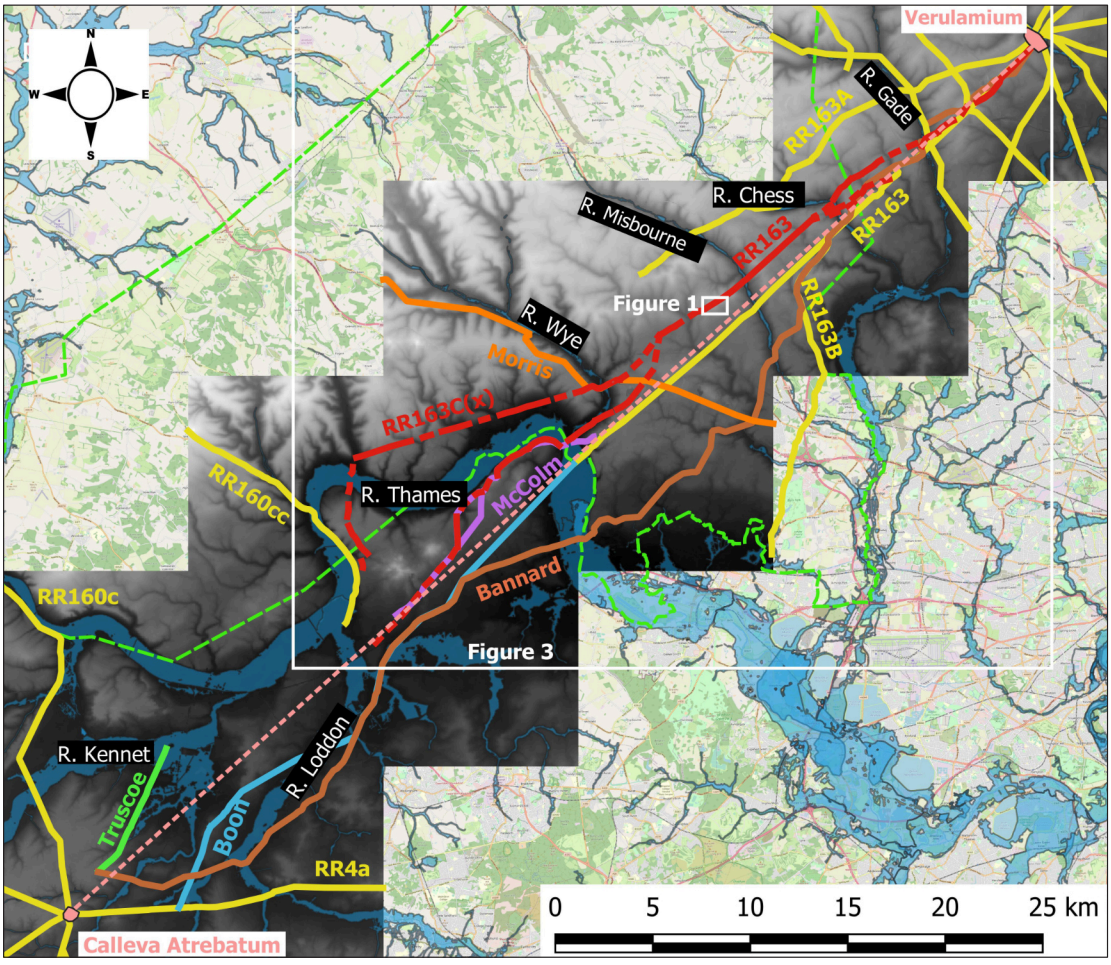


Figure 2. Location map and previous studies - Ordnance Survey Topography on a base map, with (pale blue) Environment Agency Flood Alert areas (as a proxy for the extent of the floodplains) overlain. Showing the Figures 1 (Hodgemoor Woods) and 3 (study area) locations, the Verulamium to Calleva direct alignment (pink dash), limit of the CCB BotP LiDAR data (green dash), and the historically documented routes (see text): brown - Bannard (1926, 1931); blue - Boon (1957); yellow - Viatores (1964) and Margary (1973); orange – Morris et al. (1970); purple - McColm (1980); green - Truscoe (2017); red - this study (2024). (© OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0; © Contains OS data, reproduced under Open Government Licence v3.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

which they could trace the route no further. The identification in Pollards Wood (Buckinghamshire Historic Environment record, BHER-07921) by Staveley (Gover 2017, 12-13) was the first indication of a different route north of the Thames. The identification of a possible Roman road (RRX021) crossing the Wye valley, by Morris *et al.* (1970, 367), also has relevance in considering alternative options to the southwest.

Viatores and Margary also documented two branch routes: RR163A (Viatores 1964, 210-215), via Nash Mills on the River Gade, then Flaunden, Latimer on the River Chess, and possibly on to Amersham and thence High Wycombe; and RR163B (Viatores 1964, 150-154), from Chorleywood, following the high

ground west of the River Colne to Langley Park. Neither of these branches are discussed any further here, though Rothwell and Peveler (2023, 156-157) argue for RR163B potentially being a pre-Roman route following what is now the Buckinghamshire / Hertfordshire county boundary, in which case it likely continues north of the Viatores junction with their RR163, continuing to follow the county boundary and descending into the Chess valley. Although these are not discussed any further here, the evidence for an additional branch route, RR163C(x), is presented.

Viatores (1964, 147) discuss the limitations surrounding a possible Hedsor Wharf crossing, particularly the marshy ground around Sashes Island. This has been recorded as the possible location of a Roman pile-building (BHER-01465) or possible fort (Berkshire Archaeology Historic Environment record, BAHER-00255), though there is no evidence to support this. Other possible Roman finds (*e.g.* Goolden 1893, 28-29) include 'an interesting but dubious' Roman cemetery (BHER-01472), but pottery and timber are now considered more likely Saxon / Medieval (BHER-01465). McColm (1980) was sceptical of the Viatores 'totally blinded approach to the river,' with their descent being via a narrow combe to Hedsor Wharf, preferring instead the descent from Harvest Hill to Hedsor, crossing the Middle Thames 'narrows' between Bourne End and Cock Marsh, then onwards ascending Winter Hill, and via Speen Hill to Knowl Hill and Hare Hatch.

Bannard (1926, 76-78; 1931, 65-67) and Seaby (1932, 34-35) outlined a possible route through Berkshire, from the Thames to *Calleva*. Bannard favoured a crossing downstream at Taplow Mills, then via Maidenhead Thicket, Woolley Green, Weycock Hill, Hurst, Sindlesham, Arborfield, crossing the River Loddon at Swallowfield Park, to Mortimer. Cotton (1956, 54-55) noted that 'there is no certain evidence' for the route through Weycock Hill.

South of the Thames was outside the Viatores area of interest, so they deferred to the onward route of Boon (1957, 208-209). Boon assumed a crossing at Hedsor Wharf / Cookham, based on the timber finds now thought likely to be Saxon / Medieval, then via Earley or Shinfield, to Spencers Wood, Clay Hill, Wood Lane, Beech Hill and Broad Way, joining the 'Devils Highway' (RR4a) at Fair Cross, 5.5km east of *Calleva*.

Margary (1973, 166-167) described RR160cc, an alternative to RR160c from Dorchester which enters *Calleva* by the North Gate. RR160cc crosses the Thames at Henley, then running via Wargrave, crosses the River Loddon near Twyford. Part of this route, between Wargrave and the River Loddon, was recorded by Climenson (1902, 120). Margary thought RR160cc, from Twyford, could be the southwest end of RR163, following a similar line to Boon, joining RR4a at Fair Cross; the section of RR160cc between Stanbury and Fair Cross was evaluated in detail by Whaley and Fairclough (2008, 35-38).

The National Mapping Programme documented archaeological features in the Thames Valley, identifying a section of Roman road between Burghfield and Reading (Fenner and Dyer 1994, 64), visible in 1947, but destroyed by gravel extraction by 1961. They considered it 'highly likely that it represents the course of the road linking *Calleva* with *Verulamium*,' with another section a short distance to its southwest. These are recorded in the documentation of the Silchester Iron-Age Environs project (Truscoe 2017, 111-112) as parallel ditches approximately 16m apart.

Humphreys (2019, 78) noted that many research projects on Roman roads in East Berkshire remain unpublished, with several postulated in the HER database, though observations have only been made in a 1920s excavation at Marsh Mill (BAHER-02883), and at Wargrave Church (BAHER-02883), possibly of RR160cc. Remote sensing data, investigated by the author in the vicinity of the possible routes

through Berkshire from the Thames crossing points to *Calleva,* show a number of interesting linear features. As well as lidar earthworks, these include probable roadside ditches identified from double cropmarks, at Waltham St. Lawrence, Ruscombe, Charvil, Sonning, and other localities. There are likely to be more and these would be worthy of further investigation. Recent excavation at the site of the Anglo-Saxon Cookham Abbey has revealed Roman building debris of unknown source to be incorporated into riverside trackways (Thomas *et al.* 2023, 5-6), interpreted to be part of the Abbey's infrastructure.

Dataset and lidar interpretation

The high-resolution CCB lidar data (16 data points per square metre) covers the Buckinghamshire area of interest, from Sarratt and the Chess valley to the River Thames. The latest (2021) Environment Agency lidar data (1 data point per square metre) now covers the whole of the region between St. Albans and Silchester. Much of the interpretation presented has been undertaken using the higher resolution data, but for reasons of data continuity, consistency and presentation, the EA data form the basis of most of the accompanying images. Figure 3 illustrates the dataset used for this study, with the earthwork linear features interpreted from lidar, AP and map regression marked. Such shallow relief features in the lidar data are generally 'positive' anomalies in the data, redolent of an *agger*, but sometimes they have a negative expression probably because of traffic-worn erosion. Typically, a 'Local Relief Model' (LRM) visualisation of the lidar data has been used, with contrast increased to highlight subtle relief features, though a 'Multidirectional Hillshade' (MDH or MHS) visualisation has been found useful for tracing features over long distance. The Relief Visualisation Toolbox (Kokalj and Somrak 2019, 747) has been used in QGIS to manipulate the data. Cropmarks and parch-marks show up in AP images generally as continuous narrow parallel features, but also rarely as parallel rows of pits.

Traditional data sources have been used where available, including aerial photographs (Historic England, Bing, Google Earth) , historical and antiquarian maps, and antiquarian and excavation 'grey literature' from the Archaeology Data Service (ADS). The British Geological Survey superficial geology map is important for understanding the nature of the Thames valley floodplain. Other data sources include the 'Rural Settlement of Roman Britain' (RSRB) project (Allen *et al.* 2018), Historic Environment Records (HER), and the Portable Antiquities Scheme (PAS) database (data extracted February 2021).

Early researchers focused on cropmarks, alignment of linear map features, and administrative boundaries, supported by field evidence for presumed *aggers,* and Roman finds. Lidar data has the benefit of showing the geographic extent of features, revealing previously interpreted '*aggers*' sometimes simply to be parts of field systems, and questioning administrative boundaries as diagnostic. However, interpretation of the lidar requires consideration of the lateral extent of features, their trends, and relationships with potential corroborative evidence. Some features are very subtle and are only recognised through consideration of their local and broader context, in conjunction with other evidence, or through increasing the contrast in the data visualisation. Sometimes laterally continuous linear features only become apparent through zooming out to view the data at small scale resolution and observing apparent 'discontinuities' across the data, and then ruling out potential data artifacts, modern utilities or infrastructure, and natural features. Thus piecing together the route of the road is an iterative process.

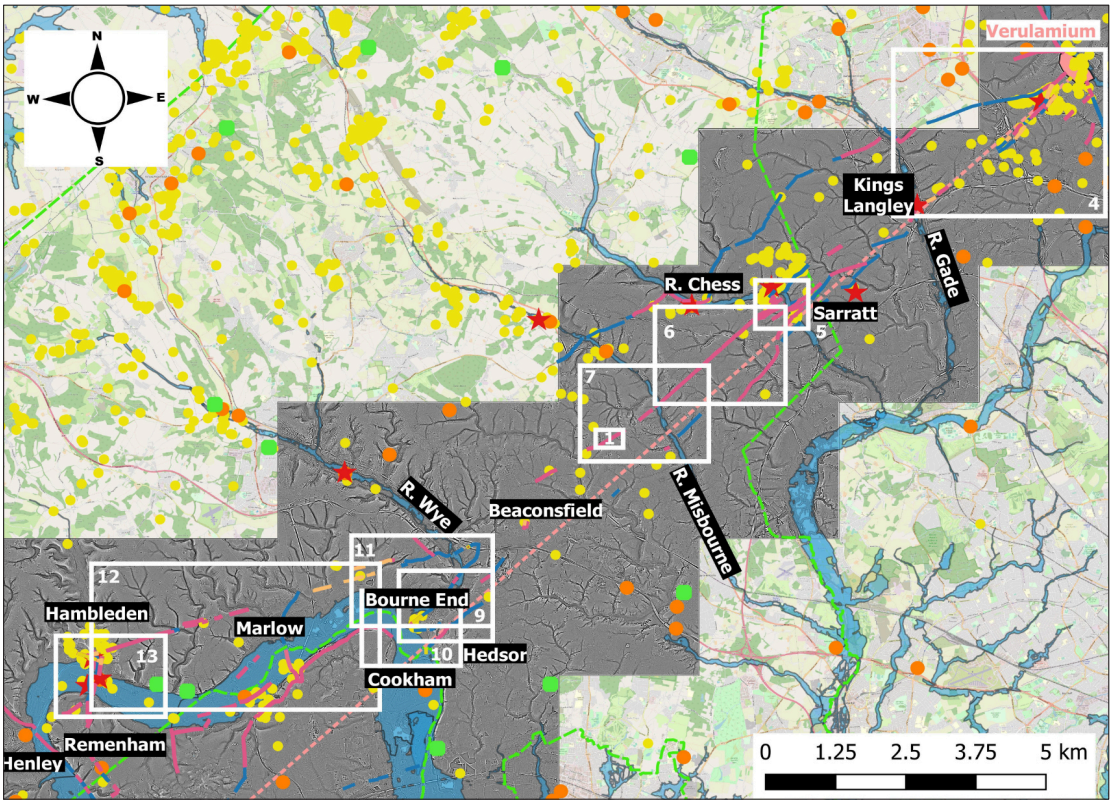


Figure 3. Study area database and index map. Environment Agency LiDAR data in LRM display, with selected interpreted LiDAR linear earthwork features. Limit of high resolution CCB LiDAR shown by green dash. Also showing EA Flood Alert areas and the direct alignment (as Figure 2). Linear features: yellow – geophysical trends, and excavations; orange – crop/parch-marks; pink – LiDAR trends; blue – map regression trends. Point data: red stars – 'villa' sites mentioned in the text; orange – Allen et al. 2018, Rural Settlement of Roman Britain (Farms, Villas, Settlements, Religious, Industrial sites); yellow – PAS Roman finds; green - hillforts. Numbered map locations correspond to the text figures. (© OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

There is an inevitable sample bias within the dataset available, and that presented in Figure 3. Only those lidar and AP features considered relevant for consideration as part of this study have been included, whereas many possible linear trends can be interpreted. The RSRB data is a selective sample of sites not intended to be exhaustive (Allen *et al.* 2018), and the PAS data represent either serendipitous finds or localised systematic metal-detecting searches. However, with these caveats in mind, it is reasonably clear that there is a preponderance of Roman settlement activity within the river valleys, the 'upland' areas being sparser, and a clear concentration around known settlement sites (*e.g. Verulamium*, *Calleva*, Chess valley, Hambleden valley). If the earthwork linear features used for the study are taken as representative of the Roman transportation routes through the landscape, then there are a few focal points where these trends converge, notably in the vicinities of the crossings of the River Thames, and the valleys of the Rivers Chess, Loddon and the Hamble Brook.

The Middle Thames floodplain

The most significant obstacle to be negotiated between *Verulamium* and *Calleva Atrebatum* is the River Thames crossing, hitherto the biggest uncertainty in tracing the route. Understanding the nature of the superficial geology and the evolution of the floodplain is an important consideration for identifying likely crossing points.

Robinson (2011, 173) and Booth *et al.* (2007, 7) restrict use of the term 'floodplain' to describe the regions covered by alluvial silts and clays, deposited during the Holocene (post Ice-Age) by the river when in flood, rather than the more extensive superficial geological deposits of the glacial floodplain terraces which represent former, Palaeocene, floodplains.

During the Quaternary Ice-Ages the discharge of seasonal meltwaters eroded bedrock and reworked previously deposited river gravels, resulting in the repeated down-cutting of the River Thames. The most recent deposits result from the last glaciation (Devensian) 11,600 years ago. The river channels had their greatest extent in the early Holocene, thereafter, without spring meltwater feed, energy was insufficient for significant channel migration. Thus, the transition from braided river to restricted channelised flow, within broad incised channels (Robinson and Lambrick 1984: 809-810; Robinson 1992: 3), happened about 11-10,000 years ago, with a process of channel infilling and simplification, and little subsequent channel migration (Robinson 2011, 173, 177). This left an undulating gravel surface, covered with fine alluvium, some backswamp development, and with occasional gravel 'islands.'

The mapped distribution of alluvium is a good proxy for the extent of the Holocene river and indicates its confined nature (see the superficial geology on Figures 10 and 13). For most of the Middle Thames the modern river channel cuts through alluvial fill on top of Middle to Late Pleistocene gravels (Morigi *et al.* 2011, 1-40), which mostly form the river bed. The underlying Chalk only outcrops where the banks provide the steepest sides to the river valley (*e.g.* at Cliveden, Cookham Dean / Winter Hill, Danesfield). The Holocene river channel is at its narrowest (*c.* 200-250m) at Marlow, Hurley, Mill End and Henley, and at its widest (*c.* 1200-1400m) in the vicinity of Hedsor Wharf, Sashes Island and Cookham. It has its tightest meanders, and therefore swiftest flow, in the vicinities of the Bourne End marina upstream of the Wye confluence, and Greenlands upstream of Mill End, Hambleden.

Remaining paleochannels carried river overspill when water levels were high, which would have made traversing the floodplain more difficult, but the valley floor was probably deforested by the Middle Iron Age, and by Late Iron Age the course of the river was approximately that of today. Evidence from the Upper Thames Valley show that the Late Iron Age to Early Roman period saw agricultural intensification, with alluvial accumulation at its maximum rate (Robinson 1992, 7) due to greater land runoff and erosion, and with no evidence of reversion to woodland (Lambrick *et al.* 2009, 34, 49, 51). There is less evidence available for Middle Thames settlement but it is likely that the region saw a similar level of agricultural intensification with floodplain grasslands being ploughed and given over to cereal cultivation.

The Middle Thames may have served as a boundary between administrative *civitates* (Booth *et al.* 2007, 37, 366, 374; Lambrick *et al.* 2009, 373) for the Romans, as it may also have done for the Iron Age tribal groups over long periods, with the Atrebates to the south and Catuvellauni to the north.

The well-preserved section of road in Hodgemoor Woods suggests that RR163 was intended to carry significant traffic. Assuming it formed part of a link between the two Roman centres, then a Thames crossing would have been an important part of the transport infrastructure. Should an approximate straight direct-line route have been favoured between the two centres, then this is most clearly traceable from *Verulamium* southwest to the outskirts of Beaconsfield, with some drift, and some data gaps (the direct alignment has been incorporated on the accompanying text figures to provide a consistent point of reference). To avoid either the complexity of multiple crossing points, or an extended detour to enable connection with the established documented Roman road network, then the Reading to Bray meander of the River Thames forces at least a minor deviation from this direct alignment (see Figure 2). Crossing the narrower channel(s) of the Late Iron Age / Roman river and its floodplain could potentially have been by ford, causeway, bridge, or ferry, though the latter was probably less likely for mass transportation. Before the 19th century dredging, the river would have been more fordable, though Haken (2021, 304) notes that proven Roman fords are 'almost unknown' in Britain. There is evidence for Later Prehistoric routes crossing tributaries and channels within the floodplain, using causeways and bridges (Lambrick *et al.* 2009, 232).

The importance of the River Thames for water transport remains contentious and uncertain. Fulford (2014, 172) considered reliable navigability would have been important to reach Dorchester and Abingdon; and the rise of *Calleva* as an important centre is difficult to explain unless a link with the Thames played a major role in carrying trade goods (Fulford 2021, 106). Reading, at the confluence of the River Kennet with the Thames, has been suggested as the port serving *Calleva* (Sargent 2009, 83; Greenaway 2006, 7), though there is little supporting evidence. It may have been seasonally navigable to Oxford (Greenaway 2006, 7), though an opposing view (Booth 2009, 17) is that the Middle Thames was unimportant, given the absence of settlement evidence at road and river intersections, except for the known villa sites at Mill End and Yewden, Hambleden; and the absence of evidence for Roman river improvements which would have been required to negotiate several rapids (Booth *et al.* 2007, 313). A settlement at Henley, at an apparent road / river crossing, where a Roman building was identified 250m from the river (Moloney 1997, 129-130), is little more than speculative (Booth 2009, 8). Peberdy (1996, 312) notes that by the 14th century Henley was described as the highest point to which the Thames was 'ordinarily navigable,' probably because of the presence of so many weirs, though there is no evidence to suggest such impediments existed during the Roman period.

Straight river sections normally result in a level riverbed, whereas meanders tend to create asymmetric flow with deeper and faster water on the outside of the bend. A river is therefore usually shallower in straight reaches or at the cross-over between adjacent bends (Grayson 2010, 4). A maximum water depth of *c.* 0.6m is necessary for the year-round useability of a fording point by foot traffic (Grayson 2010, 3), possibly favouring the river at its widest or where it dissipated through braided channels, and with an approach over firm ground or a causeway. Bridges ideally had short spans, crossing narrow channels, and may have replaced pre-existing fords (Bond *et al.* 2019, 37), ideally with solid ground present on both banks. Sargent (2009, 66) records that the Romans built only two (known) Thames bridge crossings, at *Londinium* and *Pontes* (Staines), where they used islands in the river. A ferry might cross deeper, swifter water, but would have limited carrying capacity. An approach across the floodplain where it was relatively wide might make roads seasonally impassable without substantial engineered solutions, and any crossing points would inevitably be 'bottle-necks' in the transport infrastructure. No evidence of Roman river-side infrastructure, as might be expected to support either a bridge, floodplain causeway or ferry terminus, has been proven.

Potential River Thames crossing points

This account is primarily concerned with the route from *Verulamium* to the River Thames, but this cannot be considered in isolation, requiring consideration also of the possible Thames crossing point(s), the possible onward route(s) through Berkshire, and the wider transport infrastructure. There are no proven Roman (or earlier) crossing points within the section of the Middle Thames that is of interest. For this study, eighteen potential crossing points between Maidenhead upstream to Caversham, have been considered, based on modern routes, medieval ferry and bridge crossings, settlement and mill sites potentially indicative of the presence of river shallows. The evidence for the seven most likely locations, between Hedsor, upstream to Henley-on-Thames, is evaluated here, with the data favouring two of them.

Hedsor Wharf / Sashes Island (SU 90323 85991) (Figures 3, 10)

This is the location of the Viatores / Margary crossing (BAHER-15733). However, their route through South Buckinghamshire, and their proposed crossing point, lack evidence. They were unable to determine continuation of their route on the Berkshire side, noting the 'notoriously' marshy Sashes Island, and suggested the river may have changed course. The Holocene river is at its widest hereabouts, so they may be correct in assuming shifting of shallow braided channels. The Cookham lock was cut in 1830 leading to significant changes to the floodplain and drainage. Evidence of timbers (Goolden 1893, 28-29) are now thought (BHER-01465) probably Saxon or Medieval. Champness (2009) conducted a borehole survey over the western end of Sashes Island with no evidence for Roman settlement being identified. A resistivity survey conducted in 2012, and an augur survey in 2013 (Berks, unpublished), revealed a 6-8m wide buried gravel surface trending directly north-south across the island (see Figure 10), potentially related to the Saxon fortification of Sceaftesege (BAHER-00255; Brooks 1964, 79-81). The lidar evidence, north of the Thames, suggests that the approach route lies further to the north.

Cookham (SU 89789 85628) (Figures 3, 10)

The village is situated on a Late Pleistocene gravel 'island,' in a wide part of the floodplain southwest of Sashes Island. There are some finds and excavation evidence for Roman occupation, but no indication of any extensive settlement (Booth *et al.* 2007, 60). Thomas *et al.* (2023, 5-6) record the reworking of Roman building material into a trackway associated with the Anglo-Saxon monastery, but note that it could have been transported in. Historically, Cookham had two ferries (Tucker 2013) to enable the running of the 1830 lock, but the 8th century monastery and Saxon royal estate (Ditchfield and Page 1923, 125) suggest a probable older crossing.

Bourne End / Cock Marsh (SU 89362 86645) (Figures 3, 10)

McColm (1980) described a route descending from Hedsor village to Bourne End, crossing the Thames 'narrows' upstream of its confluence with the Wye, with a convincing route continuing along a prominent engineered terrace-way around Cock Marsh in Berkshire. McColm considered that this approach to the river avoided the confined Viatores / Margary descent down a narrow combe to Hedsor Wharf. A positive lidar linear earthwork feature, and magnetic anomaly, crossing the floodplain at Hollands Farm to the north of McColm's proposed route, reveals a more convincing line

of approach along the floor of the Wye valley. Such a route would cross marshy ground in the vicinity of the confluence of the two rivers, and where the Thames would have lost much of its energy. Roman metalwork finds are recorded in the vicinity (PAS and BHER-06672).

Marlow (SU 85210 86149) (Figures 3, 12)

This has been a significant crossing point since at least medieval times, with repair to a medieval bridge at the end of St. Peters Street being recorded in 1227 (Philips 1981, 99). There is only a little evidence of Roman remains in the vicinity (BHER-117805, -08026), and no physical evidence of a Roman road near to Marlow (Green and Beckley 2014, 27). However, there are clear cropmarks visible on Google Earth (Google Earth, 2003 and 2021, see Figure 12) northeast of the town (SU 86351 88117) showing parallel lines of pits probably marking the east to west orientation of a road. There are also lidar linear earthwork features trending northeast to southwest across the Lower Pound area (see below) towards Harleyford. On the south bank, opposite Marlow, a subtle linear feature evident on the lidar and on APs from 1924 (Britain from Above), crosses Late Pleistocene gravels, roughly aligned with the medieval St. Peters Street to the north, and the valley ascending through Quarry Wood towards Cookham Dean to the south. However, this possible onward ascent up the chalk escarpment shows no evidence of being an engineered route, or of the extensive hollow-ways that would be expected indicative of heavy use.

Hurley / Harleyford (SU 82554 84330) (Figure 12)

The location provides toponymic evidence suggestive of a crossing point having existed here at some stage. Hurley Priory, on the south bank, founded in 1086, had grounds extending to the river, with a ford and ferry (Tucker 2013). Excavation beneath the Priory dormitory block (Rivers-Moore 1930, 28) revealed a floor with associated Roman pottery. There are lidar linear earthwork features trending sub-parallel to the river, along Devensian gravels on both banks, but they do not convincingly join up with other features on the north or south bank to support a major cross-county route, and there is scant evidence to suggest a crossing existed in Roman times. Evaluation trenches sampled the gravel 'islands' within the floodplain on the north bank in 2005 (Pocock 2005) and 2009 (Thacker 2010), cutting across some of the apparent lidar features in Harleyford Field and Yela Bina Field, off Lower Pound Lane, but recorded nothing to correlate these with any archaeology and identified only Neolithic and Bronze Age features.

Mill End, Hambleden / Remenham (SU 78370 84988) (Figures 3, 12, 13)

There are Roman villa sites (Mays 2008) in the Hambleden valley on the north bank, at Yewden (National Heritage List England, NHLE-1014606) possibly with an associated settlement, and at Mill End (NHLE-1014601). There are also Roman building remains at Remenham on the south bank (BAHER-1042, -1043, -1047, -1049), which could potentially be part of another villa complex. Historic England Research Record (HERR-245349) suggests that the river may have shifted its course substantially such that the Remenham site may originally have been on the north bank. However, the Remenham site is on Devensian gravels, to the south of two Holocene channels which are themselves separated by a Devensian gravel 'island' (see Figure 13). Although the modern stabilised river only follows the course of the northern channel, this suggests that there has been no substantial reworking of the fluvial deposits, consistent with the lack of firm evidence anywhere else in the

Middle Thames for any significant post-glacial shifting of the main channel. Thus, Roman occupation sites most likely existed on both banks of the river and it is probable that there would have been some sort of communication link between them. A weir is recorded at Hambleden in 1376 (Peberdy 1996, 336).

Henley-on-Thames (SU 76384 83008) (Figure 3)

A Roman crossing point may have existed here. A buried road is thought to have been observed under the lawns of Phyllis Court (BAHER-02883), leading to the river at a point where piles had been observed. Margary (1973, 167) considered these suggestive of a bridge, though Malpas (1987, 29) thought they were more likely to be markers indicating the location of a ford. This crossing would have carried RR160cc from Dorchester to Wargrave, and probably onwards to *Calleva* via Fair Cross. Margary considered the latter part of this route as potentially constituting the southwestern extremity of RR163. A Roman crossing here would also have enabled a road on the north bank, coming from the east, to cross and continue along the line of RR160cc to the south. However, this would have been an inefficient crossing point for the principal road from *Verulamium* as it requires an extended journey around the north side of the Thames meander.

Having critically examined these options, and the associated Thames approach routes on both banks, the evidence suggests two most likely Thames crossing points. The principal route of RR163, following a line closest to the direct alignment between the two centres, and demonstrating the most significant engineering, is a crossing from Bourne End to Cock Marsh, with a branch route RR163C(x) also crossing from Mill End to Remenham.

RR163 route: North of the River Thames

The following describes the proposed new course of RR163 from *Verulamium* to the River Thames, and where relevant compares this with the route historically described by Viatores (1964) / Margary (1973). Much of this new route is supported by the remote sensing evidence, though there are gaps, and some uncertainties where the landscape around Roman settlement is complex and where multiple sub-parallel routes may exist. Figure 2 provides an interpretation of the overall route, and Figure 3 provides an index to the location of the maps accompanying the following text, together with an overview illustration of the data distribution.

Verulamium to the River Gade at Kings Langley (TL 13604 07250 to TL 07791 02207)

From *Verulamium* RR163 initially closely follows the route of Viatores / Margary (Figure 4). There are several apparent routeways leaving from the southwest side of the Roman town, some of which appear to inter-connect within the immediate vicinity. Here the simplest route option is taken, the 'Camlet Way' (Grover 1870, 48), being the *decumanus maximus* starting at its junction with Watling Street, beside the site of the basilica, heading southwest alongside the forum, and exiting through the Silchester Gate (Hertfordshire Historic Environment Record, HHER-14322). In excavations Stead and Rigby (1989, 4) identified 'the Roman Road to Silchester ... some 90m outside the South-West Gate,' 7.5m wide, constructed of gravel 0.25m deep, with a cambered surface. On the southeast side a 3m width sloped to a ditch 1.5m wide and 0.75m deep, and on the northwest side a 2m width sloped to a

sharp edge without a ditch. Thus, the road complex exiting *Verulamium* is approximately 14m wide. Two more surfaces of cambered road were found on the southeast side. These road sections overlay a cemetery (HHER-14145), whose use had probably been terminated by construction of the road *c.* AD 60. Dating was further constrained by early Flavian (AD 69-96) settlement, extending some 180-460m beyond the city.

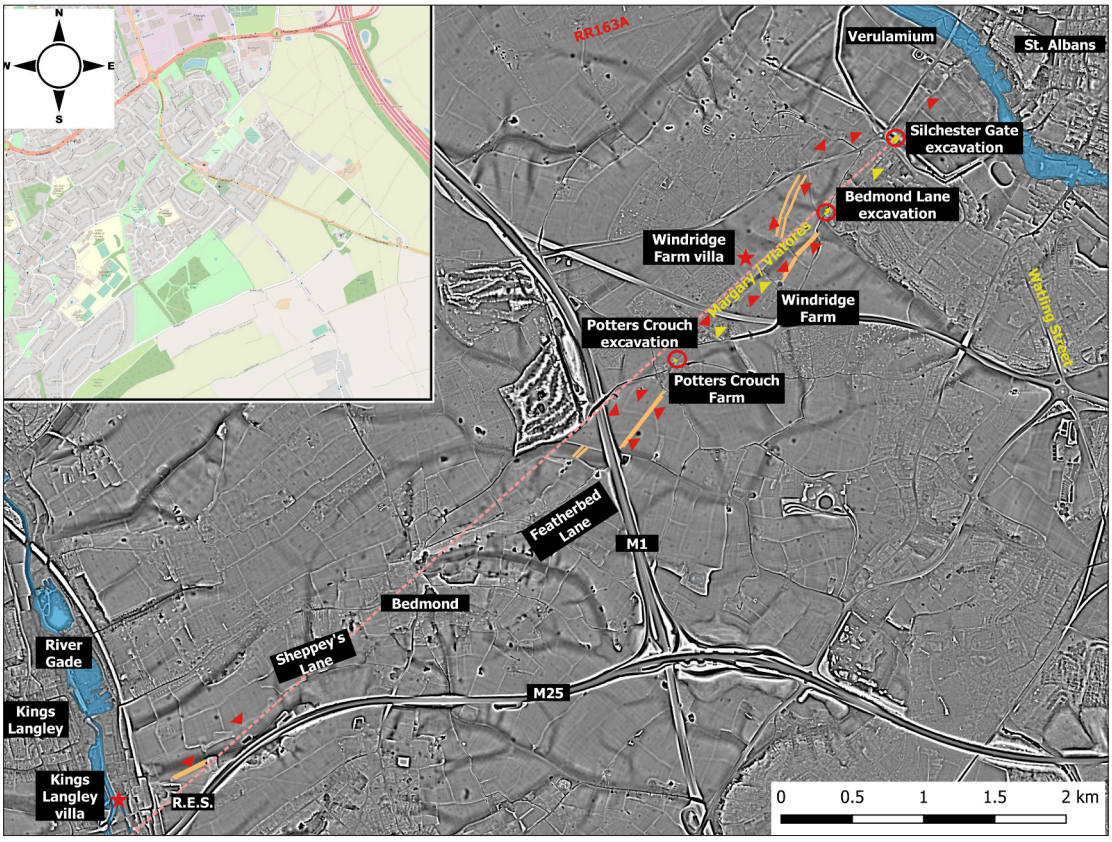


Figure 4. Verulamium, the 'Silchester Gate' and the start of the route towards the southwest. Routes shown on LiDAR LRM, marked by red triangles. Excavation sites (red circles highlighting yellow trench locations) at Silchester Gate, Bedmond Lane and Potters Crouch Lane; cropmarks (orange) help illustrate a complexity of routeways in the near vicinity to Verulamium; villa sites marked as red stars. Evidence for the route is lost through Bedmond but reappears descending to the valley of the River Gade approaching the Kings Langley villa site. Margary / Viatores route (yellow triangles) included for reference. Also showing Flood Alert areas and the direct alignment (as Figure 2). (© OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

Further southwest, a short stretch of road excavated in 1965 (HHER-14039) is cut by Bedmond Lane. Linear earthworks in the lidar data support the Viatores / Margary route north of Windridge Farm, Potters Crouch Lane (east of the Windridge Farm villa site, HHER-31342), with two possible routes within 120m of each other. The south-eastern one of these linear features is also evident in parallel cropmarks (Google Earth, imagery 2009; 2018), however the more direct line is the option adopted here, along the Viatores route. Both sub-parallel routes appear viable options, continuing some 100-150m apart for about 3km. Another excavated road surface (TL 11704 05286) was recorded (Morris,

undated, 1960s) northeast of Potters Crouch, though there is some scepticism in the Ordnance Survey's (OS undated) field notes. Beyond here the new route departs from the traditional Viatores / Margary line.

Cropmarks suggest the south-eastern of the two sub-parallel routes continues, southwest of Potters Crouch Farm, most clearly seen on a National Collection of Aerial Photography (NCAP) image from 1987 (TL 11451 04844), aligned to the trend of Featherbed Lane (TL 11053 04426) west of the M1. The route then probably goes through or south of Bedmond, but there is no evidence for it. Sheppey's Lane (TL 09218 03117) and its continuation as a positive lidar linear earthwork feature, along the north side of a shallow valley descending to Kings Langley is taken as the line, with the route then crossing the valley to follow cropmarks (TL 08261 02420) (Google Earth, 2005 and 2017) northeast of Renewable Energy Systems (R.E.S., Egg Farm Lane) at Kings Langley. These features are directly in line with the Kings Langley villa site (HHER-0510), with the route heading to cross the River Gade close to the villa and near the medieval (and modern) river crossing point.

River Gade to the River Chess (TL 07791 02207 to TQ 03027 98952)

Most of the Viatores / Margary route from here on to the Thames was inferred by them from aligned features, and flint scatter assumed to be indicative of an *agger*. The newly proposed route from here to the vicinity of Sarratt, Hertfordshire, is indistinct and at best ambiguous (so no accompanying text figure has been presented here, until Sarratt), barring some very subtle linear earthwork features in the lidar, which are not aligned.

There is a hint in the lidar that the route could turn southwards, clipping the edge of the 13th Century 'Little London' moated hunting lodge (TL 07611 01773). If it does, then it would join the Viatores / Margary route along the northern edge of Berrybushes Wood (TL 06592 00863). If this line were correct then it would be one of the very few places where the route would coincide with a significant administrative boundary, this being the boundary of the medieval deer park surrounding the Kings Langley royal palace, and of the modern parish. However, whilst Viatores (1964, 141) record an *agger* visible running along the northern edge of the wood, the Ordnance Survey's (OS undated) field notes record no trace of an *agger* but rather possible confusion with a spread woodland boundary bank. From the western end of the wood a deviation of their route to the south (Viatores 1964, 141-142) reduces the gradient along the valley side (TL 06233 00606), though the OS field notes consider such a diversion unnecessary. If it were necessary, then a faint lidar linear feature (TQ 05177 99831) trending west-southwest might correct for this dog-leg, crossing fields south of Bucks Hill where Roman finds have been recorded (HHER-2284, -897, -899). The Viatores route is then from Bucks Hill via the potential Newhall Farm villa (HHER-993, -16177), where they record (1964, 143) that an *agger* is 'plainly visible,' but Gover (2017, 12) recorded that excavations revealed only a poorly paved trackway, then along a line of hedgerows and footpaths to Church End (TQ 04116 98416) at Sarratt.

However, although there is an absence of clear evidence between Kings Langley on the River Gade, and Sarratt above the Chess valley, the route favoured here is a more direct line. This continues from Kings Langley, via the top of the shallow ridge of Bucks Hill, connecting with a faint lidar linear feature (TL 04884 00582) which then aligns with a descent down Moor Lane to the River Chess at Sarratt Bottom (TQ 03085 99053). This seems a much simpler and more straight-forward route.

The Chess valley landscape has abundant evidence of Roman activity around Sarratt Bottom (Edwards *et al.* 2020, 87-113), including: a farmstead in Mount Wood (Buckinghamshire Historic Environment Record, BHER-01416, -09903); the possible Valley Farm villa (HHER-893, -898, -2718); and the Latimer

villa (HHER-0400) 3km upstream to the west (Figure 6). However, a single definitive or preferred route across the valley and the river remains unclear, with several possibilities for ascending the valley sides in both directions (Figure 5). The multiple alignments, apparent in the continuity of boundaries across the river valley, are suggestive of the existence of multiple crossing points over this shallow,

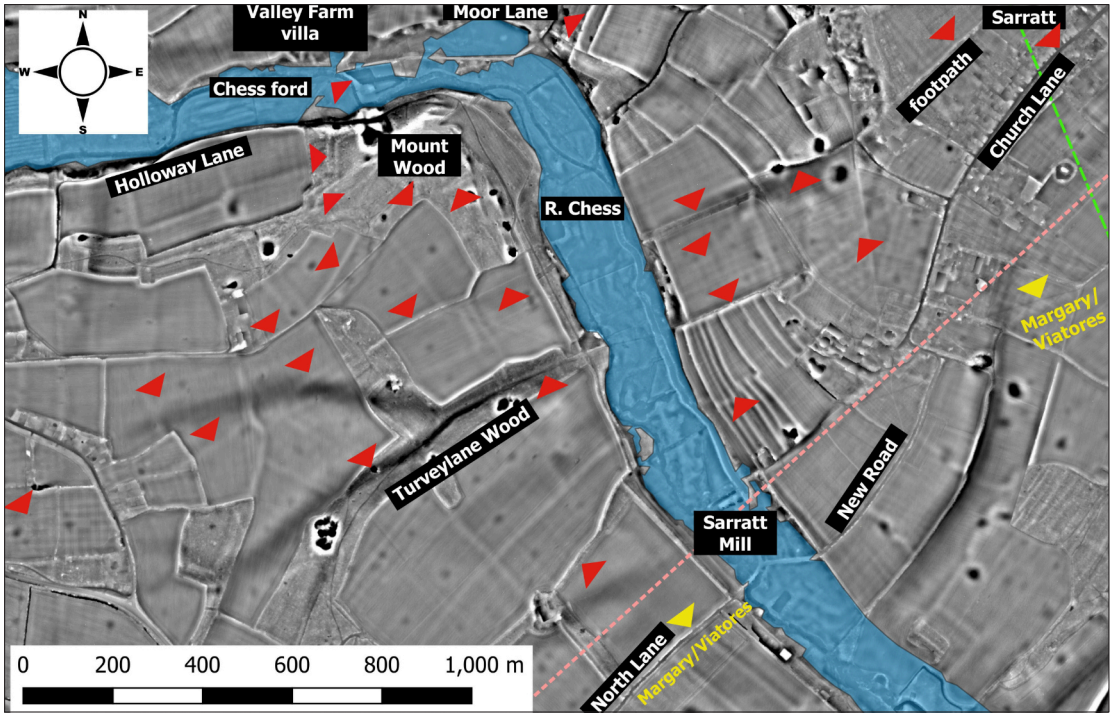


Figure 5. The complexity of multiple possible Chess Valley crossing routes shown on LiDAR LRM, marked by red triangles: Valley Farm / Chess ford; Moor Lane, via Mount Wood; southwest from Sarratt; Turveylane Wood. Margary / Viatores route (yellow triangles) included for reference. Also showing EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

fordable, chalk stream.

As well as the descent down Moor Lane, two other routes through Sarratt appear viable, along Church Lane (TQ 04176 98955), and along the parallel footpath 160m to the northwest (TQ 04055 99085). The former then follows a shallow elevated lidar feature across the field (TQ 03797 98621) behind the church, and descends a mounded hedge line to the present-day River Chess crossing (TQ 03354 98403); whilst the alternative descends either straight, or deviates more southwards diagonally across the field (TQ 03489 98591), to cross the river a short distance further upstream (TQ 03284 98461) of the Church Lane route. The Viatores route lies further to the southeast, descending New Road, crossing the river (TQ 03572 97863) by Sarratt Mill House, and then ascending North Lane to Chorleywood (TQ 02973 97288).

River Chess to Beaconsfield (TQ 03027 98952 to SU 94173 92123)

The continuation of the Viatores / Margary route, from their crossing of the River Chess towards the Thames, becomes increasingly unclear and less defendable as it connects various linear features

heading in the direction of Hedsor Wharf. However, from the plateau above Mount Wood, the lidar data now demonstrate convincing evidence for a direct route lying to the northwest of the Viatores route, and on a similar trend to the line of the well-preserved *agger* in Hodgemoor Woods (SU 96839 93642).

The similarity in orientation of Holloway Lane (TQ 02376 98849) and the ford (TQ 02630 98980) crossing the River Chess by Valley Farm (Figure 5), with the linear lidar feature through Pollards Wood, was suggested by Gover (2017, 15) to be indicative of the direct route from Sarratt. However, the lidar shows a subtle but consistent alignment of positive linear earthwork features trending southwest from the escarpment top (TQ 02689 98624), immediately above Mount Wood, continuing in a faint but almost unbroken line through Chenies (TQ 01787 97809) and Little Chalfont (TQ 00368 96568) to Pollards Wood (SU 99226 95508) and beyond (Figure 6), extending almost ruler straight for some 10km. There is a possible ascent through Mount Wood where the lidar shows parallel linear north-south trending banks either side of a negative feature about 12m wide (TQ 02631 98805), running for 100m at a gradient of about 17% (*c.* 10° angle). Davies (2008, 39) states that such gradients are acceptable over short distances, and Armstrong (2023: 56-57) suggests that this incline would fit within the Romans' apparent preferred maximum ruling gradient of 11° slope angle (*c* 19%; 1 in 5.1). However, this route option seems an unnecessarily steep choice for this location in the landscape. The most obvious line of ascent from the river, from the modern footbridge downstream of the ford, is through the valley of Turveylane Wood (TQ 02907 98219) (Figure 5), but there is no evidence for

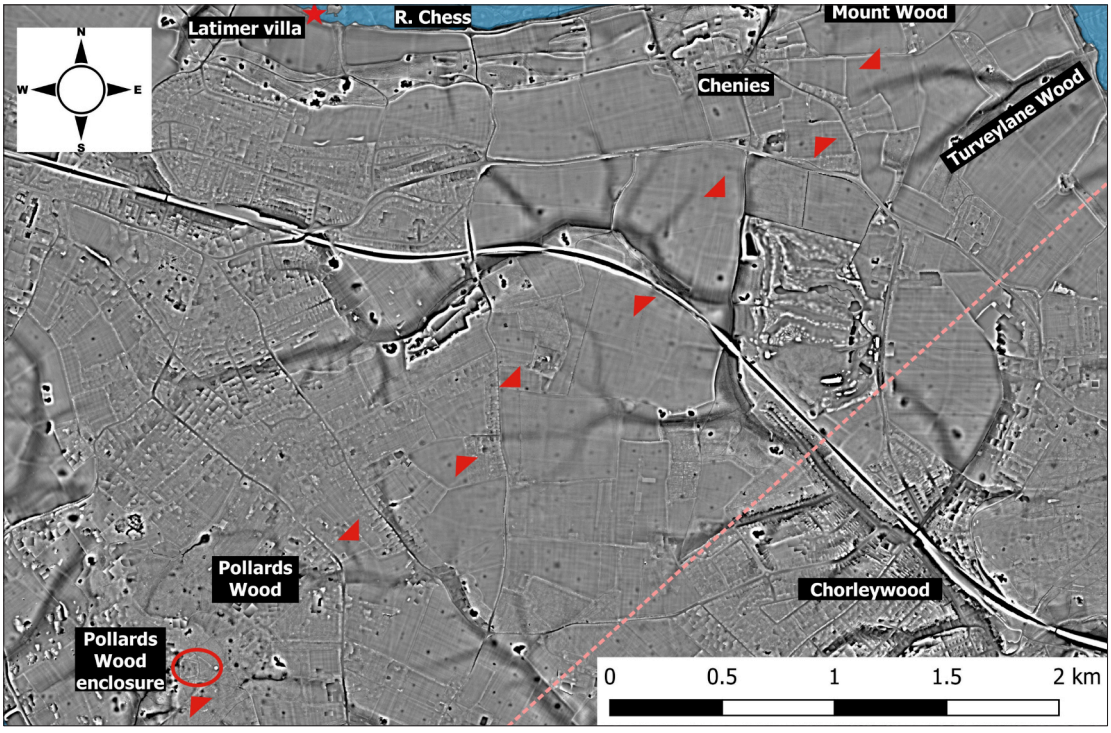


Figure 6. Long distance continuation of the alignment of the linear earthwork on the LiDAR LRM (marked by red triangles), from Mount Wood southwest to Pollards Wood. Also showing Pollards Wood rectilinear enclosure of unknown date, EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

this being the route. It therefore seems that the Chess crossings, and network of routes around here, are far more complex with multiple possibilities, hinting at a possible settlement complexity which is as yet unknown, and although a crossing cannot be definitively identified it is probably in the vicinity of the modern ford in the proximity of the Valley Farm and Mount Wood building complexes (see also Conclusions).

Southwest of Mount Wood, the line is faint but ruler straight in the lidar (Figure 6), past Chenies, joining the Pollards Wood linear feature (SU 99226 95508) (Gover 2017, 12-13), and continuing the same trend to the Hodgemoor Woods feature (Figure 7). Gover (2017, 14-15) also recorded an undated rectilinear enclosure (SU 99198 95626) within Pollards Wood as potentially Roman (BHER-07920).

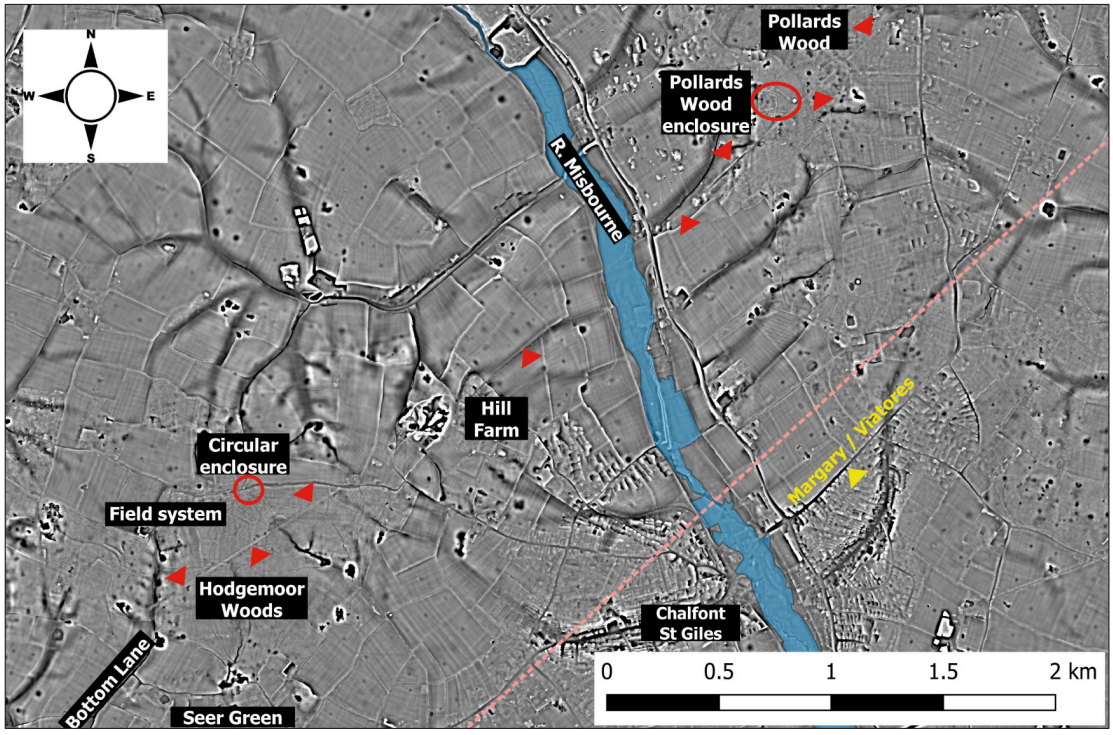


Figure 7. Pollards Wood to Hodgemoor Woods linear earthwork alignment on LiDAR LRM (marked by red triangles). Margary / Viatores route (yellow triangles) included for reference. Also showing Pollards Wood rectilinear enclosure of unknown date, Hodgemoor Woods enclosure and adjacent accreted field system, EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

Between Pollards Wood and Hodgemoor Woods the route crosses the River Misbourne, near to the modern foot-crossing point (SU 98602 94933), though it is difficult to determine the precise route across the valley floor. However, the alignment can then be followed as a hedge line, along the footpath to Hill Farm (SU 97897 94345), ascending a shallow depression from the Misbourne Valley.

Hodgemoor Woods (SU 96839 93642) (Figures 1 and 7) exhibit the best-preserved section of engineered Roman road within the Chilterns, extending for about 1km (Rothwell and Peveler 2023, 153-154). The lidar data show that the road appears to overlie, or at least be contemporaneous with,

a rectilinear grid of accreted fields (SU 96762 93726), and is in turn cut by ridge and furrow (see Figure 1). Adjacent to the early field system, and proximal to the *agger*, is an undated circular earthwork enclosure (SU 96898 93909), possibly Romano-British.

This section of road is flanked by 'quarry' pits, typically spaced 12-14m apart. The *agger* is approximately 12m wide (*cf* average 10.1m for Watling Street, 8.6m for Ermine Street (Davies 2008: 42)) and the width between the flanking ditches is 20-24m (*cf* approximately 20m for Ermine Street at Ware), suggestive of a road of some importance. On the ground the road is subtle (Figure 8), the *agger* is comprised of quartzose pebbles and cobbles, but there is little to distinguish it from the surrounding Pleistocene gravels. To the southwest, it loses definition as it comes off the Pleistocene, making a shallow, presumably traffic-worn, cutting (SU 96540 93455) through the underlying Palaeogene Lambeth Group sand and gravel deposits, and then a shallow *agger* again across the dry chalk valley floor (SU 96465 93402) north of Bottom Lane, before it disappears southwest.



Figure 8. Hodgemoor Woods, a hump in the modern north-south bridleway (SU 96971 93720) marks where it crosses the east-west line of the agger of RR163. (© the author).

A faint linear lidar feature, having the same trend, is seen again 1.8km to the southwest (SU 94733 92440), and can be traced into Brown's Wood (SU 94555 92325) by Wilton Place, on the outskirts of Beaconsfield. The trend, and its location approximately 1.5km to the northwest of the Viatores / Margary route, puts a Thames crossing at Hedsor Wharf in doubt. There is no clear evidence for the

route through the urban environment of Beaconsfield, but to cross the Thames it must either continue its southwest trend or swing to the south.

To pick up the Viatores / Margary route to head for their crossing point at Hedsor Wharf, and to avoid having to negotiate the valley of the River Wye, a deviation to the south would be required, but there is no evidence for a continuation in that direction.

There is little evidence for Roman settlement in the immediate vicinity of Beaconsfield, though recent excavation along the A355 Eastern Relief Road (Allen *et al.* 2021, 73-82), 1-1.5km southeast of the proposed route has shown evidence of Late Iron Age and Early Roman settlement. However, within the adjacent Wilton Park housing development, Klemenic (2021, 11) records that trenches were specifically sited to test the Margary / Viatores route through the estate but found no Roman material, concluding that it is 'most likely that the road did not run along this conjectured route.' The PAS database records a few scattered coins having been recovered in the wider area, and an antiquarian Roman coin hoard is reported from the vicinity of the former Gregories estate house in Beaconsfield. Here, south of Burkes Crescent, an elevated lidar linear earthwork feature, and parallel parch-marks, best seen on a Cambridge Air Photos (CUCAP) image from 1985 (also Bing 2021), can be seen trending north-south (SU 93804 90591) and extending onto the playing fields of neighbouring Butlers Court School. These may be significant, given the dearth of evidence, but they also happen to be aligned with features on John Rocque's 1761 map associated with Gregories house, so may be part of its landscape features.

Beaconsfield via the Wye Valley to the River Thames at Bourne End (SU 94173 92123 to SU 89362 86645)

To reach any of the potential Thames crossing points upstream of Hedsor Wharf, descent into the valley of the River Wye is necessary. The preferred route for this can be seen initially, south of Beaconsfield and the M40, on the plateau east of the valley where the footpath from Over's Farm to Mill Wood runs northeast-southwest along a subtle positive lidar earthwork feature (SU 92417 88547) (Figure 9). A track continues the same line in the Beaconsfield direction to the northeast, but gravel extraction at the Springfield Farm Quarry has removed part of this track and any further possible evidence. South of here, closer to Berghers Hill, cropmarks of a possible Iron Age or Romano-British farmstead are recorded (BHER-08501).

Continuing southwest, to the south of Windsor Lane a line of descent down the valley side is seen in the lidar traversing southwest across the slope, first as a negative, and then as a positive, linear earthwork feature (SU 91438 88023). There is some additional landscape complexity on the flank of the valley at this location, being directly adjacent to the site of the extensive grounds of the moated Bishops (of Lincoln) medieval Wooburn Manor (BHER-01943), where a northwest - southeast trackway connecting former Lodges on Berghers Hill with the manor house cuts across the lidar features. However, the lidar features align directly with the road of Wooburn Town (SU 90962 87762), on the south side of St. Peter's churchyard at Wooburn. Roman pottery shards, a tegula and metal slag have been found here (BHER-01474), and to the east on the slopes of Wash Hill (BHER-06244; -05749). The route probably then follows the line of the modern roads of Town Lane and Brook Bank (SU 90613 87489) besides the heavily culverted River Wye, and continues the same alignment along Princes Road (SU 90208 87231) at Cores End, which becomes a track and then a footpath along a positive linear earthwork feature on the lidar (SU 89983 87064), trending southwest across Hollands Farm (Field F7).

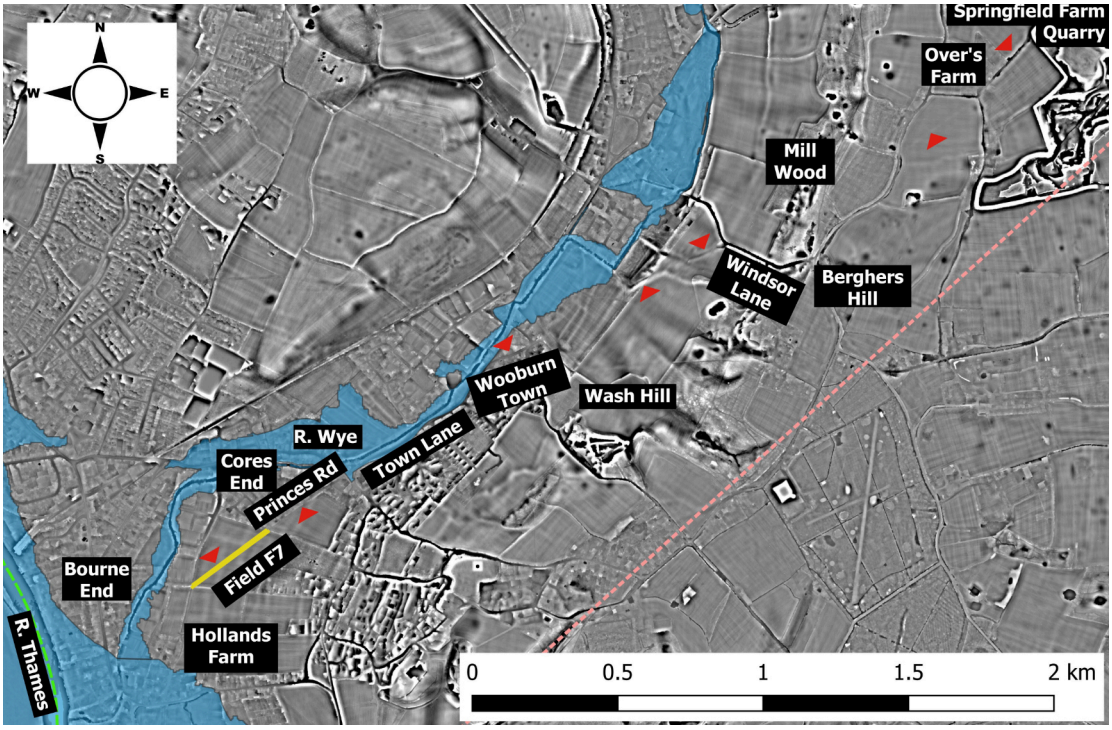


Figure 9. Alignment of linear features, running from Over's Farm to Hollands Farm, on LiDAR LRM (marked by red triangles). Magnetic anomaly (yellow) highlighted across Field F7, coinciding with an elevated LiDAR feature and the modern footpath. Also showing EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

A geophysical survey (Harrison 2019a, 4; 2019b, Illus. 6, 7) shows a corresponding northeast-southwest linear magnetic anomaly along the same line. This is the line of the modern footpath, which, although regularly ploughed, remains as a subtle positive topographic feature. Harrison (2019a, 4) recorded that this 'clear north-east/south-west linear anomaly crossing [field] F7' is 'likely caused by a buried metalled surface.' Roman metalwork finds have been recorded in the vicinity (BHER-06672). This field sits on Holocene alluvial deposits (Figure 10), indicative of repeated flooding close to the Wye and Thames confluence, and to facilitate its traverse a built-up 'causeway' would have been necessary.

This alignment of linear lidar features, from Over's Farm to Mill Wood, continuing south of Windsor Lane, and crossing Hollands Farm (Field F7), and the orientation of the lane of Wooburn Town, are suggestive of a continuous route (Figure 9). This proposed route for RR163, where the floodplain is at its widest, approaches what would probably have been a significant Thames crossing point. It is also an area heavily modified in industrial and post-industrial times, to drain the land, stabilise the River Wye, support several paper mills and a gunpowder mill, improve navigability of the Thames along the reach upstream of Cookham Lock, and for riverside residential development. Therefore, it is perhaps unsurprising that there is no proven physical evidence for crossing related infrastructure. It also happens to align with the engineered terrace-way (SU 88788 86653) around Cock Marsh, at the foot of Winter Hill in Berkshire, proposed by McColm (1980), where this area has also been extensively

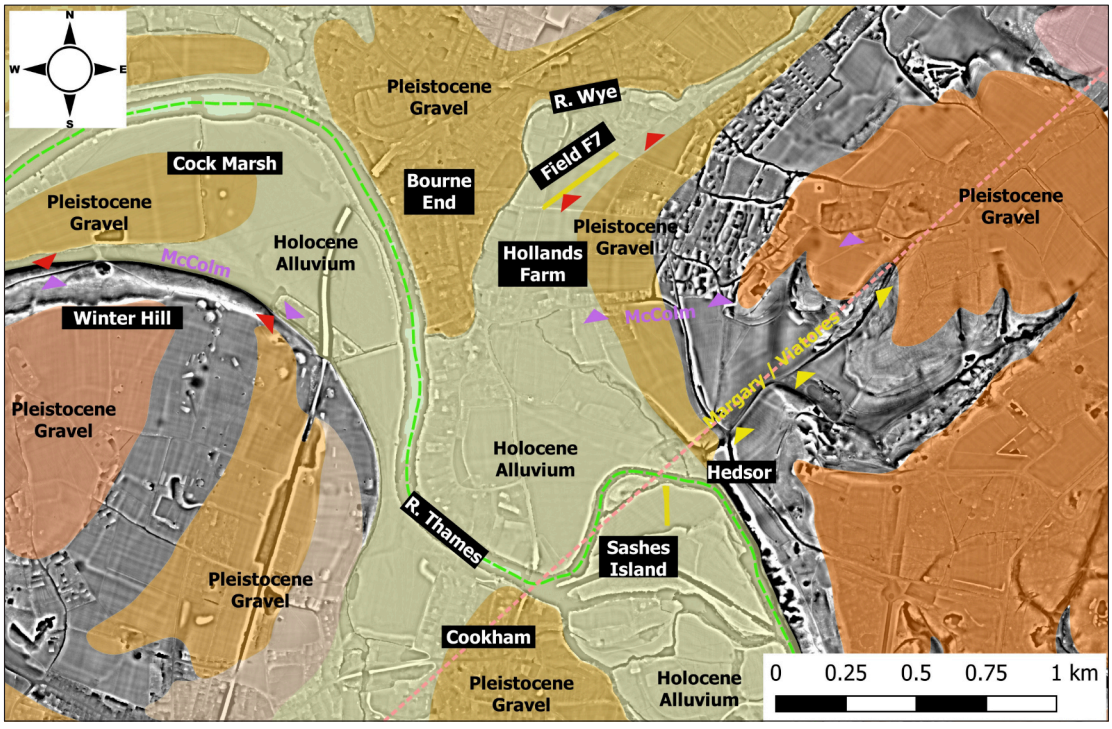


Figure 10. Superficial surface geology (i.e. excluding bedrock geology, for clarity) at the confluence of the River Wye and River Thames, illustrating the Holocene river channels and floodplain (straw yellow) and Pleistocene gravel islands, overlain on the LiDAR LRM. Showing the Wye valley route across Hollands Farm with the Field F7 magnetic anomaly (yellow), the vicinity of the River Thames crossing, and continuation (red triangles) at Cock Marsh / Winter Hill along McColm's (1980) (purple triangles) route. The location of the north-south feature on Sashes Island is also shown (yellow). Margary / Viatores route (yellow triangles) and the direct alignment (pink dash) included for reference. (Contains British Geological Survey materials © UKRI 2020. Reproduced under Open Government Licence v3.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

modified through drainage, and for the embankment and bridge supporting Brunel's Marlow branch of the Great Western Railway in 1854, rebuilt in 1895.

There is a potential alternative descent into the Wye valley from Beaconsfield, along Wooburn Green Lane (SU 92093 89398) from the A40, and down Holtspur Lane (Figure 11), a former footpath. This route would follow the faint positive linear lidar feature continuing the line of the lane directly crossing the green at Wooburn Green (SU 91344 88510), and then paralleling the modern River Wye, to join the Cores End to Hollands Farm (Field F7) feature.

RR163C(x) branch route: North of the River Thames

An alternative branch route is now also proposed, continuing to the River Thames from the vicinity of Beaconsfield. There is sufficient evidence in the remote sensing data to see this as a convincing Roman route to the Hambleden valley, where there is significant evidence of Roman settlement, including two villas. The location of these villas and settlement could have been at the intersection of

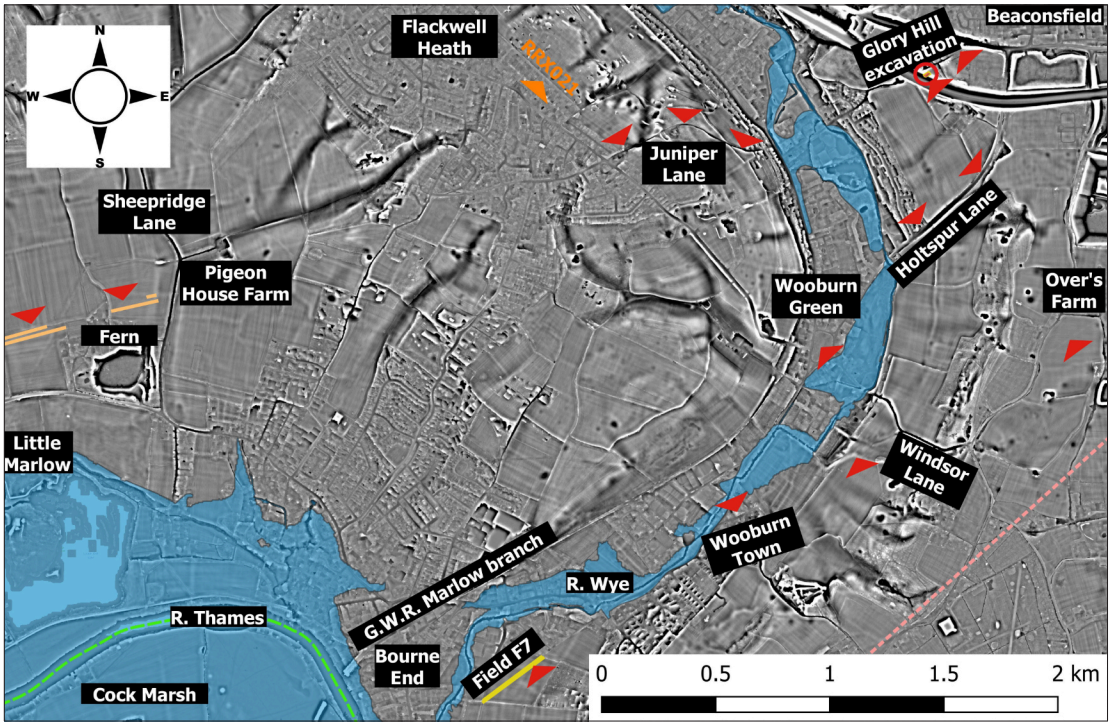


Figure 11. Alternative possible Wye valley traverse routes on the LiDAR LRM (marked by red triangles): Glory Hill (red circle highlighting excavation trench) to the Juniper Lane terrace-way, heading west-southwest towards the crop-mark pit alignments at Fern (orange, see also Figure 12); Holtspur Lane descent into the Wye valley; and the preferred Over's Farm to Hollands Farm Field F7 route, with magnetometry trend (yellow) (see Figures 9 and 10). Also showing Morris et al. (1970) RRX021 route across Flackwell Heath, EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

several routeways. Their juxtaposition with Roman buildings at Remenham on the south bank of the Thames is strongly suggestive of a potential crossing point. This branch route, around the north of the Middle Thames meander, deviates significantly from the *Verulamium* to *Calleva* direct line and is described here as a subsidiary or spur off the principal route, however it could also be a segment of an entirely separate road having origin and destination points which are as yet undefined.

Beaconsfield via the Wye Valley to the River Thames at Hambleden: branch route RR163C(x) (SU 94173 92123 to SU 78370 84988)

To the northeast of Beaconsfield, RR163 is last seen in the lidar data entering Brown's Wood (SU 94555 92325). If the most direct route was then taken, it might follow the line of Burgess Wood Road (SU 92951 90573) descending the shallow northeast-southwest trending valley through the former Burgess Wood, then through Holtspur, to the top of Glory Hill (SU 92061 89807) (Figure 11).

Morris *et al.* (1970, 367-385) proposed route RRX021, along the A40 corridor from Denham to High Wycombe, describing the descent down Glory Hill from this point. This A40 corridor is an obvious valley route, from the west of London, possibly *Pontes*, in the direction of Alchester, in part following the valley of the River Wye. Head (1974) suggests that, with its connectivity to the River Thames and

the valley routes through the Chilterns towards Princes Risborough, a Wye valley route may have been in prehistoric use. The only strong evidence for an engineered Roman route along the A40 corridor appears as a positive linear earthwork feature in lidar data further to the east (SU 98713 87801), southwest of the Bulstrode Camp Iron Age hillfort (Rothwell and Peveler 2023, 154-155). Morris *et al.* considered the route of RRX021 to leave the A40 corridor at Holtspur, descending Glory Hill into the valley of the Wye, and then ascend the west bank, before turning northwest across Flackwell Heath golf course towards High Wycombe (and also the Rye villa, BHER-00380). In so doing, it partially follows the engineered cutting at Glory Hill Lane (Figure 11), noted by them as 'obviously of great antiquity,' then along an *agger* parallel and south of the lane 'for about 150 yards.' A small excavation was carried out in 1966 (*c.* SU91788 89705) which did 'not reach the standard of completeness that is archaeologically desirable' (Morris *et al.* 1970: 379, 381). This recorded flint, pebble, and gravel in a hard clay matrix, on top of a yellow-clay subsoil with 'a small amount of burnt matter.' Across the valley floor their route ascended the terrace-way of Juniper Lane (BHER-04399), which traverses obliquely up the opposite valley side. Unfortunately, the length of identified *agger* and metalled surface on Glory Hill were destroyed by the construction of the M40.

Juniper Lane (SU 90855 89424) is an engineered terrace-way, 4-6m wide, incised 1-3m on the south flank, dropping away to the north. The juxtaposition, on the opposite side of the valley to the cutting of a potential pre-turnpike road on Glory Hill (SU 91584 89648), is suggestive of an important River Wye crossing point, with the oblique traversing line of Juniper Lane reducing the steep ascent of the southwest flank of the valley from a native *c.* 20% to *c.* 17% (the less steep northeast flank at Glory Hill is *c.* 12%). In the absence of any other obvious reason for such an engineered terrace it is probably Roman in origin, and it aligns with the Morris *et al.* excavated Roman road section on Glory Hill. A positive lidar linear earthwork feature can be traced following the Morris *et al.* RRX021 route, from Juniper Lane across Flackwell Heath golf course (SU 89902 89983), heading northwest along the crest of the Wye valley towards High Wycombe. However, the proposal here is that the primary purpose of the engineered Juniper Lane was to connect to the Roman road section evidenced from the pit alignments in cropmarks at Fern and Little Marlow (see below and Figure 12).

There is some faint lidar and cropmark evidence for linear earthwork features (SU 88908 89197) along the north side of the shallow valley north of Pigeon House Farm at Flackwell Heath. However, far more compelling are the faint cropmarks of two extended lines of parallel pits (Google Earth, 2003, 2021, 2022; Bing, 2021) approximately 24m apart, variably spaced, but which can be traced for over 2km from Sheepridge Lane, north of Fern, to Pump Farm on Pump Lane (Figure 12, see inset images), northeast of Marlow (SU 88414 88714 to SU 86330 88118). These can reasonably be taken as diagnostic of a Roman road (Hopewell 2013: 10). North of Fern, Late Iron Age-Early Roman postholes and ditches, with Roman pottery (BHER-08389), indicating a possible small settlement, have been recorded (Anon. 2003, 10).

From Pump Farm, a route to cross the River Thames in the immediate vicinity of Marlow becomes speculative. A possible route option being down Wycombe Road and along Chapel Street (SU 85098 86905), then turning sharply south to cross the river in the vicinity of the medieval crossing point at the end of St. Peters Street (SU 85210 86149), or continuing further southwest, following linear lidar earthwork features (SU 84201 85581) on the Devensian gravel 'islands' in the Thames floodplain, to cross in the vicinity of Harleyford (SU 82554 84330). However, there is a clearer route north of Marlow where a faint discontinuous lidar linear earthwork trend continues west, immediately north of Blount's Farm (SU 83438 87272), crossing Marlow Common, where a short line of probable roadside

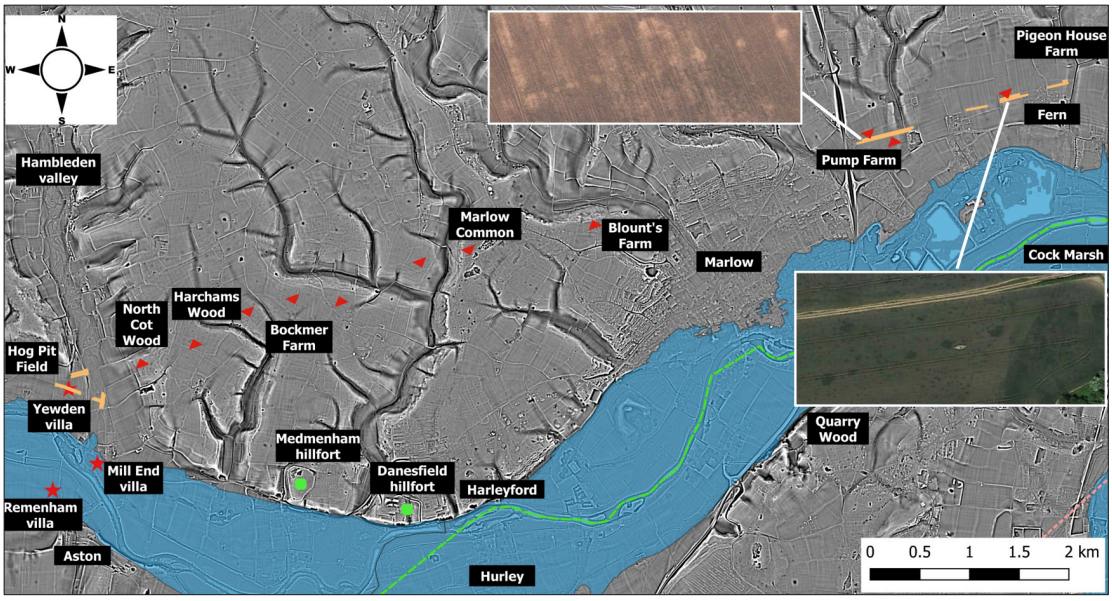


Figure 12. LiDAR trend of the linear earthwork of the branch route (marked by red triangles), passing north of Marlow, to the Hambleden valley and an alternative Thames crossing (see also Figure 13). Cropmarks (orange, see also inset images), the location of the hillforts (green spots) and villa sites (red stars) marked. Also showing the southern limit of the BotP LiDAR area (green dash). Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. Inset images: Map data © Google 2003, 2021. All rights reserved).

pits can again be seen in the lidar data (SU 82394 86963), passing north of Bockmer Farm (SU 80759 86477) and through Harchams Wood (SU 80021 86261), about 2km to the north of the hillforts at Danesfield and Medmenham. The lidar linear earthwork feature can then be followed to the north of Burrow Farm (SU 79657 86156), descending through North Cot Wood (SU 79312 8048), into the Hambleden valley just north of the Yewden villa (NHLE-1014606; Mays 2008; Eyers 2011) where parallel cropmarks (SU 78454 85777) (Google Earth imagery, 2003, 2010, 2020) show a route crossing the modern Hambleden road.

A route could continue further to the west from here, either on to Henley-on-Thames directly, or in the direction of the Bix villa (Oxfordshire Historic Environment, OHER2866) to connect with the Fair Mile section of the RR160cc route to Dorchester. The large amount of Oxfordshire ware pottery excavated at the Yewden villa site, with subsidiary amounts of *Verulamium* ware, is typical of assemblages across the region and attests to trade in both of those directions (Eyers 2011, 160, 264), also with wares from further afield. A 2010 magnetometry survey showed a narrower trackway trending west-northwest across Hog Pit Field (SU 78325 85641) (see Figure 13), just south of here, alongside the Yewden villa complex, with another trackway joining from the south (Eyers 2011, 18-19), and this can also be seen as cropmarks (Google Earth imagery, 2018, 2020, 2021).

It also seems likely that a Roman route would probably have existed, following the Hambleden valley northwards, to provide connections to Alchester and Fleet Marston, though there is no clear evidence for this. However, for the route to *Calleva*, a turn south down the Hambleden valley towards the Mill End villa (NHLE 1014601; Farley 1983), crossing the Thames close to here seems likely (Figure 13), and again multiple options are possible. As well as providing a route towards *Calleva*, a Thames crossing

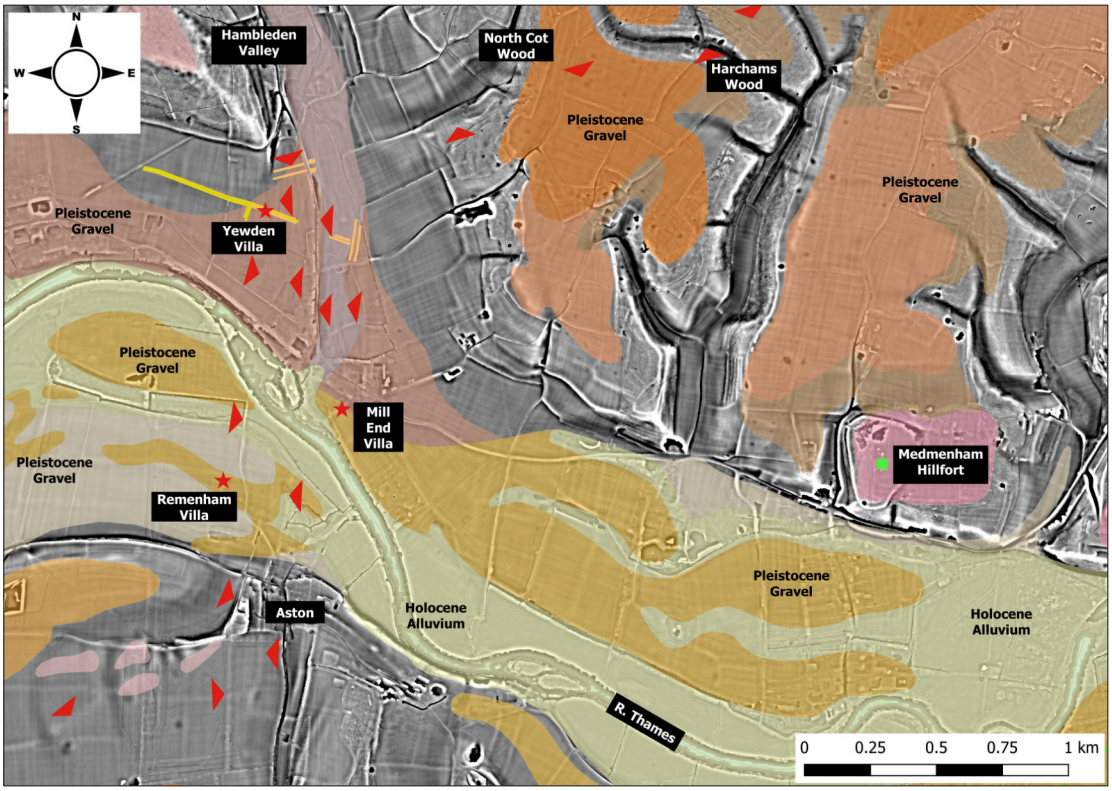


Figure 13. Superficial surface geology (i.e. excluding bedrock geology for clarity) at the confluence of the Hamble Brook and the River Thames, illustrating the Holocene river channels and floodplain (straw yellow) and Pleistocene gravel islands, overlain on the LiDAR LRM, also crop-mark alignments (orange) and the Hog Pit Field magnetometry trend (yellow). Showing the LiDAR linear earthwork trends (red triangles) in the vicinity of the proposed RR163C(x) branch route River Thames crossing. (Contains British Geological Survey materials © UKRI 2020. Reproduced under Open Government Licence v3.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

here also opens the speculative possibility of a longer distance route connecting to the south coast in the direction of *Noviomagus*.

Farley (1983, 257) notes that the identified building footprint at Mill End is unlikely to have stood alone, there being indistinct traces of other structures between it and the river. He also questions, with the Yewden and Mill End villas being in close proximity, whether they may have had different functions, with the Mill End villa being less well sited and possibly prone to flooding, though well placed to exploit the river as a resource. The Mill End Villa has never been excavated.

Both Farley (1983, 258) and Eyers (2011, 278) make much of the assemblage of finds at Yewden, comprising an unusually large number of *stili* for writing, as well as a rare Samian inkwell, suggestive of some literate or recording function possibly related to trading; and an exceptional number of mostly perinatal infant burials for which evidence of infanticide is interpreted (Eyers 2011, 276; Mays and Eyers 2011). This latter interpretation, first advanced by Cocks (1921), is regarded as controversial and is not universally supported (Gowland 2016, 311-312; Moore 2016, 325). Nonetheless, clearly there must have been significant female presence here at some time, and Eyers suggests that one of the

ancillary buildings to the villa could have functioned as a brothel. Eyers further suggests the possibility of river traffic having to unload or reload at this point, and states (2011, 265, 278) that exploratory dives during high water periods demonstrated that parts of the Thames hereabouts were 'exceptionally shallow' at 1.2-2.2m in mid-channel (though the modern Middle Thames navigable channel has a minimum depth of 1.3m below Standard Head Water level, SHWL (Anon. 2016, 5-36)), and suggests it 'may even have become fordable' during Roman times. Whatever, the archaeological evidence seems to point to the significant presence and movement of people, and probably goods, through this location, raising the possibility of this being a candidate for the location of a *mansio* (overnight stay). Such a location, whether or not associated with a *lupanaria* (institutional brothel), is likely to have had prostitutes, and there are other examples of similar institutions where large numbers of neonatal deaths have been discovered (Dauphin 1996, 63-64).

The probable landing of the crossing on the south bank (SU 78296 84927), near to the Berkshire village of Aston, is close to the Roman building remains at Remenham (BAHER-1042, -1043, -1047, -1049). In contrast with Bourne End / Cookham, this crossing point coincides with a more confined expanse of floodplain where Palaeocene gravel 'islands' constrain the Holocene channels. A plausible route then continues, heading south on the Berkshire bank, on the west side of the village of Aston, following one of several sub-parallel lidar linear earthwork features (SU 78218 83598) along the valley side parallel and west of Aston Lane, or (and ?) potentially deviating to the southwest (SU 77684 83740) towards Henley-on-Thames. A line of lidar linear earthwork features (SU 78319 82063; SU 78593 81694) can be traced heading south, suggesting that the route continues over Remenham Hill, where there is evidence of Romano-British settlement activity recorded close to Park Place (BAHER-17511, -15781, -15984), heading towards Wargrave.

Strategically, it might have made sense to maintain more than one significant Thames crossing point to support heavy traffic transportation between *Verulamium* and *Calleva*, either for reasons of security, seasonal access, or simply direction of onwards travel or preference. Or, as at *Calleva Atrebatum*, different routes may have been favoured at different time periods during the Roman occupation.

South of the River Thames

This account is primarily concerned with the RR163 route north of the Thames, proposing a most likely principal crossing point at Bourne End, with a branch route leading to a second crossing point at Mill End. As has already been discussed, other crossings may be plausible, but it is the Berkshire evidence supporting a principal crossing point, from Bourne End to Cock Marsh, that is considered here.

A review of the lidar evidence for the Roman roads through the Chilterns (Rothwell and Peveler 2023) supported the conclusion of earlier researchers, that most of the historically documented routes were likely of local, rather than national, importance. A similar, extensive, local network, probably also exists through Berkshire (and elsewhere within the settled parts of the Roman province), with minor routes connecting to major roads, connecting to *Calleva,* and other significant centres. One (or more) of these routes in Berkshire may be the principal continuation of RR163.

Considering the *Calleva* terminus of the road, there are four main gates, all were built of masonry and were earlier than the construction of the town wall. For routes heading northeast in the direction of

the River Thames and towards *Verulamium* (see Figure 2), the two entry / exit gates of primary relevance are the North Gate and the East Gate. RR160c exits the *Calleva* single carriageway North Gate, heading towards Dorchester, and a route (Truscoe 2017, 100) then divides off (SU 63836 62920), following a line of lidar linear earthwork features and parallel cropmarks, via Mortimer Fairground (SU 65565 64785) to Burghfield (SU 68025 69068) in the direction of Reading, possibly then via Sonning towards Wargrave or / and via Earley / Woodley towards Twyford. RR4a exits the double carriageway East Gate towards *Londinium,* and a route (Boon 1957, 208-209) then branches off at Fair Cross (SU 69752 63085), via Beech Hill (SU 70228 64430) to Spencers Wood (SU 70866 6192). The North Gate may have been temporarily blocked during the late 2nd century AD (Fulford *et al.* 1997, 167) to limit a potential defensive weak point during a security emergency (Fulford 2021, 249), so the East Gate presented an alternative route which would still have facilitated a direct connection with *Verulamium,* and given the importance of this gate for traffic to and from *Londinium* then this might also have been the principal access for RR163.

McColm's (1980) crossing of the Thames from Bourne End to Cock Marsh uses the engineered terraced ways (National Trust, NTHBSMR-150059) on the northern flank of Winter Hill. With varying levels of confidence, his route can be traced to Knowl Hill. He described two 'military' routeways on Winter Hill: a 'high-level' route (SU 88410 86635), providing vision splays to command the route and river crossing, for use by lighter traffic; and the substantially engineered low-level trackway (SU 88724 86682) along the edge of Cock Marsh (Figure 14), which gently ascends the steep flank of the escarpment on a series of ramps, never exceeding a gradient of 10%, and flats, graded to suit 'heavy traffic.' The higher track, along the escarpment, does not present compelling evidence for being Roman and it may be of pre-historic origin. McColm acknowledges that it could have been an early route superseded by the need for a route more robust to heavy traffic.



Figure 14. Looking east to west along the substantially engineered terrace-way of McColm's 'heavy traffic' route (SU 88724 86682), between Cock Marsh to the right and Winter Hill to the left (marked McColm on Figure 10). (© the author).

McColm's route continues via Speen Hill (SU 84202 83029), then Burchett's Green (SU 83803 81206) to Knowl Hill. Here, in the vicinity of Knowl Hill and Waltham St. Lawrence there is significant evidence of extensive Roman occupation, including: a temple (BAHER-00420; Neville 1849, 114); a settlement complex with 'several villas' at Weycock Hill (BAHER-00420; Cotton 1956, 48-68); a possible villa at Canhurst Farm (BAHER-18228, -00429; Seaby 1932, 28-36; Seaby and Pollen 1934, 75-84); and a possible kiln (Over 1974, 65-66). The route then appears to continue via Ruscombe (SU 80224 76975) to cross the River Loddon in the vicinity of Twyford.

The RR163C(x) branch route crossing from Mill End to Remenham / Aston can be traced through lidar linear earthwork features and aerial photographs over Remenham Hill, through Park Place (SU 78319 82063), descending from Crazies Hill (SU 79172 79777) to the outskirts of Wargrave.

The continuation from here is beyond the scope of this account, but the remote sensing evidence suggests a crossing of the valley of the River Loddon in the vicinity of Twyford to Woodley / Earley (SU 74948 73162), and / or from Wargrave to Charvil (SU 76973 76123) continuing via Sonning (SU 75222 74691). Both options would enable connections to the routes into *Calleva* via both the North and East Gates. It is also plausible that a route could have continued southwards in the direction of *Noviomagus.*

Onward routes to *Calleva* are possible from the other alternative Thames crossings considered. At Marlow, although there is no evidence for it, a route could possibly ascend Bisham Hill through Quarry Wood (SU 85599 85086), which could then join McColm's route and continue southwest along the escarpment to Speen Hill. At Harleyford, again there is no evidence, but a route could turn south (SU 81281 82304) towards Warren Row, to also join McColm's route at Knowl Hill.

Conclusions

The section of a Roman road of some significance in Hodgemoor Woods, first recognised as a positive earthwork feature in CCB high-resolution lidar data, has a similar orientation to, but is displaced from, Margary's documented RR163, suggesting a relationship with *Verulamium*. Lidar data have demonstrated that this section can be traced as an almost continuous feature for some 10km, northeast through Pollards Wood to the valley of the River Chess, and southwest to Beaconsfield, providing a high degree of confidence for this being the actual route of RR163. Interpretation of the likely continuation of this route, on to *Verulamium*, and in the direction of *Calleva Atrebatum* to the River Thames, has enabled a new route to be proposed. This replaces the traditionally accepted route described by Margary and the Viatores, for which there is no real evidence between Kings Langley and Hedsor Wharf.

The road leaving the southwest 'Silchester' Gate of *Verulamium* cannot be followed in an unbroken line, but evidence from remote sensing data suggest that it links to the Hodgemoor Woods – Pollards Wood lidar alignment in the vicinity of Sarratt Bottom on the River Chess. It is remarkedly consistent in broadly following the direct straight-line between *Verulamium* and *Calleva,* as far as the outskirts of Beaconsfield. However, it must cross the Thames, and the new evidence sheds doubt on the Viatores / Margary crossing at Hedsor Wharf, and indicates a deviation from the direct line is required in order to navigate the Henley to Maidenhead meander. Although the crossing point(s) remains unproven, the body of evidence indicates two prime candidates for heavy traffic, both of which were likely in use.

In considering the continuation of the RR163 route through Berkshire, it is most likely that the route from Beaconsfield descends to the River Wye and follows it to a Thames crossing point at Bourne End to Cock Marsh. A branch road, RR163C(x), provided an alternative route from Beaconsfield, crossing the valley of the River Wye via Glory Hill and Juniper Lane and passing north of Marlow, to Hambleden, then crossing the Thames from Mill End to Aston / Remenham. However, we do not know whether this is actually a segment of a separate intersecting road, having a different origin and destination, though we can be sure that it is part of a complex route network.

After crossing the Thames, the next major obstacle for the route to *Calleva* is the ascent of the chalk escarpment above the south bank of this stretch of the Middle Thames, extending from Winter Hill to Remenham Hill. The most obviously engineered solution to this appears to be McColm's 'heavy traffic' graded ramp and flat route up Winter Hill from Cock Marsh. The RR163C(x) branch crossing at Mill End ascends the gentler gradient of Remenham Hill directly. The other possible route alternatives, from Marlow or Hurley, though considered less likely, would converge on the proposed route in the vicinity of Knowl Hill.

The Bourne End / Cock Marsh crossing is taken as the primary route for RR163, based on the substantial engineering undertaken at Cock Marsh / Winter Hill to negotiate the steep Winter Hill escarpment, and this route adheres closest to the direct-line between *Verulamium* and *Calleva*.

Black (1995) provides a description of the *cursus publicus* (state courier service) in *Britannia*, including the 1st and 2nd century *mansiones* (overnight quarters), and their link with the army and the wider administrative infrastructure. The route from *Verulamium* to *Calleva* is about 70-75km, roughly a three-day Roman march or a one to two-day ride. Although no definite sites for *mansiones* have been identified within the Thames valley (Booth *et al*. 2007, 375), these would typically be spaced 25 Roman miles (*c.* 37km) apart, probably with one or two *mutationes* (change of mount / posting-stations) between (Ramsay 1925, 68). The Knowl Hill / Weycock Hill area is approximately 25km from *Calleva*, and the Mill End / Yewden villa complexes are about 30km from *Calleva*, both suitably placed as stopping points, and apparently significant centres of Roman activity. A further 25-30km distant, and approximately 20km from *Verulamium*, is an undated rectilinear enclosure identified on lidar in Pollards Wood (Gover, 2017), which could also be of significance, and probably the Sarratt Bottom villa complexes in the valley of the River Chess could also have provided significant stopping points.

The proposed revised route(s) of RR163 is just one element of the history of movement through this landscape, with this road forming part of a probable network of major and minor routeways intimately linked with the evolving pre- and post-invasion use and development of the land. The remote sensing data have provided an additional level of insight, but the full complexity and the relationship of the routes to the land-use, settlement and the rural economy requires more in-depth study.

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