Finding the site of Boudica's last battle: multi-attribute analysis of sites identified by template matching.

Steve Kaye, February 2015.

Abstract

This, the third essay on the attempt to find the site of Boudica's last battle, improves on previous techniques. A terrain model of the southern UK was searched, by use of a template matching algorithm, to find all the topographic depressions of width approximately 500 to 2000 m and depth 15 m or greater (other attributes were applied) that matched Tacitus' description of the battle-site. After some initial editing of the original sites (2700) to remove those with selection errors and the most obvious of faults, the candidate battle-site list was reduced to 862. These were then subjected to a weighting and ranking process via the application of ten attributes.

A crucial step was to examine the choice of routes available to the Roman commander, Suetonius Paulinus, as he considered withdrawal from London after Boudica's destruction of Colchester and the rout of the 9th Legion. The pros and cons for each route are described, discussed and the results compared. The findings were: that Suetonius did not march north-east towards Boudica; that the London to Lewes road to the southern coast would not have been chosen as all the prospective battle-sites are less than one day's march from London; that taking Watling Street to the Kent ports would have been a strategic and tactical error; that marching further north than St. Albans along Watling Street could have led to conflict with flanking and rearward attacking rebel forces; that turning west at St. Albans to follow Akeman Street was a superior choice but one limited to prospective battle-sites (3, 5, 7, 8, 10, 11 etc.) in the Bulbourne river valley, south-east of Tring, if the absence of burning and destruction at Alchester Roman fortress is correct; that the other southern route from London via Stane Street was strategically sound, and that tactically the prospective battle-sites at Dorking (1 and 2) were outstanding; and finally, that taking the Portway directly west out of London was strategically the most suitable of routes and one Suetonius would probably have viewed most favourably.

A simple combination of the ranked sites and the most likely choice of route from London would logically indicate that the actual battle took place in the west at Ogbourne St. George (4), Donhead St. Andrew (6), or Shalbourne (9). However, in acknowledging that not all events, dispositions, circumstances etc. were known, it was concluded that the next investigative phase will be best served by examining not only the western Portway locations but also those along Stane Street at Dorking, and the higher ranking sites within the Bulbourne river valley along Akeman Street.

Contents

Acknowledgements: many computations and maps in this essay were created in SAGA and QGIS. Special thanks to Dr. H.Y. Kim for enhancing for this study his template matching software, Ciratefi. Nici Lilley, yet again, has kindly applied her editing skills to this essay; as always, any remaining errors are my own.

Note 1: unless specified otherwise, all quotations taken from the *Annals* (Book 14, 30-37) by Tacitus are the translations of Church and Brodribb, 1888. Other translations were available; all have their own peculiarities and differences, but the author simply prefers Church and Brodribb's work for its Victorian flavour.

Note 2: another personal preference was to not use Cassius Dio's account of the rebellion in his Histories which seems to the author to owe more to the requirement to entertain than to elucidate.

Note 3: the time format used is hour:min, e.g. '10:13' is 10 hours and 13 minutes.

Introduction

In the Summer of either 60 or 61 AD Suetonius Paulinus, the Roman governor of the 18 year old province of Britain, defeated in battle a rebellious tribal force led by the Queen of the Iceni, Boudica. The Roman victory secured the south of Britain for approximately 350 years until direct rule from Rome was extinguished across the islands.

The site of the battle is unknown.

This essay is an account of the author's latest efforts in deploying analytical techniques and modern hydrological and topographical data, in combination with the known archaeology and historical accounts, to find the most plausible of candidate battle-sites.

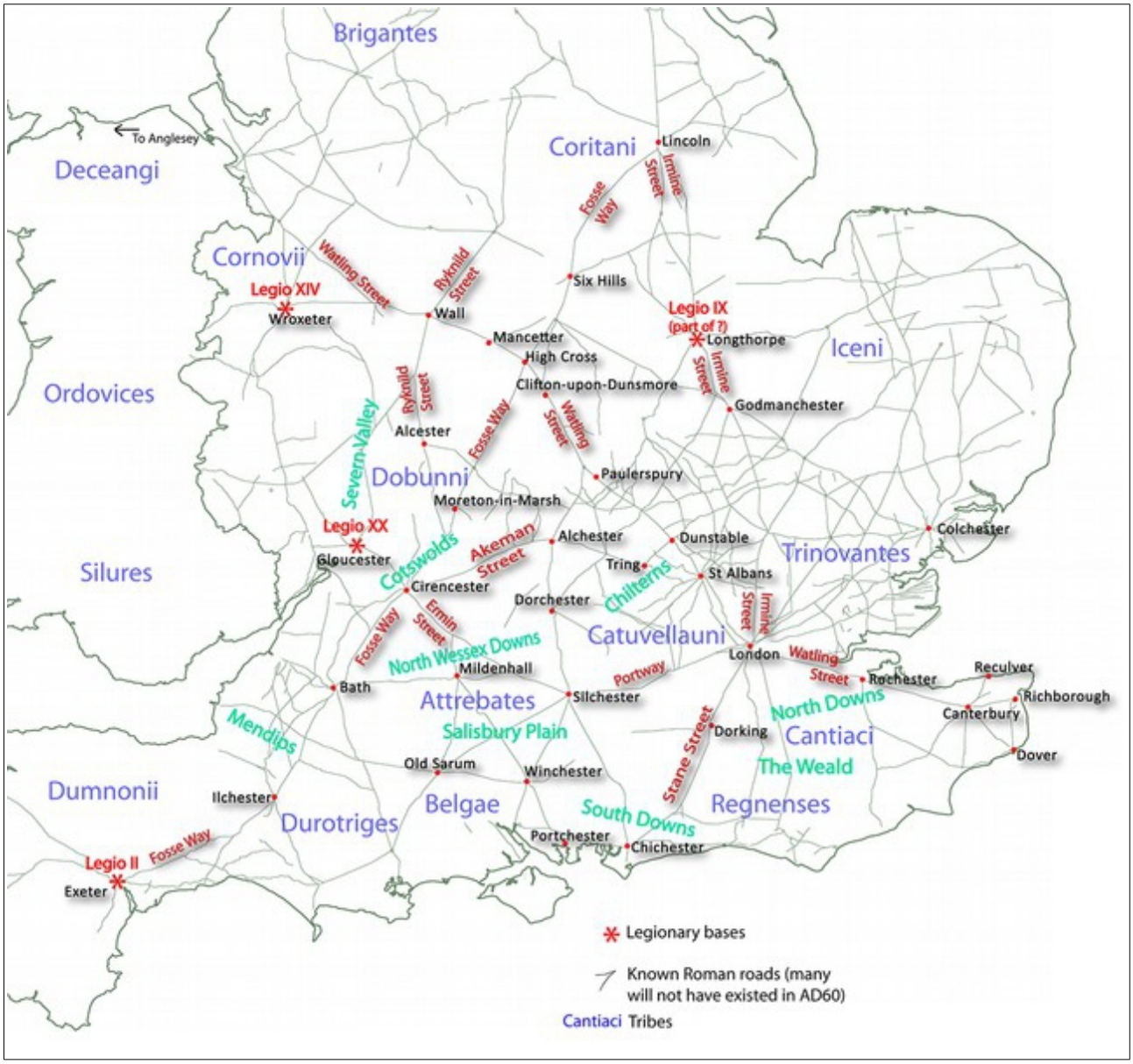


Figure 1: Location map.

A brief description of Boudica's rebellion

The following overview is based on a description in Kaye, 2013a:

> A précis of events in 60 or 61 AD, based on Tacitus (*Annals*, Book 14, 30-37), would mention that Gaius Suetonius Paulinus was the Roman Governor of Britain who commanded the 2th, 9th, 14th and 20th Legions, together with an unknown number of auxiliary and cavalry units, and that he was interrupted in his conquest of the Druidic stronghold on Anglesey by news of a rebellion by the Iceni, a tribe in modern East Anglia led by Boudica, a queen driven to revenge by Roman oppressors. The Iceni, together with other local allies including the Trinovantes located in modern Essex, stormed and destroyed Colchester, the principle Roman town in Britain. Meanwhile, the 9th Legion, led by its commander Petillius Cerialis, marched from its fort (possibly Longthorpe near Peterborough) but was met *en route*, at an unknown location, by the already victorious Britons. The infantry were destroyed; Cerialis and his cavalry rapidly fled and may have found sanctuary in a fort.
>
> This news may have reached Suetonius as he marched from Anglesey towards London with cohorts and auxiliaries from the 14th and the veterans of the 20th Legions. The bad news would be compounded when Suetonius heard that the 2nd Legion, probably based in Exeter, was not marching to join him as he may have ordered. Suddenly, Suetonius had lost approximately half of his effective combat strength; he was marching elements of the 14th and 20th Legions through hostile territory towards London and faced the possibility of meeting a horde of Britons, possibly numbering in the hundreds of thousands. On reaching London he decided to abandon the proto-city and marched his men, plus any civilians who could keep up, away from the Britons who went on to destroy the settlement.
>
> Supposedly a less destructive fate befell St. Albans to the north of London. The horde of Britons followed Suetonius as he attempted to march away from the greatest danger to his army but unknown circumstances, or a change in relative fortune, led him to offer battle with his 10,000 armed men. The Roman legionaries, auxiliaries and cavalrymen were victorious, apparently killing eighty thousand Britons for little loss.

A new method to search the topographic domain: template matching

In earlier work (Kaye, 2010a and b; 2013a) the topographic descriptions given by Tacitus were used to define the data range of a number of attributes and, from these, specify a set of criteria for candidate battle-sites. The criteria were employed to *visually* search for sites across the south of Britain. This work in 2010 resulted in 263 sites; the work in 2013 used the same base set of visually selected sites but reduced them to 110 following work on the hydrological requirements of the Roman force. These were then weighted and ranked to produce a final list of 'most likely' battle-sites. However, it was recognised that the subjectivity involved in visually identifying candidate battle-sites was detrimental and therefore a new, more objective method was employed in this latest study: template matching (Wikipedia article).

The essence of template matching is to graphically interrogate a main scene such that sub-scenes can be identified within the main scene, e.g. a car on a motorway, or a battle-site on a map of topographical parameters, as in this study. The sub-scene is searched for by way of a pre-defined template; in the case of the car a template of a particular car registration number could be created and the sub-scene of that number found, or not, within the main scene. In this study the templates were various depictions of topography that might be locations of candidate battle-sites (Figure 3).

As already mentioned, a significant benefit of using template matching was the increased objectivity of the study. This was matched by the use of computing power to enhance the search process, such that the range of topographic attribute values could be enlarged, resulting in more candidate battle-sites being found.

With regard to the claims of reduced subjectivity, it is not the author's view that the techniques used in this study are wholly objective; that state would be impossible to achieve. Indeed, at each stage of the process subjective judgements have been made, for example the choice of software, limits to modelling or which sites to downgrade. Furthermore, readers will observe that the deeper into this essay they proceed, the greater the subjectivity. This was an inevitable consequence of the overall process when choices of suitability or probability had to be made, and the results linked to the archaeological record and historical accounts.

Template matching to find the initial set of candidate battle-sites

The template matching software used was Ciratefi (Araujo and Kim, 2011) which operates on colour imagery and is rotation-, scale- and translation-invariant (except for affine or perspective transformations). The ability to operate on a coloured main scene was critical for this study.

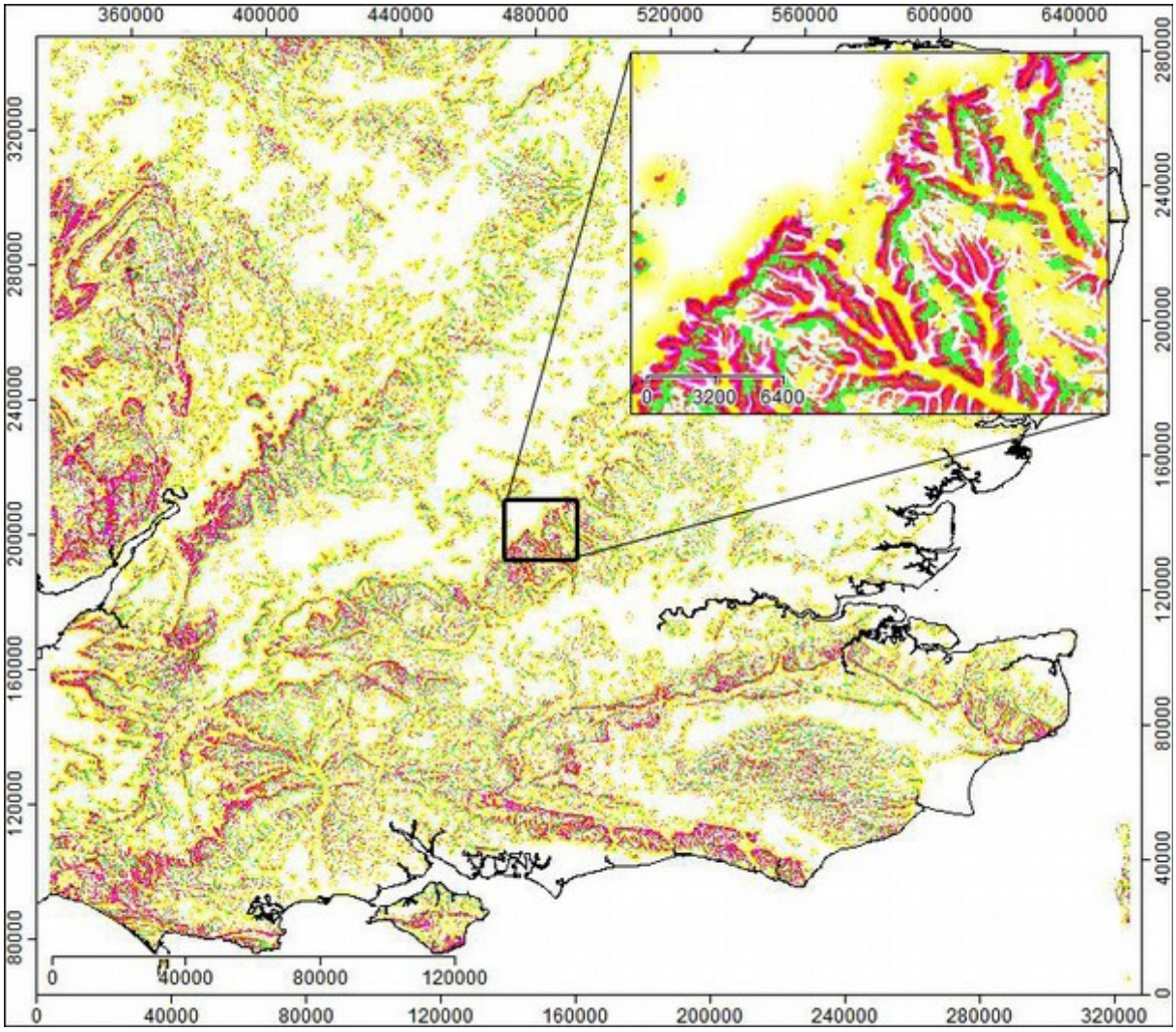


Figure 2: the main scene used in the Ciratefi template matching exercise. The detailed insert is of a section along the western-facing Chilterns escarpment. Coloured areas are: plains in yellow; ridges in red; ridge slope areas of less than 5 degrees in green; slopes greater than 5 degrees in purple. Areas without colour are those without ridges, slopes, etc. and with topographic depressions less than 15 m in depth, e.g. low relief plains and valleys. The coastline is displayed to aid the reader and was not included on the main scene. The bounding graticule is in metres; OSGB36, British National Grid (the same for all maps in this essay).

The main scene (Figure 2) for the template matching algorithm was a terrain model made from SRTM 90 m data (re-sampled to 50 m) and various derived or measured parameters chosen to model Tacitus' description of the topographical features of the battle-site. The key passage in the *Annals* is in Book 14.34:

> Suetonius had the fourteenth legion with the veterans of the twentieth, and auxiliaries from the neighbourhood, to the number of about ten thousand armed men, when he prepared to break off delay and fight a battle. He chose a position approached by a narrow defile [*faucibus*], closed in at the rear by a forest, having first ascertained that there was not a soldier of the enemy except in his front, where an open plain [*aperta planities*] extended without any danger from ambuscades. His legions were in close array; round them, the light-armed troops, and the cavalry in dense array on the wings. On the other side, the army of the Britons, with its masses of infantry and cavalry, was confidently exulting, a vaster host than ever had assembled, and so fierce in spirit that they actually brought with them, to witness the victory, their wives riding in waggons, which they had placed on the extreme border of the plain.

Church and Brodribb later translate that the Roman army, "kept its position, clinging to the narrow defile as a defence" (14.37).

These Latin translations would appear to be unambiguous: the Roman front-line was in a defile. However, as Hughes (2014) has pointed out, there have been a number of different translations resulting in ambiguity regarding Tacitus' true meaning. What seems to be agreed upon is that some form of topographic depression was involved and that the Romans stayed within it during the initial phases of the battle. Whether this depression was a defile or valley can be reduced to a semantic difference if the topographic values are defined to accommodate both forms. To that end, in this study the main scene (Figure 2) was configured to display both shallow valleys and steep defiles by first computing the topographic position index (TPI) of the whole area shown in Figure 2. The area of interest was then reduced to a radius of 1500 m from any high TPI features (ridges, various slope forms etc.); followed by removing any depressions whose depth was less than 15 m (from valley floor to adjacent ridge or elevated area); and then by displaying any areas whose slope in degrees was equal to or greater than five; finally, any plain or valley widths less than 500 m across were removed, it being reasoned that the Roman front-line of legionaries would probably not have occupied less for fear of being surrounded by the much greater number of rebels. (Note: this did not preclude the finding of candidate sites less than 500 m across.) In using Figure 2, the main scene, the template matching exercise would search for candidate battle-sites across most of southern Britain, with only the flattest of land surfaces, whether within elevated areas or low-lying, being excluded. Having produced the main scene the next step was to create the templates to search for the sub-scenes within it.

These were produced with regard to the many permutations of topographic depressions that the various Latin translations of Tacitus (Hughes, 2014) might reasonably allow. A written description of each template would be onerous for the reader; hopefully the nine displayed in Figure 3 demonstrate the large range of depressions considered in this study.

Figure 3: the nine templates used to search for sub-scenes in the main scene, Figure 2. Colours assigned as in Figure 2. In general, the yellow areas are plains bordered by red-brown rising margins; yellow plains also occur at higher elevations. Note that, compared to the originals, these images have a lowered resolution, colour fidelity and clarity.

Each template was applied in turn to the main scene in Ciratefi which, being scale-, rotation- and translation-invariant, found 2700 matches in the area east of the River Severn (Figure 4), each different in terms of size (the sites were shown as circles with the diameter closely matching the width of the topographic depression), the direction in which the depression opens or closes, or general alterations due to the form of the depression margins and plains. This deliberately-chosen large number of matches would suggest little possibility of the true Boudican battle-site not being present. The centroid locations of these 2700 template matched sites were the datum points for more detailed analysis.

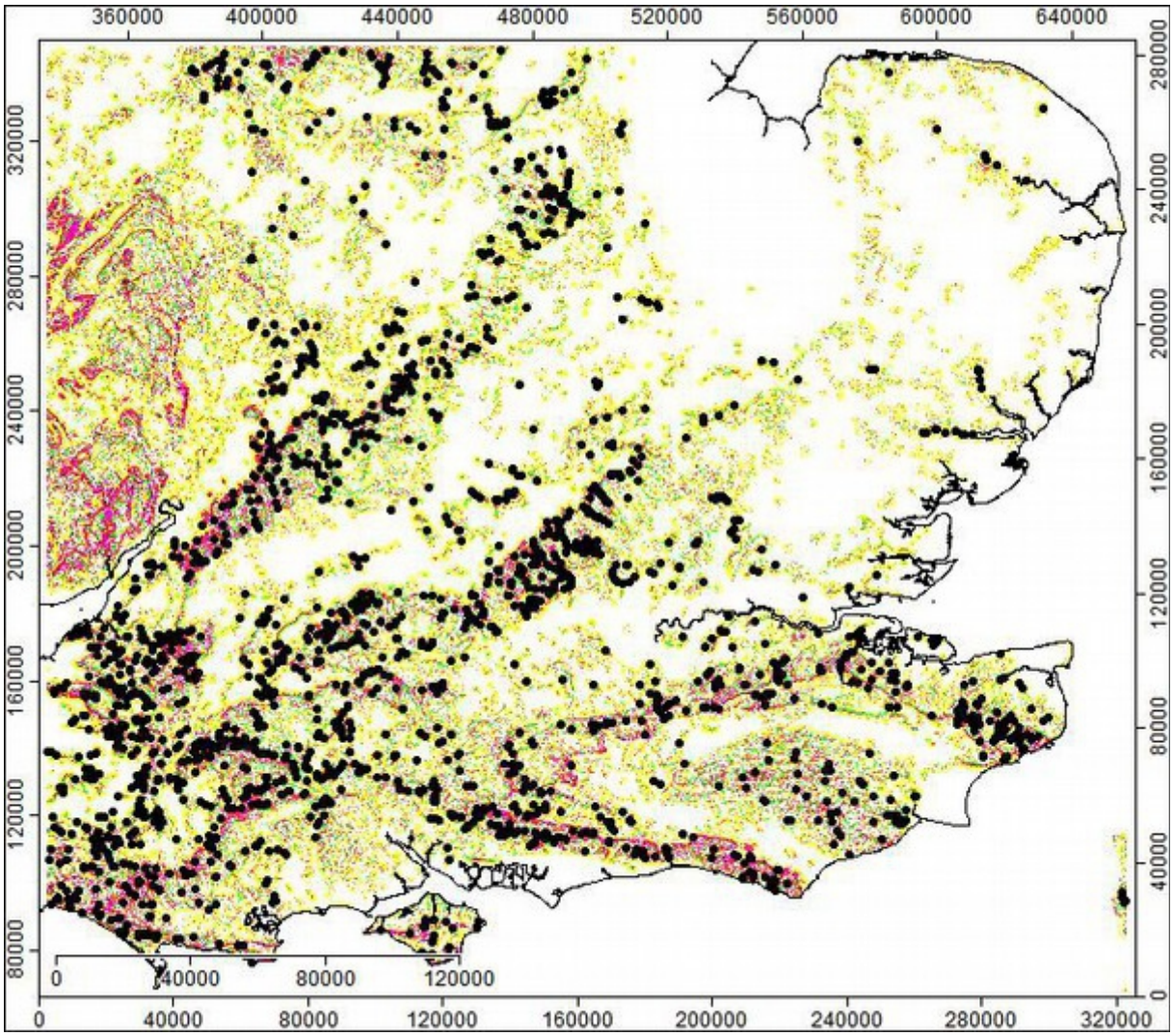


Figure 4: the original 2700 matches from the template matching exercise. The black dots are the expanded centroid locations of the template matches (circles with diameter equal to the width of the found topographic depression). The area west of the river Severn was excluded from the study because it was thought unlikely that Suetonius would not have sought shelter in a fort, for example Kingsholm near Gloucester, if he had marched that far west. Note that there are some obviously erroneous sites, e.g. in France and the Isle of Wight; these, and others for different reasons (see text), were removed from the study.

After some initial editing to remove matches that were either too large, too small or simply in inappropriate topographic locations, for example the tops of ridges, the number of template-matched sites fell to 2187. In addition, many were slightly repositioned by tens of metres so that their circular boundaries were contained by the depression margins, often shown by slopes greater than five degrees, as it was assumed that their diameters would equate to the length of a front-line composed of Roman legionaries (Figure 5). Typically this placed the centroid of the matches close to the lowest elevations within the depression.

Having re-located some matches, the next step was to remove all those that had grossly detrimental characteristics for the Romans. The reasoning was that Suetonius had been in control of the direction of travel from London, had marched for at least one day and probably many days (a topic which will be discussed later), and he chose to offer battle in his preferred location – Tacitus writes of Suetonius, "he prepared to break off delay and fight a battle", and later still, "[he] having first ascertained that there was not a soldier of the enemy except in his front, where an open plain extended without any danger from ambuscades" (*Annals* 14.34). Having the advantage of time, due to his army's superior marching speed (Kaye 2013a and c), it seemed inconceivable to reason that Suetonius would not have selected the most suitable of battle-sites, and probably the best in any area or along a particular line-of-march.

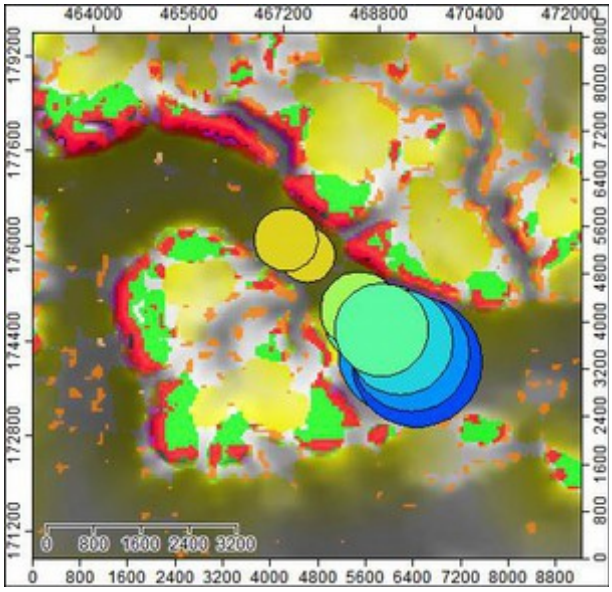


Figure 5: examples of the widths (diameter) of template matched sites in the Thames Valley (between Pangbourne and Reading). The widths of the sites defined by the template matching software, Ciratefi, were used to slightly relocate the sites to positions bounded by the depression margins, often between slopes greater than five degrees. The concept employed was that the widths matched the likely length of the Roman front-line of legionaries. Colours assigned as in Figure 2.

As an aside, it could be argued that the computational approach used in this study, one that examines every square metre of the topography in the south of Britain, far exceeds the knowledge that Suetonius could possibly have deployed in selecting his battle-site, i.e. that the encompassing, all-knowing search of this study would find sites that Suetonius could not have known of in advance of reaching the locale. The counter-argument is that the south of Britain is a relatively small area, a fact that frequently eludes the modern mind, but would have been apparent to a Roman commander used to traversing much larger spaces in Europe and north Africa. A small area is more

easily known, especially to a Roman Governor who probably spent a large part of his previous two years of tenure riding, or being carried in coaches, across the breadth of the province. This activity, at a pace slow enough to allow study of the passing landscape, is profoundly different to the modern observer peering forever forwards down the modern road, and would build a base of topographic knowledge that may have been called upon during the Boudica uprising. Suetonius would not have been alone in gathering this knowledge: the same would have been true of his sub-commanders, headquarters staff, local unit commanders, those charged with patrolling their local area and, finally but possibly significantly, those indigenous tribesmen and leaders who supported the Romans. All these people would have either spent their lifetimes in getting to know their own land and those of their neighbours, or may have spent 18 years since the invasion in 43 AD marching and riding across the terrain. In combination this knowledge would have been comprehensive, even possibly mapped and, if the right individuals were in attendance, known to Suetonius in some manner. For surely the simple question to be asked of those around him, supposing that he did not have his own answer, was, “where is there a battle-site approximately one kilometre wide, flat and open to the front, bounded by ridges or elevations to protect the flanks of the front-line, and has sufficient water for the men and beasts?”. If, for example, an answer came from a local tribal chief, then a unit of cavalry led by an experienced officer could be dispatched to reconnoitre. Answers from others would be judged on the informant's merit. In conclusion to this argument, for the modern mind to suppose that the ancients did not have and were not capable of having a deep knowledge of the land they traversed and, in the Roman case in Britain, controlled, is to unjustly underestimate their combined capabilities. Furthermore, as will be described in later sections, the majority of top candidate battle-sites were on, adjacent or within a few kilometres of a major military Roman road (many being within view of a road). Therefore, this modern study could be said to replicate the knowledge Suetonius either held or had available to him.

Returning to the description of finding the battle-sites, logic suggests that Suetonius would not have chosen a site with the most obvious of faults: one where the river supplying sufficient water for his army's needs (0.00891 cubic metres per second [m^3/s]) either flowed towards his front-line or was otherwise under the control of the rebels thus leaving him without sufficient water; or the Roman front-line faced significantly uphill; or the front-line faced a direction rotationally opposed to the most likely direction of march from London; or one where the route from London to the battle-site was so convoluted and/or retrograde that the rebels could have approached and flanked the Romans from a number of directions so that there was a low probability that there was “not a soldier of the enemy except in his front”.

Each of the remaining 2187 template matches were examined for these faults; those found wanting were removed from any subsequent calculations resulting in a new active list of 862 sites (Figure 6).

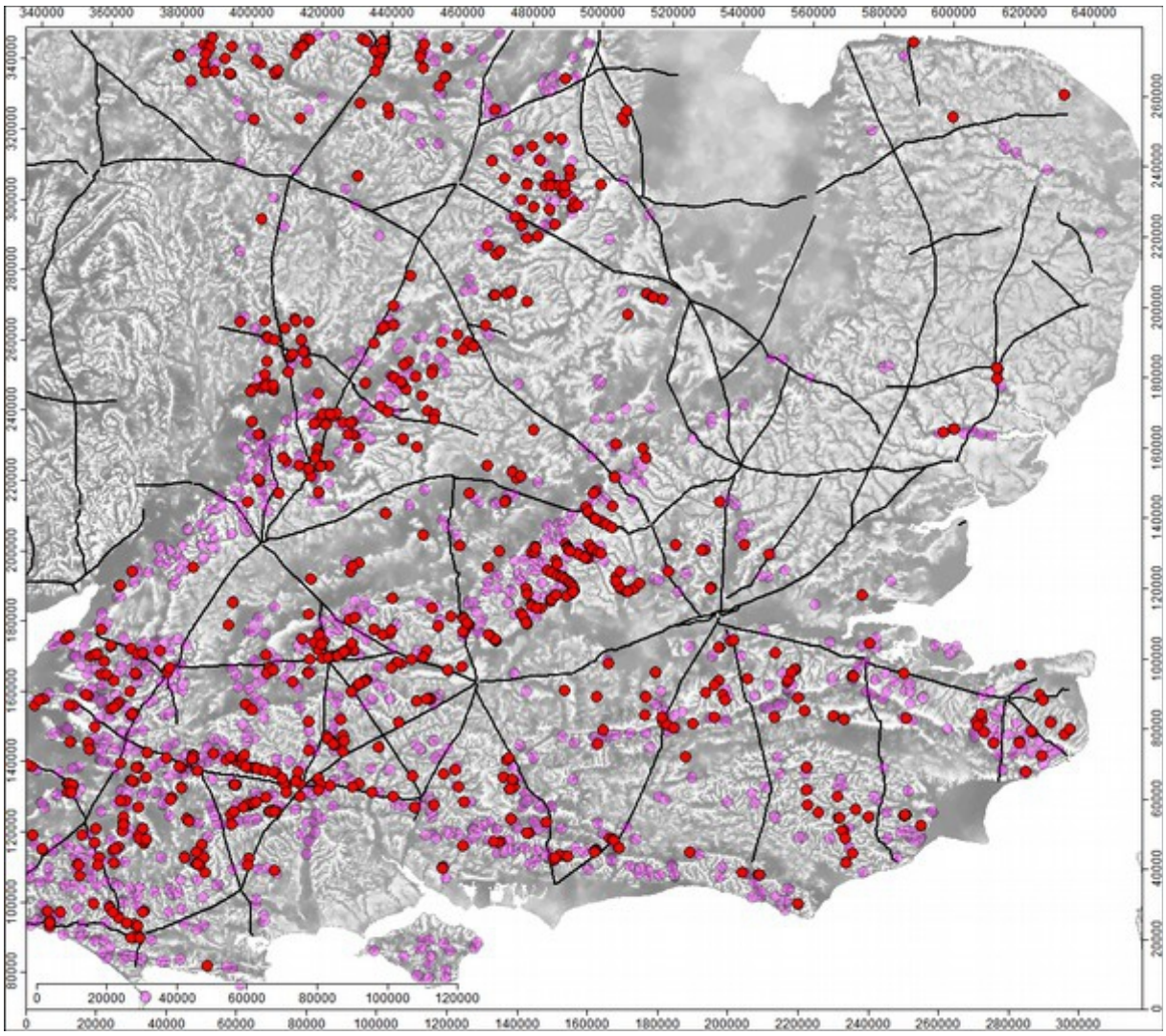


Figure 6: the distribution of 862 active candidate battle-sites (red) overlying the original 2700 template matched sites (pale purple). Background is of elevation (normalized height); Roman major roads in black, not all of which would have existed in 60 or 61 AD.

Ten normalised attributes for 862 battle-sites, weighted and ranked

To summarise this section: the calculated or measured values of ten attributes were assigned to the 862 active sites; the value of each site was then normalised with respect to the others (0 to 1), and then weighted and ranked.

The 10 attributes will be briefly described.

Normalised height - where local elevations were examined and allotted a value of 1, to the highest, and 0, to the lowest position. In this study the mean of normalised heights of all grid cells within a polygonal area was used as a measure of local elevation amplitude, with the highest being most favourable to the Romans.

Terrain ruggedness (vector) - corresponds to the average elevation change between any point on a grid and its surrounding area. In this study three polygon areas around a candidate site were measured for ruggedness and the mean calculated. Each was then normalised, and the average of all three polygons used as the gross measure of ruggedness. The three polygons were: the width of the

depression in which the site was situated (valley or defile width which also equalled the original width of the templates found by Ciratefi – remember that the original template circles were slightly moved to occupy the mid-point of the depressions, i.e. they were typically bounded by increasing slope values) and twice and thrice this width. The use of three polygons gave a measure of overall ruggedness within and adjacent to the site; this may be interpreted as a combined measure of a) local suitability for the Roman front-line and b) an indicator of the ruggedness of the topography surrounding the front-line, e.g. the more rugged, the less likely the site might have been flanked by the rebels.

Suitability of Roman front-line length – the point of this attribute was to determine the range of suitable front-line lengths, taken as the diameter of the template matched site found earlier (usually the width of the depression - see Figure 5), and those partially or wholly detrimental to the Romans and therefore, less likely to have been Suetonius' choice. To reiterate, Tacitus wrote that 10,000 Roman armed men were at the battle, comprised of legionaries from the 14th Legion plus veterans from the 20th that together constituted the front-line soldiers, and auxiliaries and cavalrymen on the flanks. Most modern commentators suppose, and likewise in this study, that the legionary numbers possibly equated to a full legion, c. 5,000 men (note: there is no evidence for this supposition). Of the battle formation Tacitus wrote that:

> His [Suetonius'] legions were in close array; round them, the light-armed troops, and the cavalry in dense array on the wings. (*Annals* 14.34);

and later at the point of contact he wrote:

> At first, the legion kept its position, clinging to the narrow defile as a defence; when they had exhausted their missiles, which they discharged with unerring aim on the closely approaching foe, they rushed out in a wedge-like column. Similar was the onset of the auxiliaries, while the cavalry with extended lances broke through all who offered a strong resistance. (*Annals* 14.37).

It was clear that the Romans were aligned across a defile (the topographic depression), and that the two armies came together along one long battle-line to which the rebels had directly advanced. Tacitus gave no suggestion of the rebels flanking or surrounding the Roman battle-line. Hence, to determine the likely length of the front-line it was necessary to define a measurement that would exclude, or varyingly penalise, those Roman front-line widths that would have been seen either as untenable by Suetonius or would have invoked a different tactic by Boudica.

As already mentioned, the heavily-armed and armoured legionary 5,000, i.e. those most capable of resisting and repulsing the initial, most dangerous attack, formed the continuous front-line with the auxiliaries and cavalry stationed at the margins. The two latter groups were assumed to be stationed on elevated and rising ground, often with slopes exceeding five degrees, that compensated for their lighter armour and arms. Most commentators suggest that the probable front-line length of the legionaries was 1,000 m (note: there is no evidence for this supposition); this seemed a reasonable starting assumption which, estimating that a single legionary occupied one metre, resulted in five ranks of legionaries facing the charging rebels.

Some soldiers (legionaries and/or auxiliaries) would have been engaged in guarding the marching camp but Tacitus does not give these sorts of details and neither can the number be confidently assigned. In addition, the statement by Tacitus that Suetonius, “having first ascertained that there was not a soldier of the enemy except in his front”, might equally relate to the camp, rather than just the front-line. The camp-guard might therefore have been small in number, the front-line playing the major part of that role. Irrespective of those points, in this study no justifiable, unambiguous mechanism could be found to lower the 10,000 to take account of guarding the camp: consequently

the whole body was assumed to have been at the battle-site.

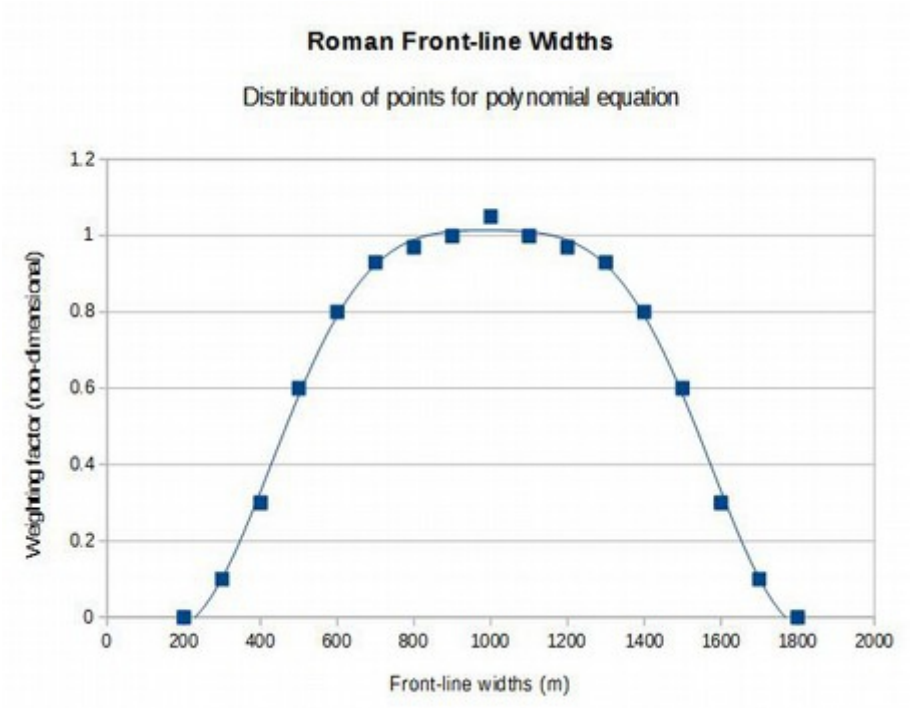


Figure 7: graph and polynomial trend-line of Roman front-line widths. Weighting factor values (y axis) between 700 and 1300 m front-line width (x axis) were held close to 1 (at 1000 m and rank depth of 5), being thought acceptable to the Romans as rank depth decreased from 7 to 4. For other widths the weight factor rapidly decreases as detrimental effects would have rendered the Roman front-line increasingly untenable (see text). Note that the point at 1000 m is elevated simply to raise the polynomial trend-line (and derived equation) which would otherwise dip at this point.

After due consideration of the many aspects related to this attribute, it was decided to produce a polynomial equation, and subsequent distribution, that resulted in little numerical difference for widths between 700 and 1300 m but had steep flanks, on both sides, to either 0 or 2000 m (Figure 7). The steep flank, 0 to 700 m, was designed to reflect detrimental effects, such as the increasing likelihood that the rebels would have surrounded a compact Roman force occupying a relatively small depression. For example, a 500 m wide front-line might contain ten ranks of legionaries, a depth that Boudica might have thought too strong to breach by simply charging. In which case the better option might be to attack or flank the Roman margins with the aim of surrounding the legionaries. That method would have had two significant benefits for the rebels: firstly, considerably more rebels would have been directly engaged with the Roman soldiers; and secondly, Suetonius would have had to weaken the legionary front-line to withstand flank and rear attacks on his position.

What of Suetonius' thoughts on the matter? He deliberately chose a depression with elevating margins, presumably with the intention of protecting the flanks of the front-line with the auxiliary and cavalry. He probably thought that if he presented a long enough front-line, one not overly deep, then Boudica would not be dissuaded from a frontal, massed attack – the imperative, therefore, was to persuade by presentation an attack option that Boudica thought was likely to succeed but in actuality favoured the Romans. Therefore, Suetonius would not have chosen a defile that made his

legionary front-line appear unbreakable because he would have reasoned that that would encourage Boudica to flank his position, an outcome that Suetonius must have thought might lead to destruction. This reasoning was further supported by Tacitus praising Suetonius for not having the enemy behind him, that is, it made little sense for Suetonius to select a battle-site where the enemy were only to his front and then encourage them to surround his position.

Hence the steep penalty for front-line lengths of 0 to 700 m.

For widths 1300 m and above the overriding detrimental effect was the decreasing number of ranks which would have been progressively less able to withstand the charging rebels, for example, by 1666 m the number of ranks would have fallen to three; at 2500 m there would only have been two ranks, numbers that Suetonius would surely have thought too low; his men would probably have agreed! This pointed to another related factor: morale. Tacitus gave the impression that the veteran legionaries were not demoralised by their predicament, a state of mind which must have, to some degree, reflected their agreement with the choice of battle-site and presumably the width and depth of the front-line. The question as to whether the supposed near-to-optimum rank depth (7 to 4) used in this essay was that actually deployed or not, may only be answered by finding the true battle-site.

Wetness – a simple attribute, derived from a standard topographic indicator, the Topographic Wetness Index. In this study of a Summertime episode, the feature 'wetness' was used to differentiate not only the bogginess of a site but also vegetation and local terrain roughness (that which is under foot). To generalise, areas prone to winter wetness tend to have dense, high vegetation covering rough ground, while drier areas are often grass-covered and smoother (note that tree-cover as a parameter was not used in this study because so little is known of its extent). The former would have been detrimental to the Romans, hindering their front-line formation and later planned advance through the rebel horde, whilst the latter would have been beneficial.

Distance to London – another simple attribute, resulting in a value of one at London and linearly decreasing to 0 as distance increased. The purpose of the attribute was to assign a value to increasing Roman fatigue, decreasing food supplies, loss of soldiers due to skirmishing and injury, and loss of horses and pack-animals as the army progressed further from London.

Distance from main Roman roads – the distances from the Roman roads shown in Figure 6 were linearly lowered from one to zero as the value increased. Not all of the roads depicted would have existed in 60 or 61 AD but those between military forts and major towns probably did in most areas in the south of Britain. Such military roads were Watling Street (Wroxeter to London to Dover), the Fosse Way (Exeter to High Cross, possibly further), the Portway and off-shoots further west (London to Silchester and beyond), Akeman Street (St. Albans to Alchester to Cirencester) and Stane Street (London to Chichester). The general assumption was that closeness to a road benefited the Romans as less time was spent marching off-road to reach the battle-site and, the reverse situation, allowed Suetonius to quickly withdraw from the battle-site if, for whatever reason, he deemed that necessary. It also allowed easier communications with other units in Britain, improved the reliability of re-supply (if any) and reinforcement (which did occur), plus a site close to a road was likely to be more familiar to the Roman commanders. Legionary morale would be improved due to an understanding of the preceding points and a hope, probably false, that if the battle was lost then there existed an escape route.

Induced stress on the British rebels – this was an attribute designed to model the strain imposed on the rebel forces as the campaign progressed (Kaye, 2013a). Elements of the calculations were: a factor composed of elevation and hydrogeological parameters designed to convey strain due to food, fodder and firewood shortages if the battle-site was located in upland areas, typically but not exclusively chalk or limestone; the distance marched from London; and the distance from a river(s) that could supply the water need of the rebel horde (0.04 m^3/s when the rebels followed the Romans).

Distance from river(s) supplying sufficient water for the Romans – it was standard practice for Roman armies to build or re-occupy marching camps prior to a battle, as indeed it was for every night while marching, and Suetonius may have had additional reasons to follow this practice. His superior marching rate over that of the rebels may have meant he was waiting at the battle-site for a number of days; he had an unknown number of civilians who had to be protected, not least on the day of battle; he probably had a large number of pack-animals and quantities of supplies that had to be safeguarded; and finally the possibility of withdrawal into a marching camp, if the battle went against the Romans, would have raised the morale of the soldiers.

(Note that, in this section and henceforth, all river parameters and measurements, both discussed and displayed, are of the reconstructed rivers in the summer of 60 or 61 AD (after Kaye, 2013b and 2014)).

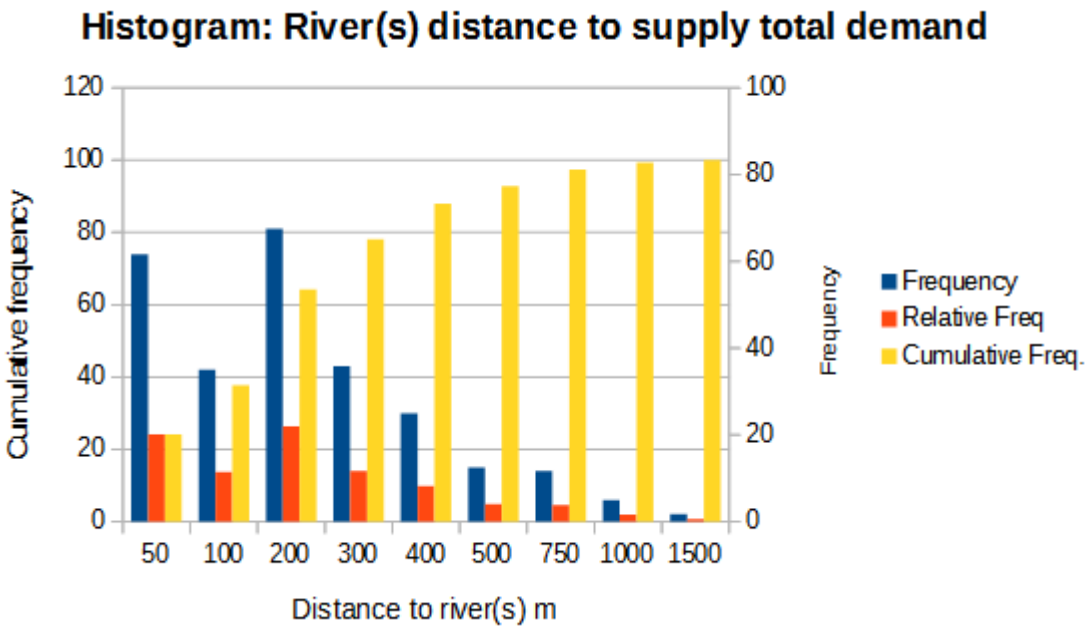


Figure 8: histogram of distances from temporary marching camps (307) to rivers supplying sufficient water.

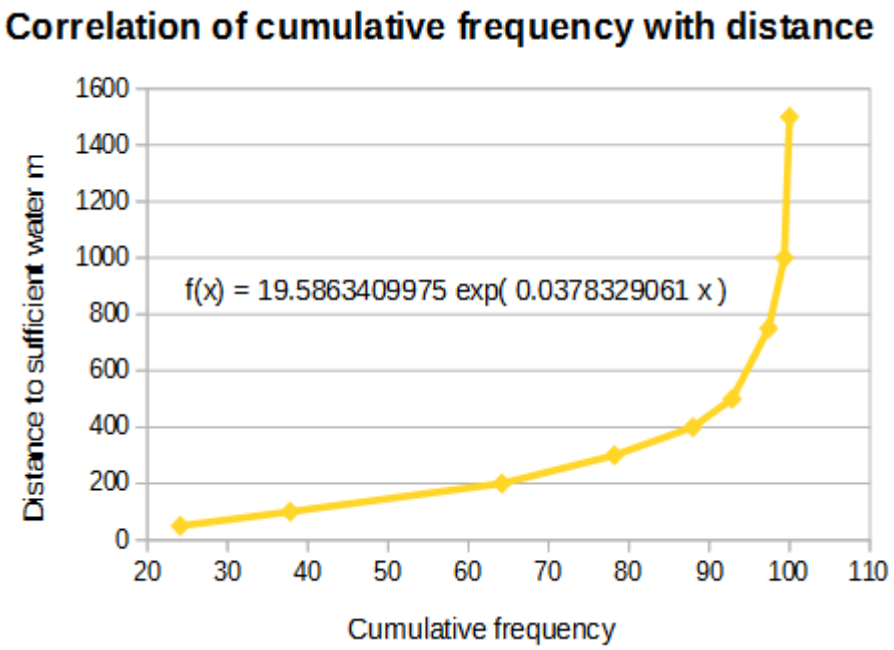


Figure 9: graph of the cumulative frequency of 307 temporary marching camps against distances from rivers supplying sufficient water. The exponential equation was used to calculate the attribute 'Distance from river supplying sufficient water for the Romans'.

Like individual humans, armies are more dependent on water than they are on food. It was for this fundamental reason, plus defence and cleanliness, that earlier work on the statistics of temporary marching camps in the UK (Kaye, 2013b) showed that, of the 307 camps examined, all were within 1500 m of the reconstructed river(s) for 60 or 61 AD capable of supplying sufficient water to the resident force (0.00891 m^3/s for Suetonius' army), and approximately 65% of camps were within 200 m (Figure 8). The distribution of distance versus supply was exponential, the equation of which was used to calculate this attribute (Figure 9). The distributions of frequency and relative frequency in Figure 8 show more variability than the cumulative, especially in the lower distances from camps (50 to 200 m); nevertheless, the overall picture, of what might be assumed to have been a standard practice, was best exemplified by the cumulative frequency equation. But in the case of Suetonius' camp, there was an obvious difficulty.

Given the probable importance of the marching camp to Suetonius, it may be reasonable to assume that its water need took precedence over that of the battle-site, which may have been even further from the river. However (and stating the obvious for clarity) the location of the marching camp was not known. Hence, the distances between the river and camp, and camp and front-line, were also unknown. What was known was the distance between the river and the candidate front-line, to which the exponential equation was instead applied. This tacit acceptance of a failure of knowledge probably does not negate the usefulness of the calculated attribute when applied *en masse* to a large number of candidate battle-sites, but it may do so if applied to differentiate a small number of sites located in markedly differing terrain, i.e. this may be a problem in the future if the number of candidate sites are greatly reduced.

Effect of a river flowing through the front-line – having sufficient water nearby was undoubtedly beneficial to the Romans, but having that water flow through the front-line was not, for obvious reasons. This attribute therefore penalises such battle-sites (482 of the 862) by assigning a value of one to rivers that flowed at either end or beyond a front-line, linearly through to zero when the river

flowed at the centre. Additionally, a weighting based on the width of the intruding river was also applied – the greater the width, the greater the penalty. Of course, the problem with this attribute was assuming that the reconstructed locations of rivers matched the meander location of the actual river in 60 or 61 AD. In many instances the modern and ancient locations will broadly coincide, especially for those river valleys carved primarily by greater flows during glacial and periglacial periods. In further mitigation, it was decided that ignoring the possible effect of rivers flowing through tight valleys and defiles, and hence more likely to flow through the front-line, was not appropriate because Suetonius would have been less likely to have chosen such a site.

Effect of blocking or trapping by large rivers – for this attribute various river parameters were calculated to find those that had the capacity to either block or trap the Romans. For example, the unwadeable river Thames flowed through the narrow Goring Gap (Figure 10) and clearly demonstrated that there were various locations where a Roman front-line could have been trapped either in battle, due to defeat and retreat, or because the rebels might have chosen to contain the Roman force and starve it. Suetonius, an experienced general, would not have placed his force in a location pregnant with such predicaments.

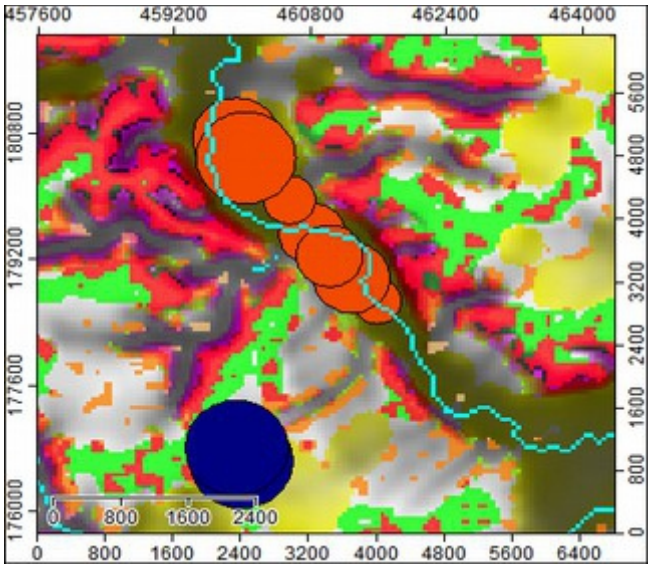


Figure 10: the unwadeable Thames in the Goring Gap. The red battle-sites were locations where the Romans might have been trapped or blocked, resulting in battle-sites unlikely to have been chosen by Suetonius. Topographic colours as assigned in Figure 2.

Attribute values were defined by use of a method employed in earlier work (Kaye, 2014) where river widths, depths, velocities, instability indices and thalweg depths were calculated. After examination it was decided to use the thalweg depth as an indicator of the unsuitability of the battle-site, it being generally more representative of the overall range of river depths than the average depth. As already mentioned, the aim of this attribute was to apply a penalty to sites adjacent to rivers that could have been dangerous to the Romans or, in some manner, hinder their battle-site manoeuvring. Simply selecting those rivers or stretches that were unwadeable would not suffice. Hence a lower threshold was applied, with only battle-sites that had rivers within 500 m and thalweg depths greater than 0.5 m being penalised. Thus a value of one was applied to depths equal or less than 0.5 m and decreasing to zero for the greatest depths. Only 283 sites were penalised, the majority on the lower reaches of the main rivers, e.g. Thames, Kennet, Avon, Medway and Colne.

The 0.5 m threshold was chosen after considering what Suetonius might have thought dangerous. Such a depth under normal circumstances would not be a barrier to soldiers or cavalrymen. However, and for example in the case of the Roman front-line not withstanding the rebel force, then a general retreat to the marching camp might have been required, resulting in panicked, harassed and demoralised Roman soldiers massing at a 0.5 m deep river and becoming trapped. The result would probably be massacre.

Having acquired values for the ten attributes, the next step was to apply weightings reflecting their relative importance (Table 1), i.e. to derive a weighted ranking. To adjudicate on relative importance was necessarily subjective, but after the examination of various statistical techniques to produce machine-derived weightings, it was concluded that more easily-described subjectivity was preferable.

Attribute	*Weighting*
Normalised height	1.1
Terrain ruggedness	1.1
Suitability of Roman front-line length	1.0
Wetness	0.5
Distance to London	1.0
Distance from main Roman roads	1.1
Induced stress on the British rebels	1.0
Distance from river supplying sufficient water for the Romans	1.2
River flowing through the front-line	1.2
Blocking or trapping by large rivers	1.0

Table 1: preferred weightings applied to the ten attributes (where the attribute value for each candidate battle-site would be multiplied by the weighting).

To begin with, it was realised that the wetness attribute pertained more to the winter, rather than the summer, and should be down-weighted by 0.5; what wetness measures, or reflects (for example locally rough ground) probably did influence the choice of battle-site but much less so than other attributes.

A weighting of 1.0 was applied to four attributes (Table 1), these being sufficiently represented by their normalised values relative to those attributes considered more important. For example, one of the four at 1.0 was 'Distance to London' but the other distance attribute, 'Distance from main Roman roads', was considered relatively more important, for the reasons given earlier under the attribute description of the same name, and set to 1.1.

Another example of relative importance was shown between the 'Distance to London', 1.0, and the 'Terrain ruggedness' of a battle-site which was given a weighting of 1.1. The applied logical distinction is emphasised, probably too simplistically, by considering a commander marching away from a larger enemy force across a landscape that becomes progressively more rugged the further he walked; he would not choose to stop and offer battle if, having marched a few kilometres further, he would find a better battle-site: that is, finding the best battle-site for survival and victory is more important than the effort expended in marching a little further. So it was thought for the Romans and Suetonius.

A similar logical premise was used to separate those attributes weighted either 1.1 or 1.2,

'Normalised height' and 'Terrain ruggedness', versus 'Distance from river supplying sufficient water' and 'River flowing through the front-line', respectively. The 1.1 weighted attributes reflect the topography of the candidate battle-site, while the 1.2 attributes reflect the hydrological conditions, but which was more important? One premise was that a most favourable battle-site, located in topography best suited to Roman tactics and matching Tacitus' description, would not have been chosen if the nearest water supply was many kilometres away because Suetonius probably had to wait a number of days for the British to arrive, plus he also had to avoid the possibility of besiegement in a location without water. A second premise, in the topography versus hydrology debate, concerned a topographically-optimum battle-site but with a river that flowed through the front-line; clearly the presence of the river degraded the battle-site depending on the location of the river – at or beyond the margins or otherwise - and its width or depth, i.e. the presence of the river was a dominant attribute relative to the topographic, hence 1.2 versus 1.1, respectively.

A general requirement when applying weightings is not to choose factors that unreasonably enhance one attribute over another or to disproportionately distort the values assigned to all attributes. The weighting factors should be assigned logically, proportionately and, in part allowing for the failure of those two requirements, at least in a manner that can be readily understood, if not agreed upon. To those ends, Table 2, a comparison of the best weighted and unweighted sites, showed that the weightings applied in this study could be considered benign: of the top ten weighted sites, six were also in the top ten unweighted sites, and of the top 20 weighted sites, 16 were in the unweighted top 20.

Ranked position	*Ranked weighted sites*	*Ranked unweighted sites*	*Position of weighted sites in unweighted rank order*
1	596	1427	7
2	855	100	10
3	1427	469	1
4	388	76	6
5	1429	1514	12
6	100	388	2
7	656	596	29
8	943	404	9
9	175	943	15
10	820	855	17
11	548	628	18
12	1348	1429	19
13	63	2056	20
14	214	1993	28
15	76	175	4
16	628	366	11
17	224	820	30
18	469	548	3
19	1993	1348	14
20	1224	63	24

Table 2: a comparison of the ranked positions for weighted and unweighted candidate battle-sites. Column one shows the rank for the unique identifiers assigned to candidate sites in columns two and three. Column four shows the position of the 'Ranked weighted site' in the unweighted rank order, e.g. weighted site 596 shown as number one, occurs at position 7 in the unweighted ranking.

The similarities, therefore, between the weighted and unweighted sites indicated that the applied weightings had probably not unreasonably favoured any one attribute, or disproportionately distorted the original attribute values.

The distribution of the summed, normalised, attribute values and their weightings, i.e. rank order, is shown in Figure 11 (left), where the sites approximately between 50 and 700 exhibit a regular fall in weighted value. The distribution tails, 1 to 50 and 700 to 870, have steeper gradients. Figure 11 (right) shows the top 20 weighted sites in rank order; sites from 7 to 20 roughly share a gentle, negative slope but those 1 to 6 can be placed on a steeper trend-line. This indicated that the attribute values and weightings were preferentially separating the higher sites from each other and the common background, i.e. sites 1 to 6 were more likely to be correctly ranked relative to each other and, as a group, significantly prominent – head-and-shoulders, so to speak – above the main body of sites, 7 to 700.

Furthermore, of the weighted sites 1 to 6, 3 occurred in the same unweighted range (Table 2) which demonstrated not only the appropriateness of the applied weightings, but also that these sites were prominent simply by virtue of their attribute values, i.e. it might be thought more likely, of this set of attributes and the manner of their calculation, that the real battle-site lies within this weighted range.

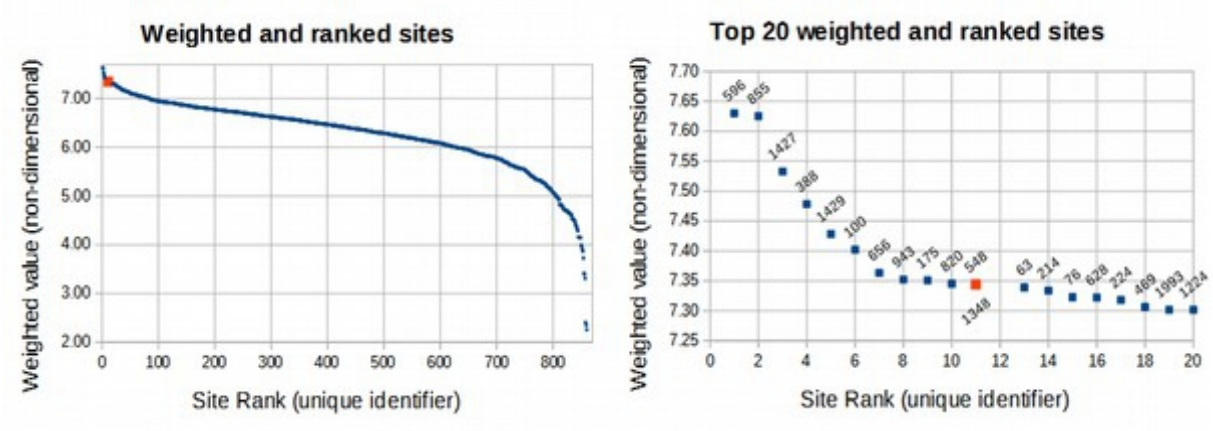


Figure 11: the weighted and ranked candidate battle-sites; 1 to 862 on left, 1 to 20 on right. The numbers are unique identifiers for each candidate battle-site. Sites 548 and 1348 share the same location and rank, 11 (red dot in both graphs); one has not been removed because both were identified by different templates in the template-matching exercise.

The locations of the ranked candidate battle-sites

A different form of distribution, that of location, is shown in Figure 12, where the top 100 candidate battle-sites are shown overlying an elevation map of the study area. The first observation was that most of the sites occurred within, or on the margins of, the chalk and limestone uplands of the study area – the north Cotswolds, the Chilterns, the North and South Downs, the general area of Salisbury Plain, the North Wessex Downs and the Mendips. A second observation was that there were no sites north of Alcester with the exception of sites 49 and 70. Site 49 at Church Stowe, adjacent to Watling Street and a site championed as the actual battle-site (Pegg, 2010), was the only site along that road north of the Chilterns at Dunstable (another championed site ranked 63 and 84 (Horne, 2014)). Not surprisingly, given the low topography of the region, the whole of the study area east

and north of London was bereft of top 100 candidate sites.

As an aside, the finding in this study of the championed candidate sites at Church Stowe and Dunstable gives further credence to the template matching approach. It suggests that individual reasoning, applied to the topography and Tacitus' text, has been replicated in the method.

Figure 12 was sub-divided into regions allowing the showing of the ranks for each candidate site – Figures 13 to 16.

Readers who wish to display the locations of the top 100 sites are invited to make use of a Google Earth KMZ file located on the author's website – top-100-sites.kmz (http://www.bandaarcgeophysics.co.uk/arch_intro.html/top-100-sites.kmz). Location details for the top 20 are shown in Table 3 (see after Figure 16).

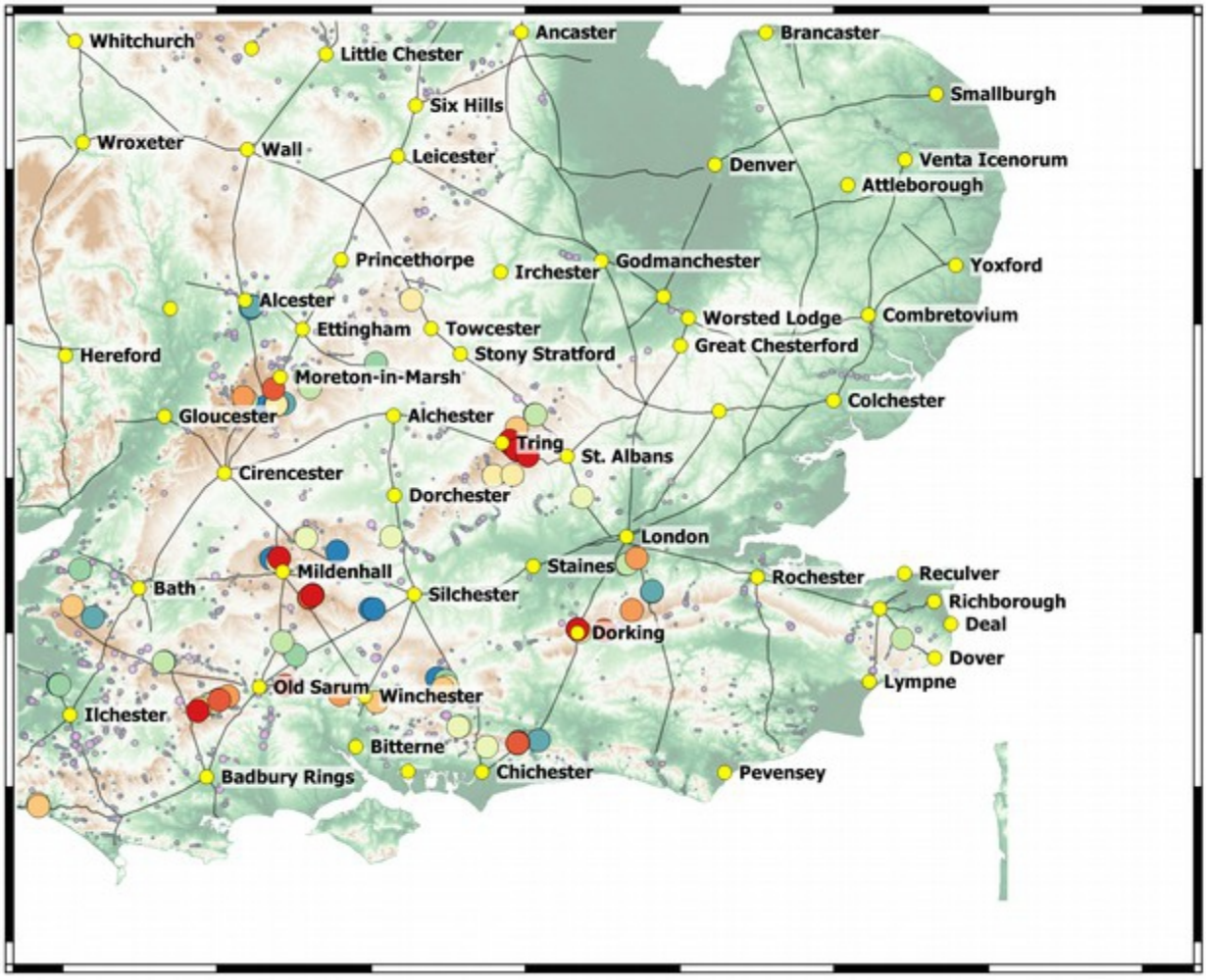


Figure 12: distribution of top 100 candidate sites across the study area. The sites are colour graded from 1 in red through yellow and green to 100 in blue. There is some visual overlapping of sites. The original template matched sites, sized according to their width, are pale purple. Details of this map, with candidate battle-sites numbered according to rank, follow in Figures 13 to 16. Main Roman roads in black. Background is elevation. Graticule at 50 km.

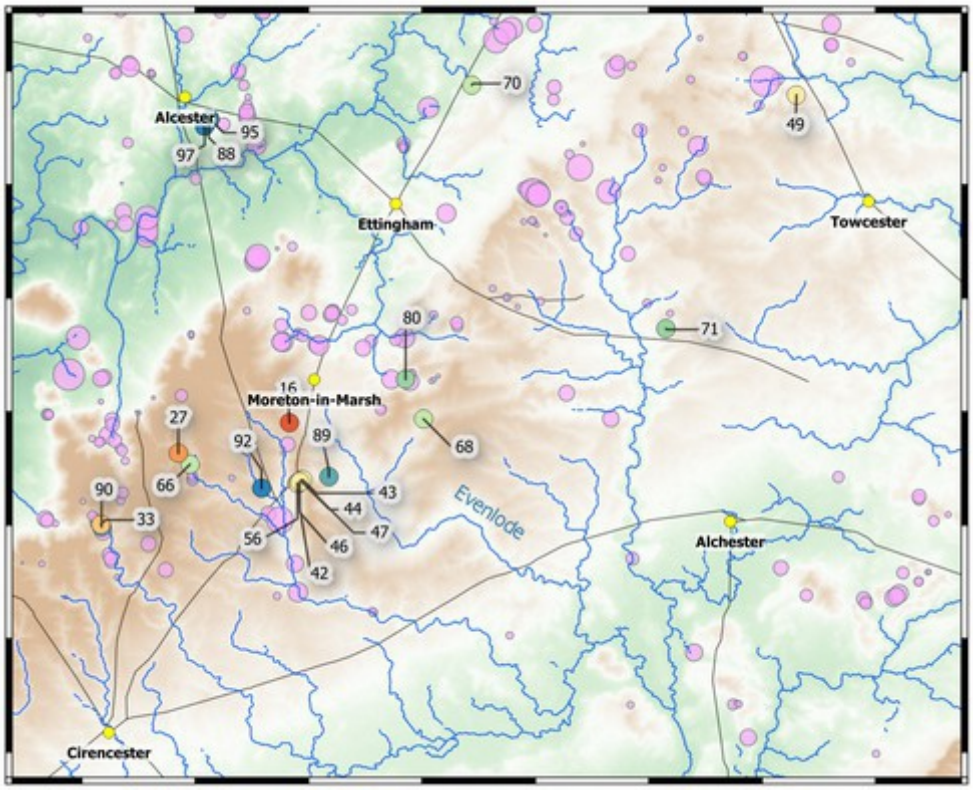


Figure 13: distribution of those top 100 candidate sites in the north Cotswolds. Site colours as in Figure 12. The original template matched sites, sized according to their width, are pale purple. The reconstructed 1st century rivers are limited to a flow rate of 0.00891 m^3/s, that required by the Romans. Main Roman roads in black. Background is elevation. Graticule at 10 km.

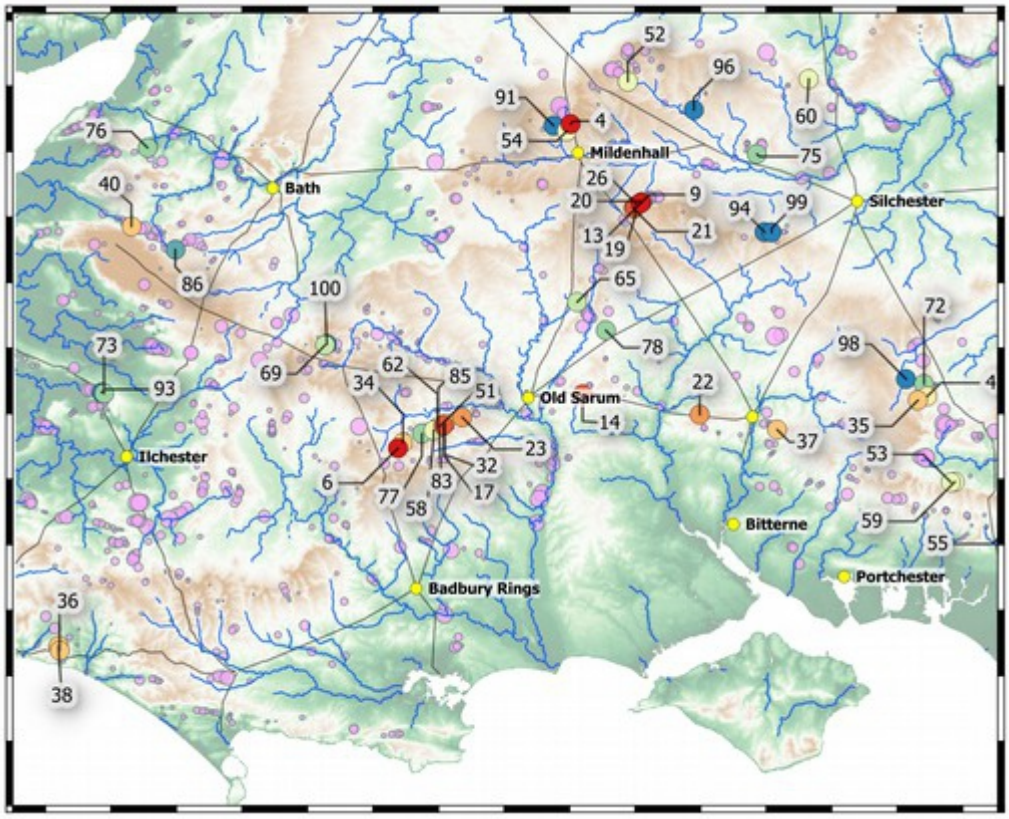


Figure 14: distribution of those top 100 candidate sites in south-central England.

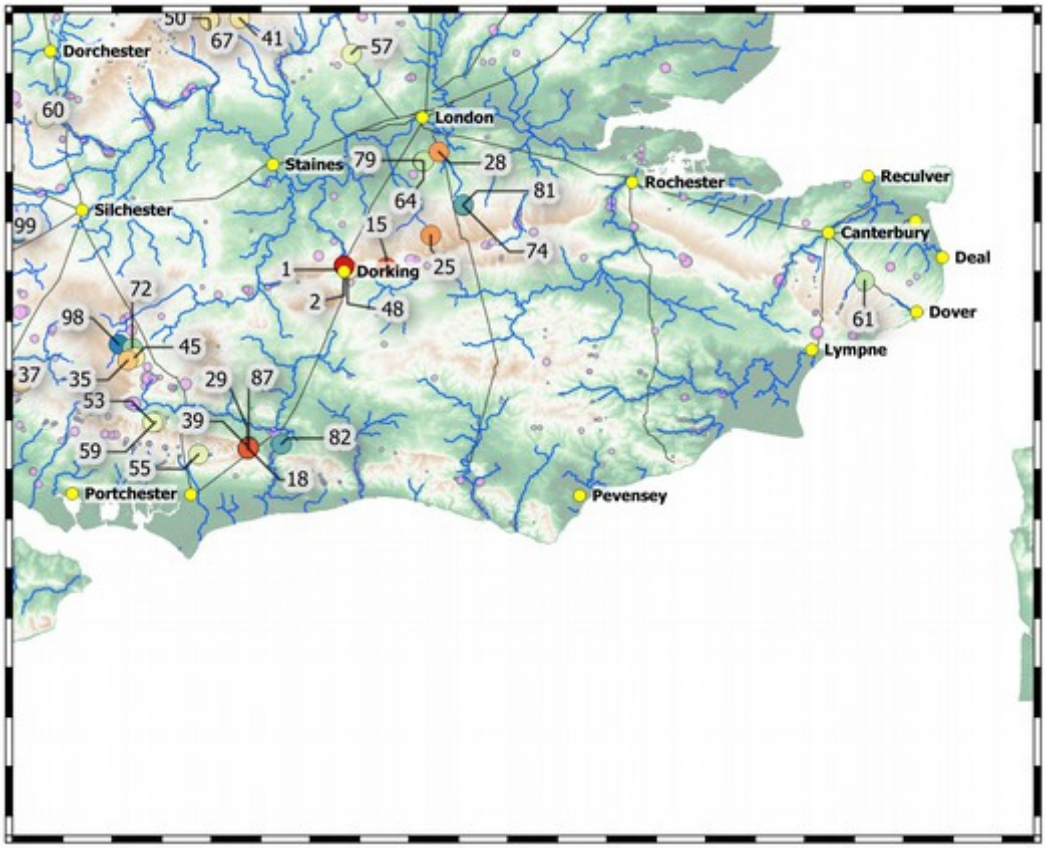


Figure 15: distribution of those top 100 candidate sites in the south-east of England.

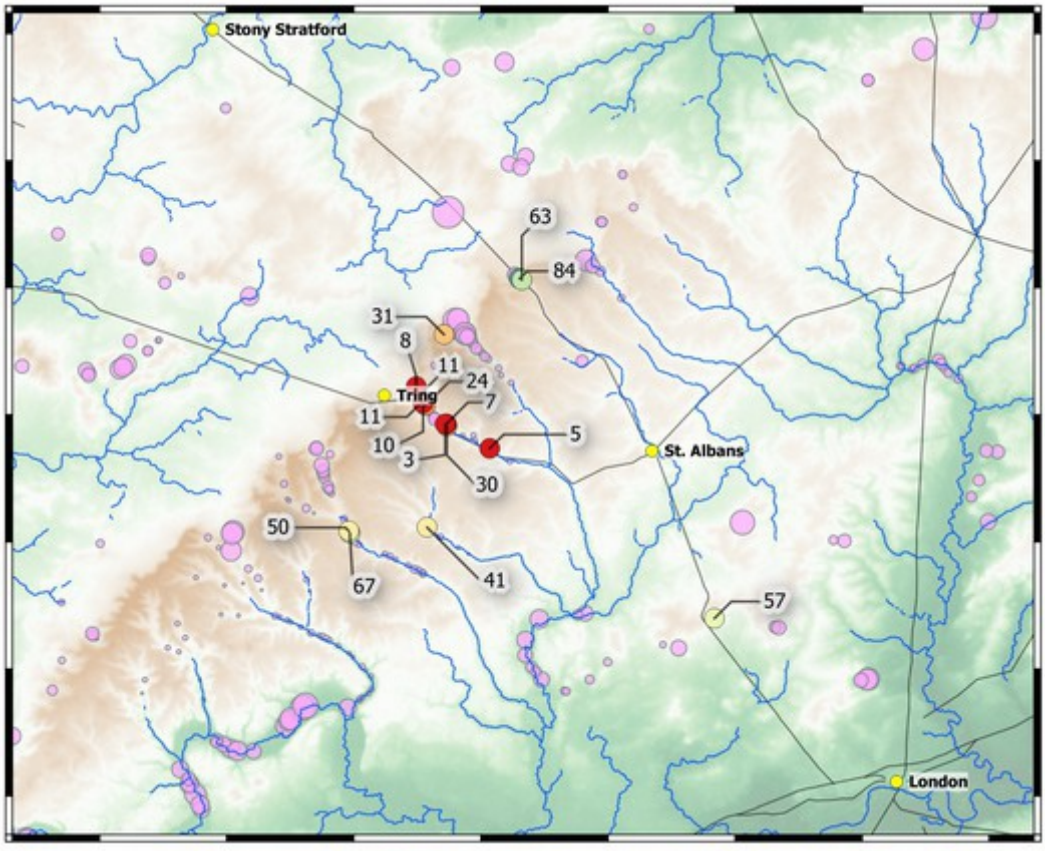


Figure 16: distribution of those top 100 candidate sites in the Chilterns.

RANK	X (OSGB36)	Y (OSGB36)	Lat (WGS84)	Long (WGS84)	NEAREST LOC.	TOWN	LANDRANGER	RIVER
1	516841.25	151154.35	51.2476003917	-0.3273181807	Bradley Lane	Dorking	TQ168511	Mole
2	516934.25	151057.52	51.2467184998	-0.3260176524	Bradley Lane	Dorking	TQ169510	Mole
3	497191.60	209280.75	51.7737736773	-0.5927359021	Alyngton	Berkhamsted	SP980084	Bulbourne
4	420152.47	174206.67	51.466480519	-1.7112763099	High Street	Ogbourne St George	SU201742	Og
5	500696.84	207360.10	51.7558885374	-0.5425097503	Bank Mill Lane	Berkhamsted	TL005071	Bulbourne
6	393799.97	124730.33	51.0219110569	-2.0897573726	Sands' Farm	Donhead St Andrew	ST959248	Nadder (trib.)
7	497283.00	209280.75	51.7737578857	-0.5914174236	Alyngton	Berkhamsted	SP972092	Bulbourne
8	494912.35	212220.34	51.800581508	-0.6249677352	Tring Station	Tring	SP949122	Thame
9	430839.77	162121.60	51.357338	-1.558482	Sandy Lane	Shalbourne	SU308621	Shalbourne
10	495455.12	210925.83	51.7888582076	-0.6174512843	Newground Road	New Ground	SP954109	Thame
11	495455.12	211108.62	51.7905030843	-0.6174009938	Newground Road	New ground	SP954111	Thame
11	495455.12	211108.62	51.7905030843	-0.6174009938	Newground Road	New ground	SP954111	Thame
13	430931.67	162209.30	51.3581178889	-1.5571385937	Sandy Lane	Shalbourne	SU309622	Shalbourne
14	421974.58	132967.00	51.0955966341	-1.6875572244	Crewkerne Farm	Firsdown	SU220329	Dun
15	525432.26	150788.78	51.24249696	-0.2044201734	Birkheads Road	Reigate	TQ254507	Mole
16	418313.93	229033.16	51.9594854229	-1.7348713857	Banks Fee Lane	Longborough	SP181291	Dikler
17	400749.17	128197.19	51.0531211011	-1.9906760006	Brook Street	Fovant	SU007281	Nadder
18	497465.78	114322.69	50.919522	-0.606211	Glatting Farm	Bignor	SU980142	Lavant
19	429965.36	161540.32	51.352152	-1.571096	Sandy Lane	Shalbourne	SU299615	Shalbourne
20	431022.56	162304.38	51.3589671268	-1.5558234704	Sandy Lane	Shalbourne	SU310623	Shalbourne

Table 3: Location details for the top 20 weighted and ranked candidate battle-sites.

A combined examination of Figures 12 to 16 and Table 3 made it clear that many of the top 20 sites were grouped according to their broad location. For example, sites 1 and 2 were both located in the steep, narrow valley or gap which cuts the chalk of the North Downs just north of Dorking in Surrey (Figure 17). Elsewhere sites 3, 5, 7, 8, 10 and the two 11s were located in the Bulbourne river valley of the northern Chilterns (Figure 18). Another grouping was evident within the area of the river Shalbourne in Wiltshire, i.e. 9, 13, 19 and 20 (Figure 19). Wiltshire had yet another grouping, in a similar topographic location to the Shalbourne sites, but deeper into the county beyond Old Sarum and adjacent to the river Nadder, i.e. 6 and 17. Most of the other sites were solitary, for example, site 4 at Ogbourne St. George, Wiltshire (Figures 14 and 20).

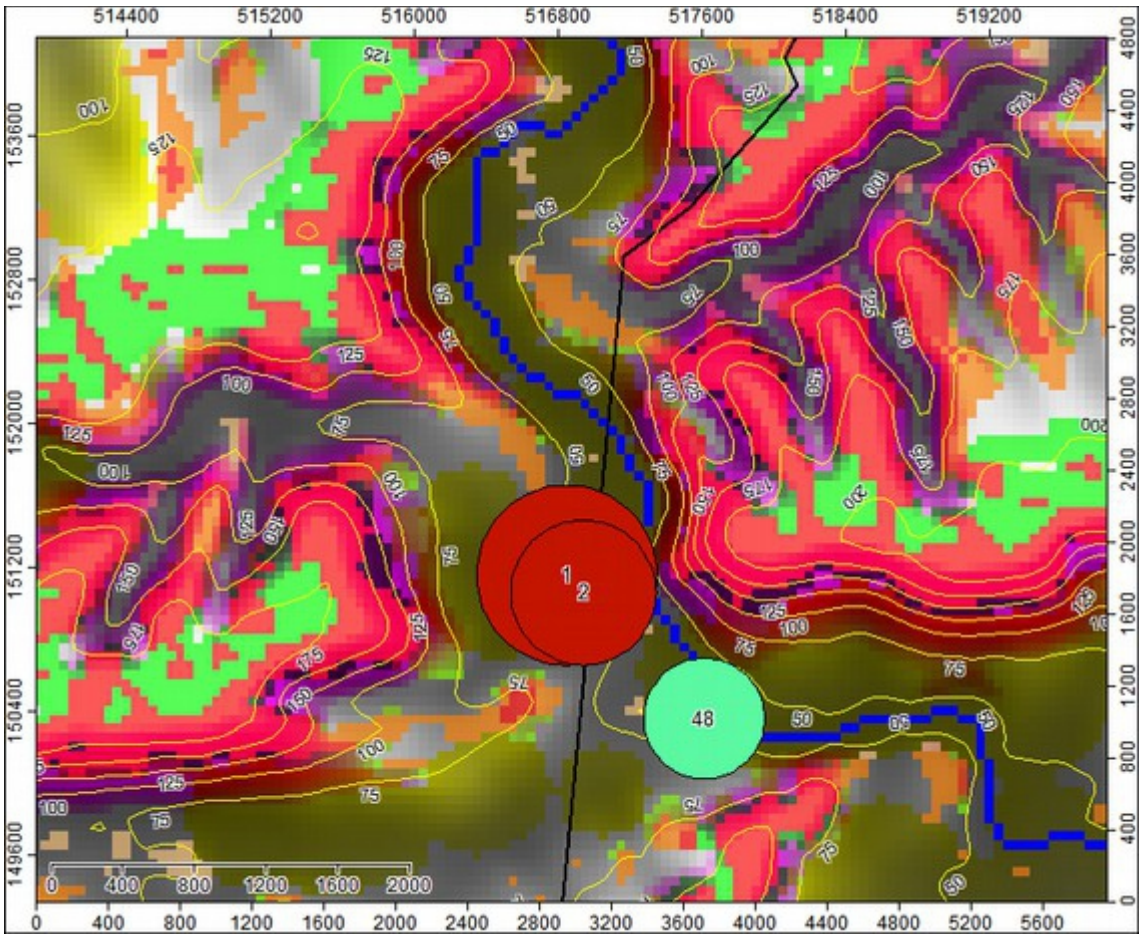


Figure 17: Candidate sites 1 and 2 north of Dorking, Surrey. The river Mole (blue) flows northwards through a gap approximately 1.5 km wide in the chalk of the North Downs. The front-line(s) would have faced northwards. Elevation changes, from 50 m in the gap to 175 and 200 m east and west, together with the extensive broken ground of steep local ridges and valleys, helped to produce peerless sites according to the method used in this survey. Stane Street (black) may have been the approach-road along which the protagonists were moving south from London to Chichester. Site 48 was also in a favoured position for the Roman front-line. Elevation contours at 25 m intervals. Coloured areas are: plains in yellow; ridges in red; ridge slope areas of less than 5 degrees in green; slopes greater than 5 degrees in purple – all overlying, shaded or merged into normalized heights in grey-scale.

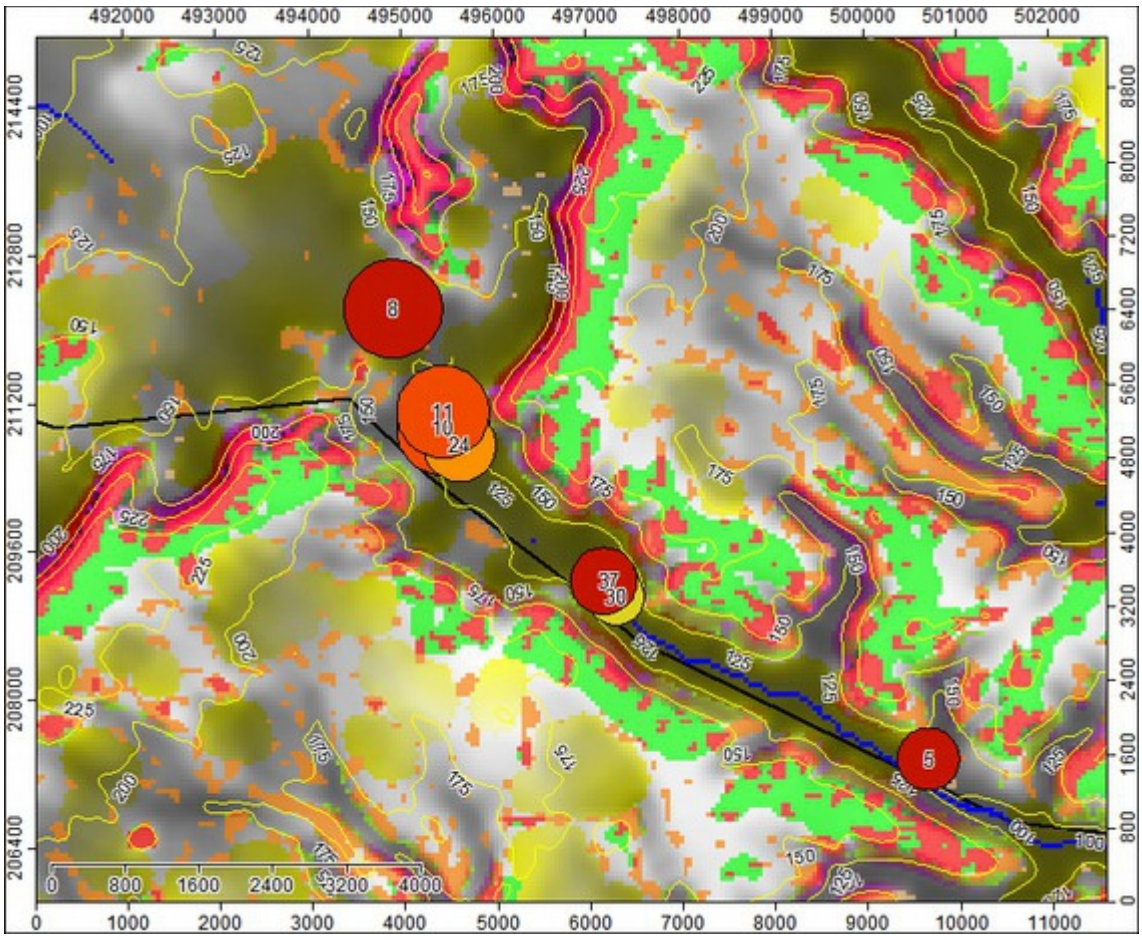


Figure 18: Top candidate sites within the Bulbourne river valley, north Chilterns. The river Bulbourne served sites 3, 7 and 5 (note that 3 and 7 almost overlie one another, hence the concatenation in the image of 3 and 7 to 37) while the river Thame to the west (top left corner) served sites 8, 10, the two 11s, and 24. All Roman front-lines would have faced down the valley to the south-east. As often elsewhere, these sites were located in a linear topographic depression of varying width but typically at pinch points where the bounding elevations and slopes narrowed the depression. It can also be seen that the depression in front of the front-line need not immediately open out or get wider, an assumption usually applied to the form of the battle-site. The Roman road, Akeman Street (black), runs from St. Albans in the east to Alchester and Cirencester in the west. Topographic colours as in Figure 17.

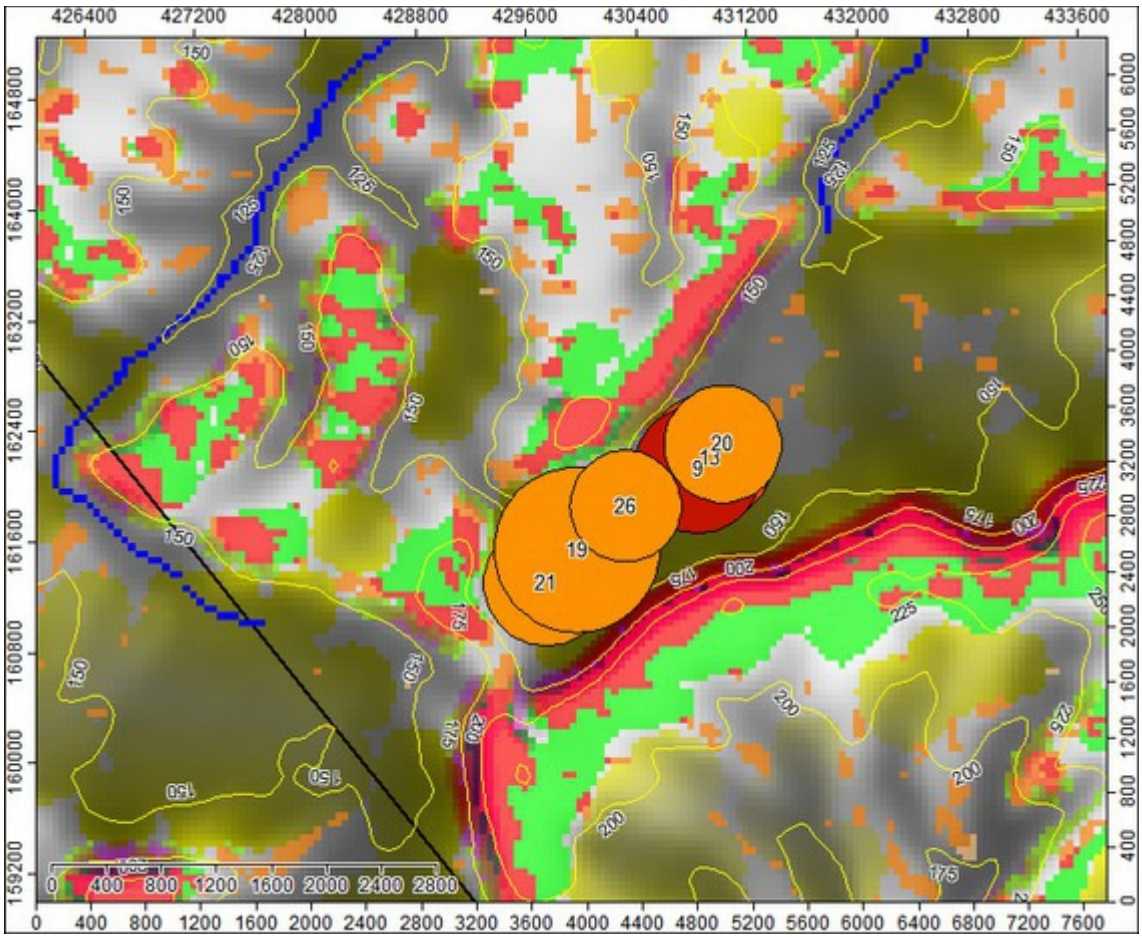


Figure 19: Top candidate sites close to the river Shalbourne in Wiltshire. These high-ranking examples demonstrated that some sites could have had front-lines that faced in either direction and still receive sufficient water from nearby rivers. For example, the front-line of site 9 could have faced south-west and obtained water 1991 m away from the Shalbourne to the east. It could also have faced north-east and received water from the river Dunn to the west, 3313 m away. These reversible sites also demonstrated that, although one of the facing directions of the front-line might have been up-slope, in this study that gradient had to be significant to warrant a reduction in the calculation of attributes or, indeed, a complete removal of the site if the gradient was great. Topographic colours as in Figure 17.

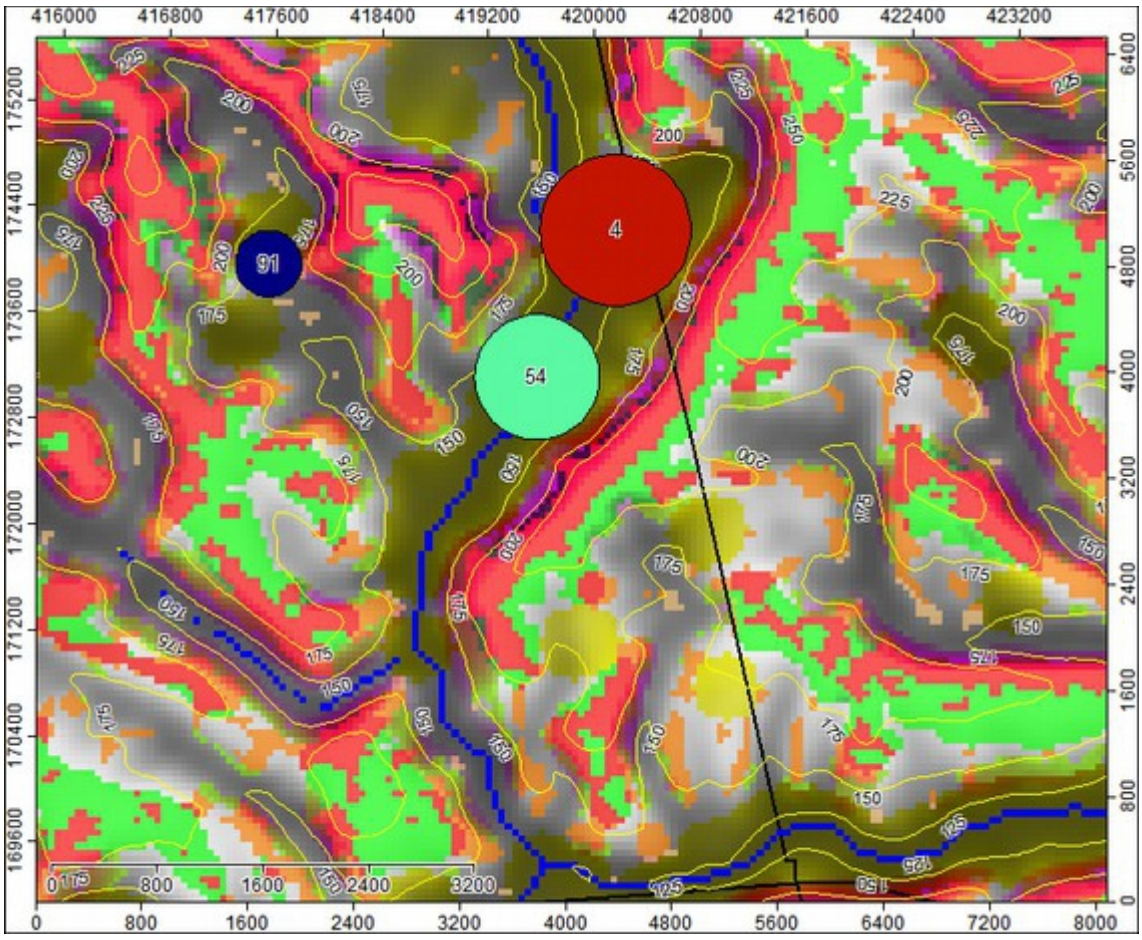


Figure 20: Top candidate sites within the Og river valley, Wiltshire. The river Og flows south, past site 4 at Ogbourne St. George and on to join the river Kennet, flowing west to east, in the far south. All three sites shown would have had front-lines that faced southwards. The Roman road (black) runs northwards from its crossing of the Kennet at *Cunetio* to Wanborough (off the map to the north) and then onwards to Cirencester. Topographic colours as in Figure 17.

Before moving to the next section, a summary of the work to this point would mention that of 2700 template matched sites found only within depressions equal to or exceeding 15 m in height, 862 remained after the removal of obviously defective sites and those whose front-line had detrimental characteristics: a river flowing towards; faced significantly uphill; faced a direction wholly incompatible with marching from London or required a convoluted approach-march. To these 862 topographically-selected sites, ten attribute values (Table 1) were applied prior to weighting and ranking. The result was three groups of top 20 candidate battle-sites each located along Roman roads radiating from London: Watling Street leading to Akeman Street, i.e. an initial northwards heading followed at St. Albans by a westwards heading; Stane Street leading south; and the Portway heading westwards (Figure 1). Which of these groups might contain the actual battle-site could only be discussed once they had been examined with regard to the known archaeology, written accounts and a choice made with respect to the direction of march out of London. This is the subject matter for the following sections.

Conventional wisdom limits the search for the real battle-site

The known archaeology normally related to the Boudican uprising can be divided into that which is commonly accepted and that which is not; typically the commonly-accepted facts are the product of conventional wisdom. What is accepted is the evidence of burning and destruction in Colchester, London and St. Albans because these locations, which have the requisite date ranges, were also described by the ancient writers as being destroyed to varying degrees. What is not commonly accepted, primarily because there are no explicit written accounts, are similar but lesser signs of burning and/or destruction at Chelmsford (Waite, 2007), Putney, Brentford, Staines (last three from Fuentes, 1983) and Silchester (Fulford et al., 2010).

Taking Silchester as an example, it has been suggested that this site was occupied by the Roman Army, probably units of the 2nd Legion led by Vespasian, approximately between 44 and 49 AD (note that Sauer (2005c) also lays claim to the presence of the 2nd at Alchester). There then followed a period of civilian reoccupation during the 50s AD, probably as part of the Kingdom of Cogidubnus, during which time Silchester grew prosperous. In this period a monumental building, possibly palatial, was built. It may have incorporated column bases of Bath Stone, inscriptions on Purbeck Marble, the Emperor Nero's name stamped onto tiles, and fine mosaics evidenced by the finding of many hundreds of tessera. This high-quality expensive material was identical to that used in the building of Fishbourne Palace in Dorset, which it may also pre-date. This period of prosperity ended abruptly with buildings burned, wells infilled and the town abandoned. This was followed by an hiatus in detectable activity until the late 70s to early 80s AD, when new buildings were erected along a new alignment, and the earlier high-status material from the monumental building was incorporated into the foundations. Thus Silchester was a thriving town in the 50s AD, and certainly contained a monumental building; much of this was destroyed and the town abandoned for approximately 20 years.

[Note: much of the factual material in the preceding paragraph was taken from 'Facing up to Rome: discoveries at Calleva [Silchester]' a public lecture given at Reading University in April 2010 by Prof. Mike Fulford – any misunderstandings of what was said are the responsibility of the author.]

In all but the details this broad description could be applied to the other towns and cities commonly accepted as destroyed by Boudica, the only difference being that Silchester was not mentioned by the ancient writers (as an aside, neither was Winchester, which also has evidence of burning and destruction which may be attributed to the Boudican uprising). Clearly, the lack of written confirmation means that attribution of the destruction at Silchester to the Boudican revolt cannot be made with the same level of assumed surety as it is, for example, at St. Albans. This leaves only the archaeological evidence of destruction and any plausible causes. If it is assumed that the evidence is not an aberration then a list of possible causes might include: an either accidental or deliberate (for whatever reason) peace-time conflagration that swept the town; destruction by local people acting, or sympathising, with Boudica, which might suggest a more widespread uprising rather than one just limited to the eastern tribes mentioned in the ancient texts (this might also explain the destruction at Winchester); destruction by a far-travelling, marauding band of rebels; reduction of the town and wells by Suetonius as he retreated in front of the advancing Boudica; revenge by Suetonius after the battle with Boudica (although this seems unlikely given that Cogidubnus, within whose kingdom Silchester lay, was an ally of Rome); or destruction by Boudica's horde as it pursued Suetonius prior to the Boudican battle. Of these plausible causes the first, a peace-time conflagration, and the last, direct destruction by Boudica, have the attractive appearance of simplicity. To differentiate, if it was shown that the most likely route for Suetonius to take from London was the Portway, west towards Silchester, then the last cause gains further credence; as will be discussed, the Portway was the most strategic and tactically-sound route for Suetonius to take.

Therefore, it needs to be considered that, had there been no written accounts of burning at

Colchester, London or St. Albans but only archaeological evidence, would this destruction be attributed to the Boudican uprising and, if so, would not the similar evidence from Silchester cause it to be included in the same list?

The point of the question is, of course, that the two groups of burnt and destroyed locations are differentiated by the written accounts and, leaving aside the adequacy of dating for all locations, creates the evidential danger of possibly rejecting genuine Boudican destruction sites solely for the lack of written confirmation.

Furthermore, conventional wisdom is temporal, a condition demonstrated by noting that the previously commonly-accepted idea that the bronze head of Claudius, found in 1907 near Saxmundham, was ripped from a statue in Colchester during the Boudican uprising. This is now classified as a theory unsupported by any evidence (British Museum artefact notice; see also Russell, 2006; Russell and Manley, 2014).

The two preceding paragraphs serve as a warning that what is commonly accepted, via conventional wisdom, might be otherwise, and a more open stance may lead to a better understanding of the Boudican revolt.

In passing it is noteworthy that the 18 annual archaeological excavations at Silchester, led by Professor Mike Fulford at Reading University, have ceased as of 2014 following his retirement from teaching duties. There may be a very long wait for further evidence related to the burning of Silchester.

The size of Suetonius' force in London

Before discussing the direction of march from London it is necessary to review the forces Suetonius may have had with him in that proto-city. Essentially the choice is binary: either Suetonius had his main force in London or just an escort unit, usually assumed to have been cavalry [referred to as the 'cavalry-dash' hypothesis].

The main force at the final battle was described by Tacitus:

> Suetonius had the fourteenth legion with the veterans of the twentieth …(*Annals* 14.34).

These were, supposedly, the units that were with Suetonius on Anglesey and had, supposedly, marched south along Watling Street possibly as far as London. These suppositions are part of conventional wisdom, neither being confirmed by ancient chroniclers nor archaeology. However, they do have some credibility given that there were four legions in Britain and the 2nd and 9th Legion's involvement in the uprising was partially accounted for, i.e. Tacitus related that the 2nd was not at the final battle and the 9th was defeated probably prior to Suetonius reaching London. Therefore, only the 14th and 20th Legions remain as candidates for a presence in London with Suetonius.

There probably were a number of auxiliary units with this force in London but Tacitus does not mention such units until he recounts that: "... auxiliaries from the neighbourhood …(*Annals* 14.34)", were present at the final battle.

The second choice - the cavalry-dash - of just a small escort in London, was neither explicitly nor implicitly mentioned by Tacitus, or any other source. However, Tacitus did write:

> Uncertain whether he should choose it [London] as a seat of war, as he looked round on his scanty force of soldiers, and remembered with what a serious warning the rashness of Petilius [the commander of the 9th Legion] had been punished, he resolved to save the province at the cost of a single town. (*Annals* 14.33).

The phrase "scanty force of soldiers" ("*infrequentia militis"*) could be interpreted as an acknowledgement that Suetonius' main force, men of the 14th and 20th Legions, when placed in a poor defensive position, was insufficient to defeat the tens of thousands of rebel tribesmen, or that the force with Suetonius was only of escort strength – the cavalry-dash. If the latter then the main force was, to state the obvious, probably to the north-west along Watling Street and Suetonius would have had to return to it before the final battle. If the former then Suetonius and his main force could march from London in any direction, later gather auxiliaries and then offer battle. There is however a third possibility: that Suetonius was in London with a significant force, say the veterans of the 20th Legion, while the 14th Legion was elsewhere. In this case, Suetonius would have to rejoin the 14th before the main battle. The difference between the cavalry-dash hypothesis and the third possibility, a significant force in London, eventually reduces to one of velocity of march; both forces would have left London to return to the main force but at different rates. Therefore this third possibility can be subsumed into the cavalry-dash hypothesis (unless, of course, one considers that it is possible to construct meaningful time-lines of events; however, these exercises are of doubtful worth in that the ancient accounts probably provide a confusing sequence of events).

The cavalry-dash was probably first imagined early in the 20th century and then re-invigorated by Graham Webster to support his suggestion that the battle took place at Mancetter adjacent to Watling Street, some 154 km north of London (Webster, 1978). The imagining was required because it was realised by the author(s) extremely unlikely (for reasons that will be discussed later) that the full army located in London would then have returned north along Watling Street to give battle at locations the author(s) favoured, i.e. some mechanism had to be invoked that would allow the bulk of Suetonius' army to remain in the far north while the commander visited London.

Before proceeding further with the question of the size of force in London, it is prudent to remember that we do not know the line-of-march from Anglesey to London. Tacitus simply says, "Suetonius, however, with wonderful resolution, marched amidst a hostile population to Londinium", (*Annals* 14.33). Most commentators follow the conventional wisdom that Suetonius used Watling Street, that did have the benefit of being the shortest and quickest route to London, but other Roman road routes further west of Watling Street may have been used instead. A counter-argument to the use of Watling Street would be that it was closest to the rebellious tribes and therefore a greater level of opposition might have been expected; something that Suetonius might have avoided. Tacitus states that Suetonius, "marched amidst a hostile population", but this phrase does not necessarily imply violent opposition and, even if that was the case, could equally be applied to routes further west of Watling Street. An argument in favour of using Watling Street is that, at the probable time Suetonius began the march south, the 9th Legion had not been destroyed as a field force, i.e. his left flank would have been protected. Therefore it was only after the destruction of the 9th that Suetonius' force began to experience the "hostile population". Leaving aside point and counter-point, the uncomfortable truth is that it is not known which route Suetonius took to London, or the level of hostility he faced.

Returning to the question of the size of force in London requires the examination of the plausibility of the cavalry-dash hypothesis. This typically envisages Suetonius and a cavalry unit leaving the slower southwards-marching legionaries somewhere along Watling Street and moving rapidly to London, assessing the situation and declaring that London could not be held, offering to escort citizens to safety and then dashing back up Watling Street to his waiting infantry before offering battle somewhere along the road. The benefits to Suetonius may have included: knowledge gained in a more timely manner; the safeguarding of the main force by avoidance of contact with the main rebel horde; maintaining distance from the rebels which might have allowed a larger manoeuvring space; ensuring that communications (information, commands, support, supplies and reinforcements) more easily reached the main force from Roman units to the west; allowing the 2nd Legion who possibly were marching north from Exeter along the Fosse Way (Figure 1) to

rendezvous with the main force; and, not least, the ability of the main force to withdraw, if necessary, towards and into the western military zone (an area of forts and roads, etc. concentrated to aid the control of the south-west of Britain and the conquest of the Welsh tribes – roughly aligned on an axis Wroxeter – Gloucester (Kingsholm) – Exeter (Figure 1)). Other supporting points can be put forward but to do so is probably to sink too deeply into the general's armchair.

Counter-arguments to the cavalry-dash hypothesis were given by Nicholas Fuentes (1983). These included the cautious, prudent and experienced character of Suetonius; the disastrous consequences of Suetonius not re-establishing contact with his infantry; the damaging effect on the morale of the infantry as he rode away to London; that as the Governor for two years he would not need to travel to London to assess its defences; finally, that few refugees could keep up with the pace of a cavalry unit as it returned rapidly northwards along Watling Street.

Further reasons against can be added. For Suetonius to have left his headquarters for the cavalry dash southwards would result in a loss of communication between the army commander and the rest of his units in Britain. To have broken communication, or at best greatly delayed the transmission of news and orders to and from the commander, at a time when the whole of the eastern province was in violent uproar and the only *colonia,* Colchester, had been destroyed, the 9th Legion routed and the 2nd Legion not obeying orders, would have been unthinkable.

Another counter-argument was the poor martial rigour, even insubordination, of Suetonius' legions when faced with hordes of fanatical Britons. This behaviour was displayed on Anglesey when the opposing armies faced each other. Tacitus says the enemy, "scared our soldiers by the unfamiliar sight, so that, as if their limbs were paralysed, they stood motionless, and exposed to wounds.", (*Annals* 14.30). Suetonius had to appeal to his men, to urge them on, before they launched their attack and destroyed the enemy. These same men, many of them seasoned by years of campaigning in Briton, were with Suetonius as he marched south along Watling Street, i.e. men who did not obey the orders of their unit commanders to engage the enemy, men who were so terrified by the Britons that they stood rooted to their positions in the line and only obeyed their army commander, the Governor of the province, Suetonius. He, the sole capable man, imploring and commanding his infantry, restored the combat effectiveness of the army. It was therefore unlikely that Suetonius would gallop away from these suspect troops and leave them with officers whose orders, in the heat of battle, they did not obey – in these circumstances Suetonius might have thought that he would return to a scene of massacre. Also, no doubt to Suetonius' private despair, this episode indicated that the legionary officers were incapable of commanding their soldiers when the need was greatest.

Some, in supporting the cavalry-dash idea, claim that Suetonius was simply reconnoitring with a mobile force to determine the lay-of-the-land and the situation in London. Certainly such activity was beneficial in the horse-powered era when commanders would scout ahead for a few hours, possibly a day, but not for days at a time as in the case of Suetonius. The reasons against this extended practice are rather obvious, capture being one, and need not be described further. As the cavalry-dash is usually linked to the proposed battle-site at Mancetter, that distance and time can be examined to demonstrate how implausible a reconnaissance to London would have been. The distance was 154 km which, at a generous speed of 70 km per day, would have spanned five days there and back. Add one, more probably two, days in London and Suetonius would have left his army for six to seven days; an implausible amount of time for a reconnaissance and a tactic that, as far as the author is aware, has never been replicated.

Furthermore, surely rather than Suetonius march to London with a cavalry unit to gather information, it makes more sense for him to have delegated the task to an experienced, younger officer? For in 60 or 61AD Suetonius was probably a fit, fifty to sixty year old man used to spending his day in the saddle but, nevertheless, he would have been aware that a younger man would have had a better chance of speedy success and whose absence or loss would not have

endangered the command and control of the army and province during a rebellion.

Also pertinent, in this discussion of counter-arguments to the cavalry-dash, would have been the desires of the civilians entrained in Suetonius' army. Tacitus wrote:

> Nor did the tears and weeping of the people, as they implored his aid, deter him from giving the signal of departure and receiving into his army all who would go with him. Those who were chained to the spot by the weakness of their sex, or the infirmity of age, or the attractions of the place, were cut off by the enemy. (*Annals* 14.33)

Normally civilians would wish to move away from the enemy or an area of conflict, usually taking a line of escape towards perceived safe havens; in the case of the Roman civilians in London this would naturally suggest flight to the south or west, certainly not east and doubtful the north-west, i.e. up Watling Street, along a route lined with "a hostile population". Yet the cavalry-dash hypothesis requires that civilians capable of keeping pace with the cavalry should entrust their lives to a small army unit as it returned along a road known to be dangerous. The destruction of the 9th Legion might also have been known by this time which may have suggested, to prudent civilian minds, that a large rebel force was operating to the north-east of London and possibly not far from Watling Street; even less reason to take that road. In short, it seems improbable, as the cavalry-dash requires, that civilians would have willingly taken Watling Street to rendezvous with the main force 154 km away.

As an aside, the actuality of civilians travelling to the north-west along Watling Street with a small cavalry force was probably only viable if the rebellion was wide-spread, i.e. that all directions out of London would have been opposed by tribesmen. In which case, whichever direction the cavalry was going, or indeed the main force, so were those civilians capable of keeping pace. Thus a wide-spread uprising does not allow a differentiation between the ideas of the main force in London or just cavalry.

Returning to arguments against the cavalry-dash, many supporters of that hypothesis appear to underestimate the intelligence of the rebel leaders. Suetonius was unlikely to have made that mistake considering that, as a possible consequence of self-deception, his life could be forfeit along with the existence of the province. One could also point out that Suetonius had been a soldier and commander most of his adult life, often fighting tribal enemies elsewhere in the Empire - the experience mentioned by Fuentes – hence he had probably learnt long ago not to underestimate his tribal enemies. This reasoning can be applied to the cavalry-dash idea. Suetonius would probably have known prior to his supposed departure from the main force, via his scouts and news from friendly locals, that his route south would be opposed. He might also have reasoned that it was possible for rebel scouts to spot his journey to London, inform a local rebel commander who would have realised that Suetonius might return north to his main force. Hence, the rebels would wait for Suetonius' return northwards along Watling Street with a force sufficient to ambush and destroy the Roman commander. The passing to-and-fro greatly increases the risk of interception and disaster. Suetonius would have considered this likely (probably not least because he would use the same tactic if the positions were reversed) and with a high probability of success. Yet another reason against the cavalry-dash hypothesis.

Finally, this militarily-improbable, and improper, cavalry-dash would surely have been mentioned by Tacitus. He does not explicitly state that the legions were with Suetonius in London because that would have been the norm, a situation not requiring further elaboration for his Roman readers. If, however, Suetonius had performed the cavalry-dash then Tacitus – who clearly thought highly of the general, describing him as "the most skilful general of the time" (*Histories*, 2.32) and "he was naturally inclined to delay, and a man who preferred cautious and well-reasoned plans to chance success." (*Histories*, 2.25) - probably would have mentioned the feat, perhaps praising Suetonius for

his uncharacteristic élan.

Therefore, in conclusion, it is more plausible that Suetonius and his whole army marched together from north Wales down Watling Street, harassed by the rebels, possibly losing soldiers to ambushes and hit-and-run tactics, while also being aware that the horde of Britons who had routed the 9th Legion might have been on their left flank. It is possible that this horde partially burned and destroyed St. Albans (Figure 1) as it followed Suetonius' legions to London.

Unhelpfully, the cavalry-dash hypothesis and the name, Battle of Watling Street, have become part of conventional wisdom; the first imagined to give credence to the unlikely setting of the northern stretches of Watling Street as sites for the real battle-site, while the second, of course, is presently a misnomer.

It is important to displace the cavalry-dash hypothesis because accepting it gives rise to a single direction of march away from London, i.e. back to the main force waiting somewhere along Watling Street (for brevity's sake we will ignore the complications of other routes west of Watling Street which in any case do not alter the status of the hypothesis). However, if the main force was in London then it could have theoretically marched in any direction, Watling Street included. The battle-site may indeed lie along Watling Street, as did candidate sites 49 (Church Stowe), 63 and 84 (Dunstable) in this study, but such sites must be supported by reasoned argument and not a concept, the cavalry-dash, contrived to overcome a fundamental problem, namely the difficulty of producing plausible reasons for having the main force in London return to the far north-west when more favourable routes existed in other directions.

Was strategy governed by relative strengths and weaknesses?

Tacitus' account of the rebellion, once Suetonius had reached London, made it clear that Suetonius' decisions and actions determined the time and place of the eventual battle. It was he who elected to leave London, took with him those citizens who could march with his force, who allowed some unknown amount of time to pass before halting his march and offering battle in a site he had chosen. Boudica and her advisers were probably reactive decision-makers by the time they approached London, and then they had a strategic decision to make: whether or not to follow and destroy Suetonius. [Note: rather than repeating 'Boudica and her advisers' or similar, her name alone from now on will suffice, where applicable, to mean the senior, decision-making hierarchy within the rebel forces.]

In this section, the strengths and weaknesses of both sides will be examined, and the impact these might have had on the strategic decision-making processes.

For the rebels, the uprising had so far been successful. Colchester and its legionary veterans were destroyed and the 9th Legion was no longer a field unit, Suetonius had abandoned London as he withdrew from the rebel horde and, for whatever reason, the 2nd Legion had not rendezvoused with Suetonius prior to him leaving London. It seems reasonable to believe that the rebel leaders had thought earlier that Suetonius would attempt to deliver a hammer blow to the eastern tribes as soon as he could muster his forces. If he had so intended then he had failed, possibly due to the activities of the rebels, i.e. the different failures of the 2nd and 9th Legions. It might be wise to keep in mind that the uprising may have been far wider than normally assumed, with consequent effects on Roman mobility, area control and decision-making; as an aside, it has been speculated that this caused the delay of the 2nd Legion in the south-west (Webster, 1984). However, as Boudica considered her choices, the success to date was deceptive; an illusion probably accepted by the more simple tribespeople. She had probably realised, when planning the uprising, that Suetonius and his field forces had to be destroyed, followed by the reduction of the forts and forces in the

western military zone and, finally, the destruction of the various Channel ports. Only then might the Romans abandon Britain and, possibly, any thought of re-conquest. Not that Boudica thought her forces alone could produce such an outcome: she probably envisaged her eastern tribes vanquishing Suetonius thereby encouraging other tribes elsewhere to also rise in rebellion and engage the Romans.

It may have surprised Boudica that Suetonius had been unable to gather his units for the hammer blow to be delivered somewhere in the eastern tribal homeland, and that instead he was withdrawing from London at a rate of march that she could not match (29 versus c.16 km/day). What then were the rebel options now they were approaching London: could they return to their homes or, as in the original plan, still have to pursue Suetonius and destroy his force?

It seems inconceivable that Boudica would not have fully understood the import of what the rebels had done and what vengeance the Romans would impose if they were allowed. For Boudica had not led just a simple raid, or series of skirmishes, or even a single lost battle with a Roman army as in 47 AD (*Annals* 12.31). Instead her fellow tribespeople had apparently slaughtered, in often a barbaric manner, 70,000 Roman citizens and allies (*Annals*, 14.33), destroyed the temple to the Divine Claudius in Colchester, annihilated the retired veterans and their families in that place, slaughtered the infantry of the 9th and pillaged, raped and murdered across much of the south-east of Britain. These were acts that Boudica could not have possibly thought forgiveable, that somehow a political solution would be found to restore peace. On the contrary, she would have realised that the Roman state (let alone the vengeful desires of Suetonius and his men) would require her death, together with vast numbers of her people, and enslavement for the remainder, i.e. essentially the obliteration of her tribe. Annihilation would be a means to pacify and a lesson to others that brutal insurrection on this scale was suicidal.

She would have been right to think so, as Tacitus tells us that after the final battle:

> ..whatever tribes still wavered or were hostile were ravaged with fire and sword. (*Annals*, 14.38)

While in London, Boudica might have given fleeting thought to allowing Suetonius to escape and then later defeating him in her own territory or the land she now controlled. Fleeting because she would realise that Suetonius would probably spend the intervening winter in a western fort before gathering all of his forces, including any sent from the continent, and return to the east to deliver his hammer blow, possibly crushing Boudica's forces against the continental anvil. Delaying the deciding battle until the following year would have meant that Boudica would no longer have the element of surprise, or be able to easily gain territory, or to rally allies and gain provisions, or to manoeuvre across a more rugged terrain. Her options would probably have been limited to skirmishing and harassing before the eventual battle against a fully-prepared and much superior Roman force. Boudica would probably have thought the odds of success were very low against a Roman army consisting of most of the legionaries from three legions (probably not four as the 9th had already been destroyed as a field unit), a comparable number of auxiliaries and an unknown force of cavalry; in total approximately c.30,000 to 40,000 soldiers if continental units were included.

Moreover, there was another factor in returning home that Boudica would have viewed in despair: she and her tribespeople had neglected to sow the crops for the year of the uprising:

> Nothing however distressed the enemy so much as famine, for they had been careless about sowing corn, people of every age having gone to the war, while they reckoned on our supplies as their own. (*Annals*, 14.38).

To return home, then, would have meant starving over the winter while waiting for Suetonius to

launch his reprisal in the spring.

Therefore, logic may have dictated to Boudica that, of the two options, returning home carried a certain death sentence while the second, pursuing Suetonius out of London and doing battle with his field-army, offered a chance of victory and life. Surely she would have chosen life?

What of Suetonius, his appreciation of events, his understanding of relative strengths and weaknesses, his probable thoughts and plans to extricate his army from London and eventually destroy the uprising?

First it might be helpful to place his predicament in context: in probably no more than three weeks (possibly less) the Romans have been reduced from being the rulers of most of southern Britain, the suppressors of the Welsh tribes and the destroyers of the Druidic enclave of Anglesey, to hunted fugitives, either ensconced in their forts in the north and west country or about to be overwhelmed by a frenzied attack on London. The 9th Legion had been destroyed as an effective field unit and Suetonius could only hope that it could hold the forts it already occupied. We do not know the manner of the 9th Legion's rout but a rebel ambush by overwhelming numbers, while the unit was marching, was probable. If so, in the Roman mind this tragedy would invoke memories of the disaster in 9 AD when Varus lost three legions in the Teutoburg Forest of Germany. It is reasonable to assume that many Britons would also know of this event and other more recent Roman defeats in Britain, when Roman forces had been surrounded or, at least, outflanked by superior numbers of marauding warriors in terrain least suited to the disciplined and collective defence of the Roman legions.

The reversal of relative strength, detrimental to the Romans but beneficial to the rebels, must have been shockingly clear to Suetonius and his senior staff. When the rebels arose Suetonius could march four legions, from positions of strength in the west and north, in his probable attempt to enclose and then concentrate his forces against the Iceni and Trinovantes – the hammer blow mentioned earlier. Now the only Roman force in the field, Suetonius' army, had been harassed by rebel forces, and probably pulled by the need for supplies and a refuge into an unfortified, indefensible London. Fortunately London was a nexus of the road system in southern Britain and this allowed Suetonius to determine the right direction to move away from total destruction and towards a strategic position where he could, if he chose, regroup, resupply, reinforce and then re-launch the suppression of the rebels.

In his deliberations Suetonius would have examined the rebels' circumstances, positions, strengths and weaknesses before deciding on his next move. He may have concluded, much as Boudica might, that for the rebels to return to their homelands was to grant the Romans eventual victory, albeit a year later. He could then have deduced, just as Boudica might, that their only recourse was to follow his force out of London and hope to destroy it before he reached the relative safe-haven of the western military zone with its forts, reinforcements, provisions and, of course, the 2nd Legion. However, Suetonius' immediate need was to extricate his force from London; in that goal he was aided by the legionary strength in marching and Boudica's weakness in the slow pace of her tribespeople and their wagons.

For Roman soldiers were practised in marching a regular 29 km/day, while the rebel horde would probably only follow at 16 km a day, a difference of c.13 km/day (Kaye, 2013a and c). Furthermore, travelling Roman soldiers created or re-occupied a marching-camp each night, a practice developed in part to protect a relatively small force from night-attack by an overwhelming mass. These marching camps would have existed at an interval of c.29 km along the military roads leading from London. They may have fallen into disuse and disrepair since the earlier conquest period but their location would probably still be the regular camp-ground for travelling groups of soldiers (as they probably would be for centuries to come), not least because they were typically placed close to

water (Kaye, 2013b). Suetonius, therefore, would have had no need to force-march his soldiers to escape the rebel horde. Indeed that additional energy expenditure, if prolonged, would have been further increased because his force would then have to build a new marching-camp each night, so far better to keep the regular Roman army cadence and use the existing marching-camps, even if they had to be repaired and/or altered.

As an aside, 29 km is not a great distance to walk for young, relatively healthy civilians. However, many would find the task difficult, if not impossible – the elderly, those lame or otherwise infirm or, for example, women with young children – and certainly the daily repetition of the task would tax the strongest if unaccustomed. Consequently, those citizens travelling with Suetonius were probably the young on foot and the relatively wealthy on horses, ponies, donkeys and mules or being conveyed in carriages and carts. Of course, these fitness- or wealth-selected citizens might still have slowed the pace of the Roman soldiers. However, the 29 km/day distance could have been maintained by slowing the velocity of the march, thereby extending the number of hours spent marching but still moving between one extant marching camp to the next. This could be achieved because during the summer months and under normal circumstances, the first of c.10,000 Roman soldiers using military roads could cover the 29 km at a velocity of 1.2741 m/s (2.85 mph, 4.59 kph) in 7:22 hours, probably arriving at the location of the evening marching camp at 15:22 in the afternoon; the last arrivals would have taken 9:47 hours, arriving at 17:47 (Kaye, 2013c). The distance to be covered, the rate of march and the time that would take, were standard for the Roman army and designed, in part, to ensure sufficient time was available during daylight hours to build a new marching camp (for example: a ditch 1.5 m wide, 1.0 m deep; rampart 1.0 m high; built in 2:17 hours), for rest, recuperation, ablutions, repairs, feeding the pack-animals and preparing the evening meal. Thus for Suetonius, operating under unusual circumstances, there would have been time capacity in the evenings to decrease the march velocity to, for example, 1.1176 m/s (2.5 mph, 4.02 kph) thereby increasing the duration of march to 8:24 hours for the first arrivals at 16:24, while the last to reach the camp in the evening would have taken 11:09 hours arriving at 19:09, approximately 1:30 hours before sunset. Moving more slowly would have increased the risk of the rear-guard being harassed by fast-paced rebels, but by the end of the day the main rebel horde would still be an additional 13 km further behind Suetonius, the entrained civilians would have had a longer marching-day, and consequently spent more energy, but they and the army would have been safe overnight in a marching camp. These numbers are simply examples of what Suetonius might have done; what he actually did is, of course, unknown. Nevertheless, the point to be taken from the discussion is that the existing Roman military infrastructure – roads, marching camps and forts – gave him considerable tactical latitude, a strength not available to the following rebels.

Other strengths that Suetonius had over the rebels while on-the-march was the inherent, structural and practised management of supplies, the ability to acquire food and fodder, and the provision of water.

The superior management of supplies was enabled by the carrying capacity of the troop-baggage-train, i.e. mules, typically two per eight soldier team (*contubernium*). Assuming that each soldier would have carried on his naked body approximately 30 kg of clothing, armour and arms plus 10 kg of foodstuffs, while the two mules ported all the heavy equipment (mule-grain, tents, cooking pots etc.) and five days of rations for the soldiers, then there would have been enough rations for approximately 15 days of independent action (Kaye 2013a and c). The carried provisions would have been augmented by foraging (food, fodder, water and firewood) and grazing, thereby potentially increasing the period of independent action. Fifteen days marching at 29 km/day would allow the legions to travel 435 km, e.g. 355 km from Anglesey to London, while the remaining 80 km could allow travel to Silchester or to get within 10 km of Alchester, Towcester and Chichester or within 5 km of Canterbury. These figures are simply examples of the inherent capacity within the Roman army. We do not know how Suetonius configured his force as it marched from north Wales,

or if he picked up supplies along the way, or ordered his men when in London, for whatever period of time that might have been, to gather as much foodstuffs and grain (Boyd, 1980) as they could carry and burn the rest.

In comparison, the rebel force probably gathered as much food etc. as could be spared from the home, farm or village, and supplemented this by foraging and pillaging as the warfare progressed. Centrally-controlled and managed foraging, or food-sharing, was probably minimal. Consequently it was likely that the rebels did not have an inherent, practised ability to sustain themselves for many days while marching. Couple this with the likelihood that they had to follow in the steps of Suetonius' force across a land already depleted of fodder, firewood and foodstuff and they would have been stressed by the effort (Kaye, 2013a). These factors were modelled in the attribute 'Induced stress on the British rebels', discussed earlier.

This attribute also modelled the effect of water shortage on the rebels who required a river to flow at least 0.04 m^3/s if they were following the Roman army along a water-course, i.e. they had to share the same water supply. This figure was an order of magnitude larger than that required by Suetonius' army (0.00891 m^3/s) and its tactical importance in terms of strengths and weaknesses, is depicted in Figure 21. The Roman army could have marched over much of southern England and found sufficient river water (red in Figure 21) for its needs (estimated numbers were 10,000 soldiers, 2,500 servants, 2,500 citizens and approximately 2,500 mules, from Kaye, 2013a). The rebels, in marked contrast, would not have been able to find sufficient water (blue in Figure 21) in the higher elevations (estimated numbers were 80,000 humans and 25,000 oxen, horses and mules, again from Kaye, 2013a). Essentially the rebel horde would have been constrained to the major river valleys and some tributaries and, presumably, would only have journeyed voluntarily into the higher ground of the Chilterns, North and South Downs, North Wessex Downs, Salisbury Plain and the Cotswolds if there had been an overriding necessity, such as pursuing Suetonius' army. As an example of this relative weakness, in crossing the Chilterns using the Bulbourne river valley (northern limit is at Tring, Figure 1) the horde would have had insufficient water for 28 km or approximately two days. Further more, if Suetonius had chosen his battle-site in the Bulbourne valley (sites 3,5,7,8,10,11, Table 3) then the rebels would have been encamped for an unknown number of days waiting for all the warriors and wagons to arrive, and some 5 to 12 km from sufficient water. Additionally, the river would have been under the control of the Romans, or they could have blocked access to the nearest river to the battle-site, or interfered in its flow by means of diversion, damming and/or pollution – factors individually or collectively common to all the top 100 battle-sites. In short, the size of the rebel horde and its water requirement imposed a considerable logistical and tactical weakness, while the Roman army was largely immune from such constraints.

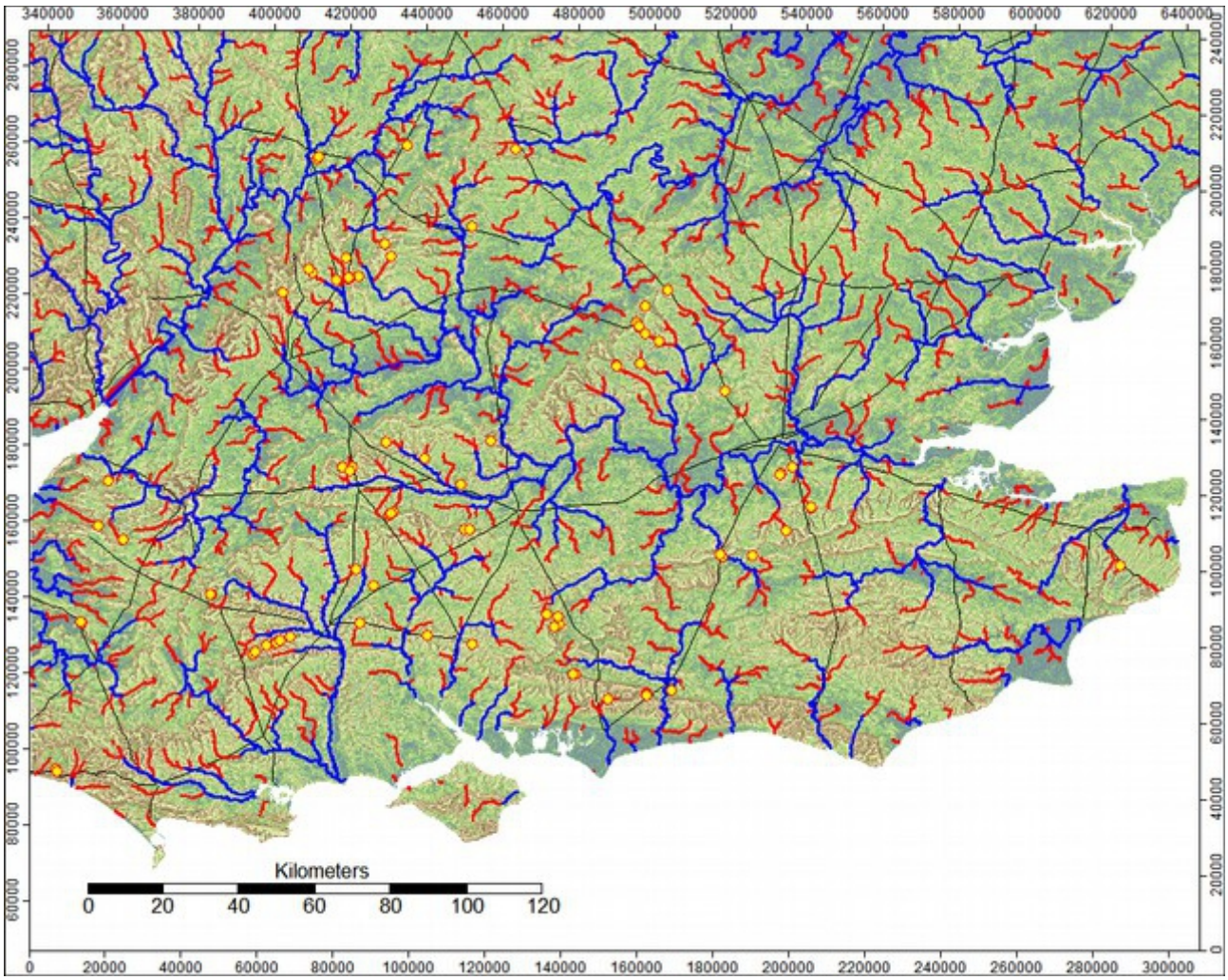


Figure 21: The 1st century reconstructed rivers of southern England differentiated by summer flow rates sufficient to satisfy the needs of the combatants. Roman need was 0.00891 m^3/s, in red. British rebel need 0.04 m^3/s, in blue. Yellow dots are the top 100 ranked battle-sites (numbers omitted to aid clarity but can be cross-referenced with Figures 13 to 16). The majority of the battle-sites are located where the rebel force would not have had sufficient water to hand. Roman roads in thin black lines. In passing it is worth noting that where rivers intersect roads, at intervals of roughly 29 km, might logically be located Roman marching camps.

Suetonius would have been aware, not least because of his experience campaigning in north Africa, of the tactical advantages he held over the rebels. On certain routes across the high ground he might have thought the rebel horde would be forced to travel via a number of river valleys to find sufficient water, and that the horde would not be able to form a coherent travelling mass but instead elongate over many kilometres within river valleys. Depending on the route taken, variations on these themes can be imagined, but all would suggest that the overall speed of the horde would have been slowed, and that mustering prior to battle might have taken many days. All of these factors might have allowed Suetonius even more time to escape or prepare for battle. But not only prepare: he may have had tactical control of the battle once it began. If Suetonius chose a battle-site in a position where there was insufficient water for the rebels and/or he controlled the flow, then the rebels may not have been able to camp at that location. Instead, they would have been forced to gather elsewhere, possibly further down a river valley, or make use of different rivers, and only

come to the battle-site when it was decided to fight. This possibility would have served Suetonius because the rebel horde would not be capable of a sustained occupation of a position in front of the Roman line. They would have had little choice but to attack quickly or disperse, and, probably most importantly for Suetonius, the rebels would have been incapable of besieging his marching camp, hence Suetonius would have controlled Boudica's tactics by his choice of battle-site. This control might be evident in Tacitus' description of the battle: the rebels attempted a frontal attack on the Roman front-line, a tactic that favoured the Roman initial defensive posture. Instead the rebels might have been better served by besiegement, starvation and then piecemeal dismemberment of the Roman force as it attempted to break away. However, caution was required in attributing such possibilities to the unknown reality, there being many contributing factors to each and every candidate battle-site. Nevertheless, the point to be taken was that, if such tactical control could be envisaged in the 21st century, then so it might have been in the 1st.

To conclude: the crucial point, in this discussion of relative strengths and weaknesses, is that the Romans could sustain their forces in the field for many days, including within the relatively water-, food- and fodder-poor regions such as the Chilterns, Cotswolds etc.. The Boudican rebels could not. The relative weight of these imbalances, positive for the Romans, negative for the rebels, would have been understood by Suetonius while he pondered which direction out of London to march his superior and well-trained, -practised, -provisioned, -equipped and faster legionaries. And of Boudica? She had little choice but to follow Suetonius and fight wherever he chose and possibly in a manner he dictated, if she hoped to have any possibility of avoiding death.

Suetonius' direction of march from London – a critical differentiator

It would have been possible to simply assume that the ranked listing of candidate battle-sites contained the actual site within its higher echelons, say 1 to 6, and then wait for archaeological evidence to eventually decide the issue. But that would have ignored the possibility of refining and differentiating the rankings based on an examination of the situation Suetonius faced when in London, the last named location in Tactitus' account. Suetonius arrived with his full force, realised that it could not be defended, and decided to withdraw. He could only escape his predicament by marching along one of seven routes, and it was this choice that allowed the differentiation of the many ranked sites, i.e. finding the most likely road he took should lead to the most likely of battle-sites. That was the task described in this section.

These roads and routes were (Figure 1, repeated below):

North-east (1) towards the homeland of the Iceni and Trinovantes and Colchester;

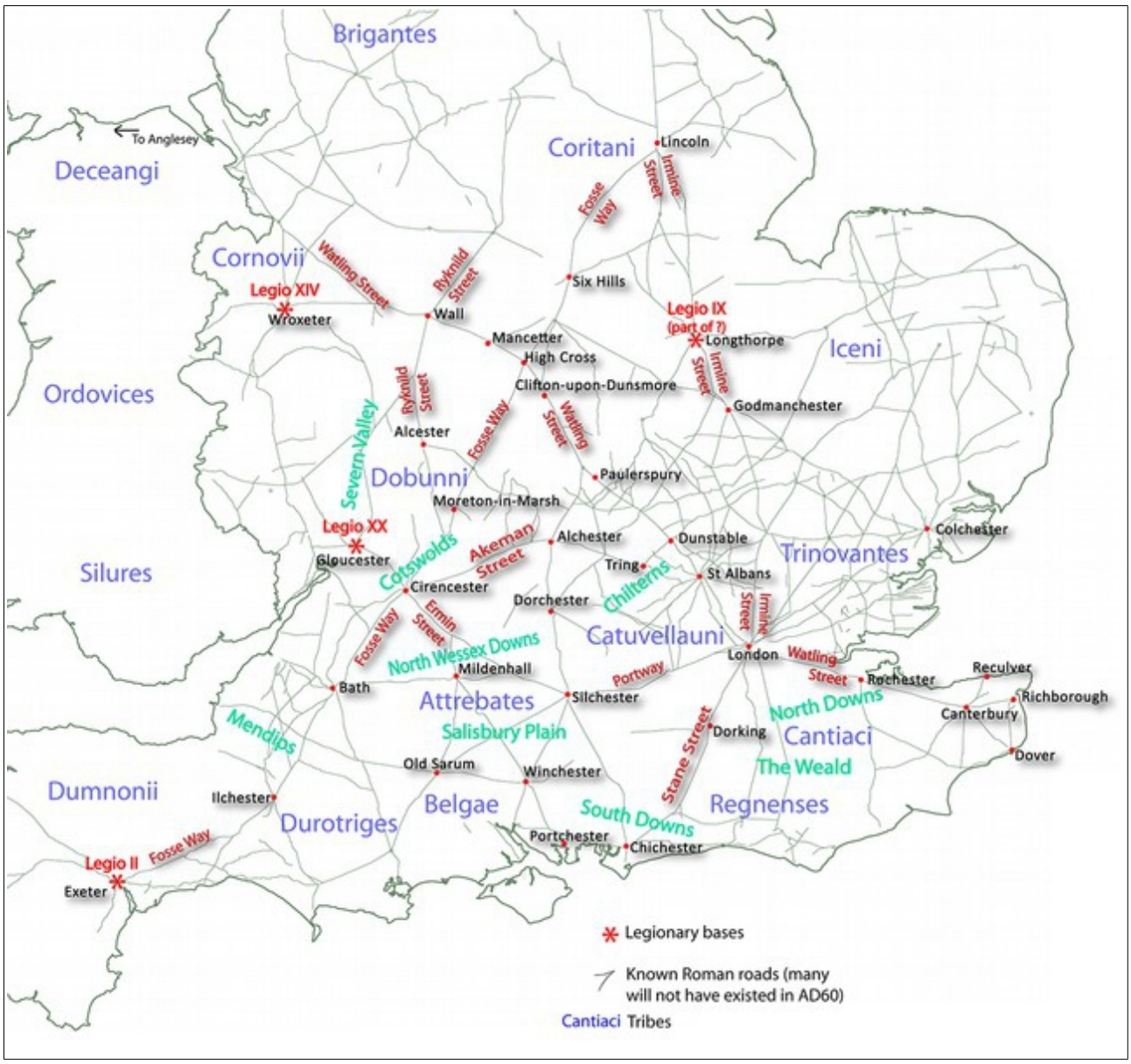
North-west (2) to the far north, along Watling Street;

North and then west (3) taking Watling Street to St. Albans and then west along Akeman Street;

East along Watling Street (4) to the ports on the Kent coast: Reculver, Richborough, etc.;

South along Stane Street (5) or the London to Lewes road (6) to the southern channel ports: Chichester etc.;

West along the Portway (7) to Silchester and onwards to the military zone.



Repeat of Figure 1, the location map.

The task was to differentiate between these routes based on Suetonius' original strategy, i.e. the probability of survival (essentially to reach a safe haven, e.g. a fort in the west), followed by the likelihood of a successful operation to destroy the rebellion, and political considerations. But Suetonius' apparently realised, after some time marching away from London, that his force could engage and defeat the rebels in battle, i.e. the original strategy was abandoned, for Tacitus wrote, "[Suetonoius] prepared to break off delay and fight a battle" (*Annals* 14.34). Leaving aside that later strategic change, to complete the task of choosing between the seven routes required deliberation on the issues and options much as Suetonius might have when he was in London – to think like a Roman general and provincial governor.

What was indisputable was that the choice of route was for Suetonius to make. What is not clear to modern investigators, from the written accounts and the known archaeology, was in what manner the positions of the rebel forces, as they advanced on London, precluded, constrained or otherwise limited Suetonius' options. Indeed, the disposition of the rebels might have made the selection of

route very simple for Suetonius, for example, supposing all were blocked except for that to the west.

What could be said with confidence was that the whole of eastern England to the north of London, to a point or line somewhere west of Watling Street, was hostile to varying degree. Whether this line passed east or west of St. Albans, as Suetonius pondered in London, or some point further north along Watling Street, is not known. Nevertheless, assuming Suetonius did use Watling Street in his march south, the presence of hostile forces was unlikely to have diminished after his passing. Indeed, they may have fanned-out further west and extended at least as far as, but may not have included, St. Albans. What is known was that large rebel forces destroyed Colchester and the 9th Legion, but whether these actions were due to one force or two independent forces is not known. However, there was an element of geographical logic that could be applied to this conundrum. Colchester was located in the lands of the rebel Trinovantes, and the 9th Legion (generally assumed to have been partly stationed somewhere such as Longthorpe in Cambridgeshire) would have marched south-east towards Colchester through, or within, the borders of the Iceni. The simple geographical logic was that those tribes closest to the destroyed elements did the destroying: the Trinovantes destroyed Colchester while the Iceni did likewise to the 9th Legion. Furthermore, it might then be supposed that the two tribal groups would independently march on London from their respective points of victory. This would have placed the Iceni close to Watling Street, on the left flank of the southwards marching Suetonius and, as already mentioned, possibly led to the sacking of St. Albans as they progressed to London. Meanwhile the Trinovantes marched from Colchester to London. However, there is no evidence for these suppositions, just a simple logic and, it must be said, a desire to impose tactical granularity which may not reflect reality. Therefore the first sentence of this paragraph, “that the whole of eastern England …. was hostile to varying degree”, was all the knowledge that could be granted Suetonius as he considered routes in London.

What of hostility to the west of Watling Street? It is not known today if a wider uprising had taken place and that most, possibly all, routes from London were hostile. If so, this general widespread hostility might have hindered the Roman force no more than the similar reported occurrence when Suetonius marched south to London, and with the same result: the marching legionaries would continue to their goal. Coupling this necessary determination with the probability that Suetonius would not have known (beyond the locally-reconnoitred area) the weight of hostility in advance, might mean that, in Suetonius' mind, all routes west of Watling Street could be weighed equally hostile. Therefore, the factor was redundant in the choice of marching direction. However, it should be remembered that there is no confirmed evidence for a wide-spread rebellion and consequently these points may be moot, a situation that might have meant that areas west of Watling Street and south of London could have been benign to Suetonius – in stark contrast to the east of England.

The details of the last two paragraphs, and what is known from the accounts and archaeology, could be summarised by stating that southern England, north of the Thames and east of Watling Street, was hostile to Suetonius while the rest might have been benign. This was the only adversarial division that could be claimed as plausible while attempting to reconstruct the decision-making process undertaken by Suetonius in London. Unfortunately for modern investigators, this apparently simple division of areas by protagonists would probably not have been static. Political ramifications related to the success of the uprising, for example later rebellion by other tribes, might have rendered a particular route more dangerous to Suetonius subsequent to his leaving London. He would probably have also weighed these factors prior to his departure along his chosen route.

Having examined in the previous sections the size of forces, their strengths and weaknesses, and now the probable dispositions of the rebel forces, the merits of each route out of London can be examined by way of tables of pros and cons together with a discussion of the more significant points.

North-east towards the homeland of the Iceni and Trinovantes		
	Pros	**Cons**
1	None	Very poor terrain for battle-sites matching Tacitus' topographic details
2		Poor legionary morale on entering enemy homeland
3		Foraging and grazing easily contested by rebels
4		Ten thousand Romans increasingly outnumbered as they advance
5		High probability of ambush and outflanking
6		Intense rebel skirmishing and harassment
7		Rebels may have the choice of battle-ground
8		Romans at battle-site more likely to be besieged, starved etc.
9		Logistics increasingly favour rebels
10		Romans marching further away from any assistance
11		Unlikely any Roman battle-site would have, "not a soldier of the enemy except in his front"
12		Unlikely citizens would march towards guaranteed conflict/battle
13		It was difficult for London to be burned if Suetonius marched north-east
14		Tacitus' writing was of Roman withdrawal from the rebels, not advance

Table 4: Pros and cons for the north-east route into the rebel heartland. The numbers do not imply any rating, just identification.

As can be seen in Table 4, the pros for the north-east route have been reduced to none. This was an acceptance that any imaginable pros, for example a short campaign, could usually be reversed using soldier's dark humour on the probability of survival – a short campaign follows a short life!

The first con, that Tacitus' description of the battle-site was poorly reflected in the terrain, was based on a simple observation of the earlier site analysis. This resulted in no top 100 battle-sites in this area. Indeed, there were none east of Watling Street (Figure 12). There were two counter-arguments that could be applied to this con. Firstly, that an assumption had been made by the author that the only form of battle-site that the Roman force could reasonably be expected to have used was that described by Tacitus. Secondly that Suetonius, while in London, could not possibly have had sufficient advanced topographical knowledge of the land he was to traverse to allow him to make such a judgement. Both of these counter-arguments could be applied to all routes, as can points supporting the con which will now be discussed.

The first assumption, that the Roman force required a protecting, topographic depression at the battle-site, could be supported by asking what other force formations, and within what topographic forms, could have been expected to result in a Roman victory? Generally speaking, a Roman front-line consisted of 5 to 8 ranks of legionaries, possibly arranged in cohort blocks, sometimes flanked by auxiliaries but nearly always by cavalry. The front-line might be supported to the rear by one or more other lines of similarly-configured soldiery. Again, generally speaking, given the choice Roman commanders selected flat ground for the battle-site, with an area extensive enough to allow the front-line to extend in length to match the opposition's and still maintain sufficient ranks, while at the same time allowing space for the cavalry to manoeuvre in either defence of opposition flanking attacks, or for themselves to conduct the same. Of necessity therefore was a requirement for broad comparability in numbers of soldiers on either side; if one side had relatively fewer soldiers then the ranks and/or the number of rear-lines would be thinned as the front-line was extended. This thinning and extending was required to counter the possibility of flanking and

envelopment for, no matter how superior the front-line soldiers, they could not usually withstand attack from many sides. The battle would be lost typically followed by massacre. Logically there was a point of imbalance in numbers that required the commander to evade the enemy, to retreat to a secure point and/or find support from friendly units. It seemed entirely reasonable to assume that the imbalance Suetonius faced (c.10,000 Roman armed men versus c.80,000 or more rebels, i.e. eight to one) would have led him to recognise that the standard Roman extended front-line across a flat level terrain was not going to allow him victory, simply because the front-line could not be made long enough to match the rebels' and stop their charge, or the Roman force would be so compact that the rebels would simply envelope it. That was the essence of the problem Suetonius faced: extend the front-line and make it too thin to stop a charge, or keep it compact and be enveloped. Suetonius would have recognised that a hill-top or ridge would not have protected his force, as neither offered flank protection for a small force. There are no other topographic forms except a depression flanked by high ground in southern Britain that could be considered safe from envelopment (note that landforms surrounded on three sides by water, such as a coastal promontory or a position in the fork between a tributary and a main river, were considered but dismissed as extremely unlikely and/or traps for the tactically-foolish). It followed, then, that only a depression with elevations to the sides of the legionary front-line that could be defended by less capable soldiers, the auxiliaries, offered the possibility of stopping or dissuading an enemy flanking manoeuvre.

If correct, this logic, that was derived independently of the known archaeology and accounts, gives credence to the commonly-held supposition that Tacitus was writing a factual account, i.e. there was only one topographic formation Suetonius could have used to gain victory, and that was the one Tacitus described. This additional credence was gained independently of the fact that Tacitus was the son-in-law of Agricola (who may have been present at the battle) and whose later conquests in Wales and Scotland gained him renown, which altogether would suggest that Tacitus would have been keen to represent the truth of the Boudican battle.

The second counter-argument to con 1 (Table 4) – that Suetonius could not possibly have had sufficient advanced topographical knowledge of the land he was about to traverse – was essentially the effect of modern, fast journeys and an underestimation of the topographic knowledge of the Romans and ancient peoples in general. As was mentioned earlier, the former results from modern people driving quickly, point-to-point, eyes to the front, necessarily blinkered to the surrounding landscape; we do not register the detail of the land. However, consider the same journey while walking or riding a horse, when one would have time and safety to gaze at objects to the side of the road and to the horizon, noticing and recording details that would build a far broader understanding of the topography and other features within it. Unfortunately, our modern inability to register such detail is a trait falsely assigned to Suetonius and his Romans. They would have slowly travelled the Roman roads of southern Britain, discussing features, pointing out other routes in the distance, noticing sources of fresh water, good grazing, etc. Possibly to pass the time senior officers tutored juniors about various aspects of military life: logistics, distances, march times in difficult terrain, and even the appropriateness of a topographic feature as a battle-site, amongst a host of other topics. Furthermore, southern Britain is a small land. Distances and travel-times were not great and, to an experienced senior officer, the topography might have been simply divided into swathes of high ground (Chilterns, North and South Downs, etc.) separated by the major river valleys across which the military roads passed. As an example, marching from London to Gloucester (more accurately for the period 60/61AD, the fortress at Kingsholm) might have entailed taking the Portway westwards across the Thames valley, passing through lowland Silchester before striking the elevated North Wessex Downs, then onwards and upwards to Cirencester in the Cotswolds before slowly descending the Cotswolds escarpment into Gloucester; the picture in a Roman military mind might have been to follow two river valleys (the Thames and Kennet) into high ground (the North Wessex

Downs) and then traverse the up and down slopes of the Cotswolds (Figure 1). A small land because the total distance for this journey using the Roman roads was 175 km which, at a marching rate of 29 km/day, would have taken six days – six days of observations; six nights of meals taken with local officers or tribal leaders who exchanged local information of topographic conditions, rivers, hunting-grounds, troublesome villages and peoples further from the road. Detail upon detail would have been acquired given the time available. Contrastingly, for the modern traveller the distance is covered in 2:30 hours and little local knowledge is gained.

Also part of this second counter-argument is the common belief that computers matched with modern digital data allow a level of knowledge of very large areas in a manner not possible for the Romans. Undoubtedly this is true for the finer, mathematically-derived details such as the computation of slope angles or river flow capacity, but such features might well have been described in terms more applicable to the Romans, for example, a slope up which a legionary could march but an ox-cart could not, or a camping-ground alongside a river that would suffice for one legion but not two. In modern systems, all of that individual, site-specific knowledge can be collated, stored and displayed on one machine. Essentially the combination of computers and digital data, often nowadays satellite-derived, allows one person the power to combine the survey work that previously would have required hundreds of people. The Romans had similar local survey data and knowledge – for example derived from the building and use of the road system and its milestones, from signalling stations, from the placement of forts and marching camps, from the patrols by local cavalry away from the main roads, descriptions from local Britons or traders – the list of sources would have been extensive and all might have been augmented by the knowledge gained by officers journeying across Britain, including Suetonius. The need for these data and knowledge to be available to the decision-makers seems undeniable and, given the expertise displayed by the Roman army in so many other spheres, it seems unreasonable to uphold the view that the Roman military, a headquarters staff or provincial governor's office, did not in some manner collate, store and display this information. Of course, it is thought that the large-scale, surviving itinerary textual lists, such as the Antonine itinerary, were themselves derived from smaller-scale local lists or, possibly map-like depictions similar to the Peutinger map. Therefore, it is not unreasonable to suggest that Suetonius had available such smaller-scale stores of local knowledge.

If this point of view had reality then it is not evidenced (yet) in the archaeological record, probably because the media was perishable, for example wooden tablets of distances and times to march between towns and forts, maps on hide etc.. Even if this map and tablet viewpoint is incorrect then, within the collective memory of Suetonius' staff, centurions included, would have been sufficient knowledge, from all the sources already discussed, to identify the most suitable of defensive topographic depressions along the route most favoured by strategic deliberations.

Hence, the counter-arguments against con 1 were – probably – unfounded, as they were for all routes from London. Similarly unfounded were arguments suggesting that modern computer-based techniques over-represent the broader topographic Roman knowledge and understanding of southern Britain.

There was one other point relevant to the selecting of *the* battle-site along this route, and all others, namely knowing in advance those sites which could be used. Suetonius and his advisors would select, if possible, the very best along any route; why select any other than the best? To do otherwise would be illogical unless there were circumstances that forced the selection of a lesser site, but this possibility, according to Tacitus' implicit suggestion that Suetonius was in control of his march direction and time and place of battle, does not seem tenable. On the other hand, Tacitus also stated that Suetonius, “prepared to break off delay and fight a battle", which suggested that he abandoned the withdrawal or retreat from London, which in turn left the possibility that Suetonius had marched past the very best of battle-sites along whatever road he was taking. Clearly, Suetonius was engaged in complex decision-making, and in a manner that cannot be fully resolved today until

the actual battle-site is discovered. Nevertheless, the concept of Suetonius knowing in advance of, and choosing, the very best of battle-sites along any route was plausible. Which left the question, while in London did Suetonius pre-select the battle-site, or instead select the route first and then the battle-site(s)? If the former, then searching for the actual site became simply one of selecting the number one site in the ranked listing: Dorking in Surrey. However, the latter choice was more likely because Suetonius' position in London was tactically and strategically dire; simply, he had to save his small army from immediate destruction by marching rapidly away from Boudica – the tactical requirement – and towards support and arms in the western military zone – the strategic requirement. It was for this reasoning that, in this study, the choice of route from London takes precedence over choosing the very best of candidate battle-sites: first choose the route, then the best battle-sites along that route.

Returning to the list of cons for the Romans marching into the rebel heartland (Table 4), most of the negative points were relatively simple and, arguably, indisputable. For example, foraging and grazing would have been contested, the Romans would have been outnumbered, harassed, possibly ambushed, conceivably besieged, and at all times marching away from assistance and any safe haven. All of these points would have damaged the soldiers morale (con 2) to the extent that Suetonius may have thought that they might not follow him. After all, as already discussed, these were the same soldiers who baulked at attacking the Britons on Anglesey, who withstood wounding rather than attack, who ignored contrary orders from their commanders but eventually charged when Suetonius himself urged them onwards (*Annals*, 14.30).

Con 11, that it was unlikely any Roman battle-site would have, "not a soldier of the enemy except in his front" (*Annals*, 14.34) was important because it was very difficult to imagine that Suetonius would have thought such an advantage possible in the rebel heartland. Far more likely he would have thought himself flanked and possibly surrounded, and his legionaries, when considering the death of their comrades in the 9th Legion in the same area, might have thought the same with a concomitant effect on their morale.

Con 12, that it was unlikely citizens would march towards guaranteed conflict and battle, is a truism echoed in all conflicts: if possible non-combatants march away from all combatants to places conceived as safer. It was almost inconceivable that the London civilians would have preferred to march towards the same rebels that had slaughtered the people of Colchester; better to leave Suetonius if he was marching north-east and instead head south or west. *Almost* inconceivable because if there had been a general uprising and all directions from London were hostile then, as mentioned before, the capable civilians – the rich and/or fit – might have marched with Suetonius.

Con 13, the difficulty of proposing a plausible scenario for the burning of London if Suetonius marched east, was another piece of literary evidence from Tacitus, and is also supported by the archaeological findings. For Suetonius to march north-eastwards towards the approaching horde and for London still to have been destroyed was not impossible, but would have required some sort of convoluted flanking and passing manoeuvre by the rebels to enable them to get behind Suetonius. Another idea was that Suetonius left London for the north-east and the rebels, who had previously destroyed the 9th Legion and St. Albans, arrived in London behind him but then, of course, this idea falls foul of Tacitus writing that there was no enemy force behind Suetonius at the battle-site. A simple reduction of this con would be that it was highly unlikely that a north-eastwards march by Suetonius would cause the rebel leaders to think that destroying London first was more important than destroying Suetonius and his army.

Con 14, that Tacitus' writing was of Roman withdrawal from the rebels, not advance, was evidenced by various phrases, and the generally negative demeanour, in *Annals* 14.33.

> .. uncertain whether he [Suetonius] should choose it [London] as a seat of war [meaning to fortify and defend London]

.. scanty force of soldiers

Even with the Thames as protection from at least one side, Suetonius recognised that his relatively small force was incapable of building defences strong enough to resist Boudica's horde. Tacitus was forewarning the reader that London's position was hopeless, that worse things were to come in the narration – a wholly bleak outlook and without any prospect of mitigation, not even a vainglorious march to the north-east by Suetonius and his men.

.. the rashness of Petilius had been punished [Petilius, the commander of the routed remains of the 9th Legion had marched towards the rebels]

Tacitus was re-emphasising the forlorn hope of matching Petilius' advance towards the rebels and into their territory, and that the outcome was known and understood by Suetonius, i.e. do not advance, do not enter rebel territory.

.. [Suetonius] resolved to save the province at the cost of a single town.

Here Tacitus was emphasising the earlier intimations – London cannot be defended, Suetonius cannot advance towards the rebels – but, instead, hints at a later success by abandoning London and saving the army and province. The text was tinged with local disaster but offered the promise of later salvation. This, married to the earlier negative phrases about defence and Petilius' actions, implies withdrawal from the locus of disaster, not advance towards the cause.

.. nor did the tears and weeping of the people, as they implored his aid, deter him from giving the signal of departure

In this passage Tacitus was explaining to the reader that Suetonius was a Roman governor, a man tasked with the survival of the province, and that hard choices had to be made. Secondly, Tacitus would not have written about the tears and pleas of the civilians if Suetonius was marching north-east: why would they despair if the Roman army was going to place itself between them and the rebels? Further, the civilians would not 'implore his aid' if Suetonius had marched north-east: that would have been the ultimate aid, no more could have been given. Instead, the rooted civilians were imploring his aid, begging him not to leave them exposed to Boudica's advance. But they were left wholly exposed by Suetonius, who put London and the civilians between him and Boudica. This was quite possibly one of warfare's more explicit examples of cynical manoeuvring; an outcome echoed throughout history and justified, as Tacitus implicitly conveys, by the eventual saving of the province and hence the loss of fewer Roman lives.

.. were cut off by the enemy

Tacitus' denouement: Suetonius and his army had left London, there was no protection for the remaining civilians and, as they already foresaw, the inevitable outcome was death, arriving from the undefended north-east.

Finally, the weight of negative points strongly suggested that to march north-east towards the rebels would require the commander to have been insane, foolish or suicidal; the written accounts do not characterise Suetonius as such, either during this event or in later years.

In conclusion: Suetonius did not march from London north-east towards the homeland of the Iceni and Trinovantes.

North-west, to the far north, along Watling Street		
	Pros	**Cons**
1	March towards the army units in NW and Wales	Very poor terrain for battle-sites matching Tacitus' topographic details for much of the march
2	Reinforcements from the remains of the 9th	Poor legionary morale due to returning along Watling Street
3	Top 100 battle-sites in the Chilterns and beyond Towcester	Foraging and grazing previously consumed by southern march to London
4		Possible flanking by rebels that destroyed the 9th
5		High probability of harassment, skirmishing and ambush
6		Greatest distance to march to safety
7		Probably moving away from 2nd Legion
8		Trigger political unrest/uprising in northern tribes
9		Romans marching further away from any assistance
10		Not likely that battle-site would have, "not a soldier of the enemy except in his front"
11		London civilians reluctant to march north-west
12		Possibly cut communications with Europe
13		

Table 5: Pros and cons for the north-west route, to the far north, along Watling Street. The numbers do not imply any rating, just identification.

The other northern route that Suetonius might have taken would have been along Watling Street, past St. Albans and on through the Chilterns before emerging at Dunstable (Figures 1 and 16, Table 5 for pros and cons). From there the old road, now the modern A5, traverses the lowland of Bedfordshire before the topography becomes slightly more robust after Towcester. The end point for Suetonius might have been c.240 km from London in the legionary fort at Chester, over eight days of marching at 29 km/day.

The first pro, to march towards the army units in the north-west, would have been the strongest incentive to take this route. For, in preparing for that year's conquest of north Wales and Anglesey, Suetonius undoubtedly would have built supplies in this area. Furthermore, it is commonly assumed that the 14th and 20th Legions (those with Suetonius in London) were probably previously involved in the Welsh campaign. Therefore, it seemed likely that much of those legion's winter supplies, heavier equipment, army-baggage-train and a host of supporting ancillary services were also in a fort(s) bordering the Welsh high ground, again possibly Chester. These supplies and services would have enabled Suetonius' forces to survive a winter and relaunch the campaign to crush Boudica.

The second pro, to gather reinforcements from the already defeated 9th Legion, might be viewed as a desperate measure to find positive reasons why Suetonius would take Watling Street. Nevertheless, it might have been possible for units of the 9th to march some 70 to 80 km from their forts in modern Cambridgeshire to an intersection with Watling Street; two to three days through land already known to be hostile. A contrary view might suppose that Suetonius would have preferred the 9th to hold the forts it occupied and thereby dissuade the tribes to the north, including the Coritani, from joining the rebellion or, if that failed, to block rebel movement.

Pro 3 was more promising in support of this route, i.e. the presence of top 100 battle-sites in the Chilterns and beyond Towcester, i.e. site numbers 84 and 63 at Dunstable (Horne, 2014 and Figure 16), and 49 at Church Stowe (Pegg, 2010 and Figure 13). Site number 57 (Figure 16) was 16 km north of the start of Watling Street and, because of its proximity to London, was discounted as a likely battle-site (this proximity factor will be discussed later). There were no other top 100 sites along the road due to the poor terrain that did not match Tacitus' description.

Many of the cons in Table 5 were related to previous activities reported by Tacitus, i.e. Suetonius probably marched south along this road to London thereby probably gathering any foodstuffs, general supplies and reinforcements from local garrisons, and degraded the grazing around marching camps. Also, as already mentioned, he encountered hostility. In taking the reverse course these factors would have adversely affected the legionary morale, as would the probability of increased hostility and the possibility of an encounter with the rebel force that destroyed the 9th. In addition, neither Suetonius nor the legionaries were likely to have favoured marching the longest distance to safety of all routes available, or increasing the distance to the 2nd Legion and other supporting units.

As an aside, the issue of grazing around marching camps can be examined to demonstrate how complex the decision-making process may have been for Suetonius. Before Suetonius' campaign in north Wales he would have gathered his units, including their troop-baggage-trains of mules. Once he had heard of the Boudican uprising he had a choice: either to march his 10,000 men with or without mules (the number assumed here was for simplicity's sake, and confirming the impossibility of guessing how many auxiliaries he gathered from the local forts to bring his numbers to 10,000 at the final battle). The required c.2,500 mules carried the heavy, goat skin tents etc., together with additional rations, and could march at the same pace as the legionaries. The mules therefore did not hinder the progress of the 10,000 men; indeed, they extended the army's range while at the same time making life more comfortable, thus improving morale (consider how miserable a night spent without cover from rain might be!). Certainly the 10,000 could have covered the distance to London without the mules by carrying extra rations and requisitioning as they went, but Suetonius probably could not guarantee sufficient rations in London, or, more importantly, wherever he originally intended to march. Consequently the prudent option would have been to march with the mules. However, there was a logistical drawback to entraining the mules which, under normal peace-time circumstances, would not have impinged on Suetonius' thought processes as he weighed his choice of route in threatened London, i.e. feeding the beasts and the failure or increased difficulty of doing so, and the effect that could possibly have had on his army. Tacitus says the route south was hostile, which suggests the possibility of marauding rebels targeting the mules each evening as they grazed. Guards for the mules would have to be increased and the mules held closer to the marching camp. The result would have been a tight zone around the marching camp where the grass had been depleted. If Suetonius ordered that the grazing be supplemented or replaced by soldiers foraging for fodder the result would be much the same, as the men would have been reluctant to move far beyond the safety of the marching camp, i.e. again, a tight zone of depleted grass. Of course, there may have been stored fodder in the forts and farms that Suetonius probably used as he passed south, but how much obviously cannot be ascertained, and it would not have been there on his return north along Watling Street (any marauding rebels would also have depleted stocks). Now Suetonius, as he considered options in London, would know that the return along Watling Street would still be contested, probably more so, and that he would have considerable difficulty feeding his troop-baggage-train because the grass had already been consumed within a safe distance of the marching camps. The mules might have started to starve, failed to continue to carry their loads and/or slowed down the withdrawing column. Ultimately, due to the distance to be covered and the opposition, his army might have greatly suffered or even been destroyed. However, all of these possibilities could

be simply avoided by not returning north along Watling Street (or, to be fair, returning along any road). The complexity of description, deliberately used in this long paragraph, is at odds with the probability that Suetonius' experienced mind might have understood all the implications in a flash, and maybe he thought, “From London, avoid the routes with unnecessary and dangerous complications; avoid Watling Street”.

Con 8, the triggering of political unrest or uprising in northern tribes, was a possibility that a Roman governor, already out-numbered and forced by circumstance and enemy success to abandon his original strategy – the hammer blow – would have weighed carefully. For Suetonius would have moved away from the oldest, firmest and most resolute allies among the British tribes, i.e. those south and west of the Thames, towards those more recently persuaded of Roman rule. In which case, Suetonius might have thought that the sight of a Roman army retreating northwards could have caused political upheaval in the northern tribes, possibly resulting in them attacking him in consort with the eastern tribes; a possibility fraught with uncertainties but one that, if made material, would have destroyed his small army. Why take the risk? Choose another route amongst friends and allies.

Con 10, “having first ascertained that not a soldier of the enemy except in his front”, was particularly relevant as an indicator of the unsuitability of this route both for Suetonius and modern investigators, as the reported former hostility, now probably increased, would have meant that Suetonius would have found it extremely difficult to manoeuvre into such a favourable position. For example, sites 84 and 63 at Dunstable were located on the north-west edge of the Chilterns escarpment and within a valley setting where there was no river water sufficient to supply the army; the nearest such was 4.8 km to the rear of the front-line in the Vale of Aylesbury. For Suetonius, the need to secure the water supply would have been critical and could have been brought about, at least during day-light hours, by placing the marching camp close to it, but this would have necessitated a lengthy march to the front-line by the soldiers. Those tactical and logistical negative features would have attracted the hostile forces reported by Tacitus, such that Suetonius would not have been able to stop attacks on his water-parties, or possibly larger-scale attacks from the rear on his marching camp and/or front-line. In addition, with enemies in the vicinity, the camp would have required a larger guard, hence fewer soldiers for the front-line; a further disadvantage of the type that Tacitus was implicitly stating Suetonius avoided. One mitigating stratagem would have been to send away the mules and civilians leaving just the 10,000 armed men. This could have been safely employed south of the Thames where the local tribes were friendly, no hostiles roamed and the rebel horde(s) trailed in the Roman wake. Contrastingly, in the hostile north the mule-pack and civilians, together with whatever escort Suetonius could spare, might have been harassed at best and slaughtered at worst, a possible outcome that presumably Suetonius could not have countenanced. All of which suggested that Tacitus' phrase, clearly intended to praise Suetonius' generalship, would not apply to the Dunstable locations or others along Watling Street.

Con 11, civilians reluctant to march north-west, had echoes of the similar reasons against marching to confrontation discussed previously in the section on marching north-east into the rebel-heartland. Essentially, the history of conflict relates that civilians presented with a safe direction of march, away from combatants and territory held or known to be hostile to their cause, will take that route in preference to guardianship by their armed forces. The known hostility, the loss of the 9th and the possibility of a mass of rebels operating close to Watling Street, coupled with the probable lack of confidence in Suetonius and his army, suggests that the civilians would only voluntarily join a Roman marching column if that was heading in a direction they perceived as relatively safe. It follows that, and in accepting Tacitus' report, all these adverse considerations make it unlikely the civilians would have marched with Suetonius along Watling Street.

In conclusion: the cons far outweighed the pros, which were themselves of dubious quality, which strongly suggested that Suetonius did not choose to march from London along Watling Street to the far north-west.

However, there was a fork in the road at St. Albans which did not lead to the north-west but instead to the west along Akeman Street and the forts at Alchester, at Cirencester (where it intersects the Fosse Way), and at Gloucester. Did Suetonius take Akeman Street (Figure 1)?

North and then west, taking Watling Street to St. Albans and then west along Akeman Street		
	Pros	**Cons**
1	Turn west and march directly away from rebels and towards assistance, supplies etc.	Possibility of flanking on initial northwards march (London to St. Albans)
2	Possible safe havens in the western forts of Alchester, Cirencester and Gloucester (Kingsholm)	Possible attack by rebels that destroyed the 9th or hostiles to the north
3	March-time from London to first haven, Alchester, only three days (91 km)	Possibly abandon SE England to rebels or further tribal uprising
4	Six days to reach Gloucester (rebels 11 days at 16 km/day)	Warfare spreads into central, southern Britain – danger to tribal allies
5	Possible rendezvous with 2nd Legion marching north along the Fosse Way	Possibly cut communications with Europe
6	Rebels increasingly stressed further west	Crossing chalk and limestone areas more difficult
7	Two road sections where rebels without water for 1-2 days (across Chilterns and Cotswolds)	May take two summers to suppress uprising
8	Route options increase westwards	
9	Friendly tribes – Atrebates to south, Dobunni to west	
10	Undepleted foraging and grazing	
11	Little danger from skirmish and ambush	
12	Rebels hordes cannot flank Romans	
13	Citizens content to march west	
14	Extremely favourable battle-sites in Bulbourne river valley	

Table 6: Pros and cons for taking Watling Street as far as St. Albans and then forking west along Akeman Street. The numbers do not imply any rating, just identification.

For Suetonius, this route (Figure 16, Table 6) had many advantages over continuing north along Watling Street. In turning west he would have marched diametrically away from the Boudican horde(s) thereby maximising his advantage in march rate (c.13 km/day), distancing himself from the following rebels, reducing the immediate danger to his army, and gaining time to reconsider his

options. In gaining time over the rebels he also gave other Roman units a greater chance of coming to his assistance. Tacitus tells us that auxiliary units from the local area gathered to Suetonius (and presumably various supplies also arrived) and, if Suetonius had sent senior officers to take control of the supposedly-recalcitrant 2nd Legion in Exeter, then this unit too may have been on-the-march with the prospect of it arriving at Suetonius location (Table 6, pro 5). It did not arrive, as we know, but that did not detract from the main point – in marching west Suetonius would have quickly relieved the pressure on his own force, given his and other units time to reorganise and possibly congregate at a place of Suetonius' choosing. Needless to say, the same was true for any western route, e.g. taking the Portway out of London.

The strategic advantage in turning west, rather than continue north along Watling Street, was the relatively shorter distances to Roman forts (Table 6, pros 3 to 6). The fort at Alchester was only three days march from London, two more to reach Cirencester and then one more day's march to Kingsholm, the fortress near Gloucester. At all the forts Suetonius would probably been able to re-supply and reinforce his army, to what extent cannot be ascertained but the possibility would have been present, and that adds to the benefits of a westward march. As mentioned earlier, reaching the Kingsholm fortress would be a strategic end-point, for in that location Suetonius would have been relatively safe for the winter and could prepare for a renewed attempt at crushing the rebellion in the following spring.

In passing it is interesting to note that the distances between St. Albans, Alchester, Cirencester and Gloucester are within a maximum of 2 km of multiples of the 29 km/day Roman marching distance; coincidence or design? If by design, which almost certainly was the case, then not only were there marching camps at the already-mentioned places, but also at Broughton (eastern margin of Aylesbury, Buckinghamshire) and Asthall (alongside the river Windrush in Oxfordshire (Kaye, 2013b).

Another significant advantage Suetonius may have had in contrast to continuing north along Watling Street was the undiminished stores in forts, plus forage and fodder (Table 6, pro 10). Assuming that Suetonius had not marched south to London along Akeman Street and in doing so depleted the local foodstuffs, especially fodder around the marching camps, then he would have had a clear logistical advantage over the rebels as the majority of whom would have followed his consuming progress.

These logistical advantages might have been compounded by the self-sustaining legionaries, capable of many days of independent action even in regions such as the high Chilterns and Cotswolds where food, fodder and water were less easy to come by. In contrast, the rebel horde – because of its logistical naivety, size and slow march rate, especially in the high lands – would have been greatly strained by the increasing stresses imposed on it by the lack of sustenance and the distances covered. Furthermore, although the rebel horde could have spread itself over a wider area in the lowlands in an effort to find more provisions, this would not have been true for the journey over the Chilterns or Cotswolds where there was only one route in the highest, driest, least-bountiful part of the journey. Accumulating stress applied to earlier strain might have damaged the rebels' ability to follow Suetonius, and eventually their combat effectiveness. It seems probable, given Suetonius' experience, that he may have deliberately chosen this westwards route with these debilitating stresses in his mind (Kaye, 2013a).

Of course, it was always possible that the rebel horde would not follow Suetonius into the far west as it became increasingly strained by the march, lack of food and water (pros 6 and 7), and diminishing morale. Furthermore, at some point in the westwards march, Boudica would have

probably realised that her strategic gamble, to catch and destroy Suetonius before he reached a safe-haven, had failed – better now to return home and prepare for the onslaught in the spring. However, Boudica did not stop and return home, which might suggest that she did not travel a very great distance westwards before encountering the waiting Suetonius and his front-line. This might suggest that Suetonius deliberately chose a battle-site at a location where the rebels were logistically weakest but had not yet given up the chase. If so, then the calculations made by Suetonius would have been very carefully balanced between his force's increasing combat strength and the rebel's growing debilitation.

In addition, as Boudica marched west she would have encountered tribes friendly to the Romans (pro 9) and not, as in the north, a rebelliously hostile land slowing the Romans. This, together with the realisation that her forces could not march quickly enough to catch Suetonius or flank his forces (pro 12), may have also triggered doubt in her own strategy.

Pro 13, the citizens of London were content to march west, would be a positive point in favour of this route as long as they knew of the route before leaving London. If for security reasons they did not, but had instead just been told to prepare to march north along Watling Street, then this pro may be moot.

Before discussing pro 14, the extremely favourable battle-sites in the Bulbourne river valley, the cons will be dealt with.

Cons 1 and 2, attacks by the rebels, were related to the probably unknown disposition of the rebel forces following the destruction of the 9th Legion, the approach of the horde that had destroyed Colchester, and the reported hostile nature of the routes to the north. As has already been discussed, the modern investigator can suppose that rebel forces may have been concentrated in two groups: one marching from Colchester to London and another further north and marching from wherever it destroyed the 9th Legion. Suetonius may have had more knowledge of these dispositions, but it seems reasonable to suggest that, even so, he would have cautiously thought of the whole of the area east of the margins of Watling Street as rebel territory within which he could only have a partial view. In which case he might have thought that even turning west at St. Albans was too risky, allowing the possibility of flanking by those victorious over the 9th, further damage from the hostiles that hampered his southern march, or direct contact with the Colchester horde. Ultimately in this regard, for Suetonius the consideration of route was one of risk: why would he have chosen a route prone to attack when others were free of that danger?

Cons 3, 4 and 5, danger to allies and loss of communication, were interrelated in the sense that they were dependent on the ground Suetonius chose to traverse, and in that sense common to all routes to varying degrees. Wherever he marched away from the rebels he would have dragged the uprising in his wake, bringing danger to allies, causing others to rebel and, because of the resultant loss of territorial control, possibly breaking communications with other Roman units and, more probably for northern and western marches, with Europe. Breaking communication with Roman Europe may have been a two-edged sword for Suetonius. On the one hand he would have lost the immediate ability to coordinate a counter-stroke involving Roman forces from across the English Channel, but on the other, he may have calculated that with communications broken he was less likely to be replaced as governor. The first point requires no elaboration; not so the second. Suetonius would have thought it dishonourable to be replaced before the rebellion had been suppressed: dishonourable for himself, his family and, most importantly, a description carried into posterity. If, in choosing a line-of-march, he could break communications or further distance himself from an appointed successor then, although likely a minor consideration, he probably would have chosen to

do so. For, it was certainly possible that the politicians and hierarchy in Rome would seek to divert blame from themselves by replacing him once it was known the rebellion was not immediately crushed. This tactic has been used by such people throughout history: replace one man and then, if the second also failed, they would say that they had done all they could to avoid disaster by changing commanders after the first failed, and unfortunately the incompetence of the second could not have been foreseen. However, modern investigators cannot know how much time was available to replace Suetonius, and it was possible that Rome only learnt of the uprising after Suetonius had been victorious. If so, the con was actually moot, except that the self-serving Suetonius, while considering his routes in London, may have thought it a pro, i.e. losing continental communications was a good thing for him, the reverse for the Empire. However, in conclusion, the strategic weight of losing communications with continental reinforcements might have meant that Suetonius would have considered this a greater loss: a con it remained.

The additional danger faced by allied tribes as Suetonius turned westwards cannot be reasonably denied, for the rebels would have delighted in raiding the allies' land, stripping it of provisions and destroying what was upstanding, humans included. Whether allies would become enemies would have been a question in Suetonius' mind; whether any actually did is not known. However, Tacitus does hint at a more wide-spread reversal of allegiance when he reports that after the battle with Boudica, “whatever tribes still wavered or were hostile were ravaged with fire and sword", and after describing the post-battle famine, "Nations, too, so high-spirited inclined the more slowly to peace" (*Annals*, 14.38). Assuming that Tacitus' claim that 80,000 rebels died at the battle was correct (or at least of that magnitude), then this suggested that few of the Iceni and Trinovantes who remained in their homelands would have been warriors, so it was hard to imagine that tribe wavering or hostile or high-spirited enough to offer much resistance to a revengeful Suetonius. Furthermore, Tacitus ended his account of the rebellion by stating that Petronius Turpilianus, who replaced Suetonius as army commander, “neither challenged the enemy nor was himself molested, and veiled this tame inaction under the honourable name of peace." (*Annals*, 14.39). Again, it seemed unlikely that the Iceni and Trinovantes could still be referred to as enemies having, presumably, already suffered from Suetonius' fire and sword and the self-inflicted famine. And yet, even at the end of the narrative account, and after the passage of one winter and the beginning of a new sailing season possibly allowing further reinforcements from Europe, the enemy still existed and was allowed to live on in peace. The question remained then: who were these enemy tribes?

To answer the question in a definitive manner is impossible, there being no direct archaeological or narrative evidence. However, there were – possibly – strategic, logistical and political pointers to an answer.

As already described, southern Britain is a small land and quickly traversed by marching legionaries. Therefore after the Boudican battle Suetonius' legions probably did march rapidly eastwards, securing London, St. Albans and all the other habitations overrun by the rebels. Colchester, only three days march from London, would probably have been a critical goal, as would taking control of the Trinovantes homeland; a relatively easy task given its topography and southern border, the Thames estuary. The ease and speed of activity may be indicated by an event c.18 years earlier during the original conquest in 43 AD. Then, Aulus Plautius first defeated the British tribes in a two-day battle (possibly at the Medway in Kent), halted his invasion force at the Thames and waited for the Emperor Claudius to arrive to finish the campaign by defeating the remaining British forces and occupying Colchester. This final act in 43 AD was accomplished so quickly that Claudius only spent 16 days in Britain. The critical similarity between events in 43 and 60/61 AD was the earlier, decisive battle which in both cases probably resulted in the same outcome: weak resistance to ultimate Roman conquest, documented for 43 AD but not for 60/61 AD. Ease and

speed, coupled with a desire for revenge made clear in Tacitus' account, may have driven Suetonius to rapidly crush the Trinovantes. But the much larger Iceni homeland would have been more difficult to suppress and control. No doubt Roman forces quickly marched to the main points of habitation and agricultural production, but the more northern areas, especially those containing the marshes and fens in what is now East Anglia, may have proved more difficult. It may have been here that remnants of Iceni warriors held out, but would they have been called the 'enemy' to whom Petronius allowed peace? To be clear, after all that the Iceni and Trinovantes had done, it seemed unreasonable to suppose that the Roman state would sanction the survival of those political entities. Surely that earlier enemy would have ceased to exist, and therefore the term enemy, applied to a few renegades in the marshes, seems disproportionate. But what could be said of the south-east and west of southern Britain?

After the Boudican battle Tacitus related that, “two thousand legionaries, eight cohorts of auxiliaries, and a thousand cavalry" (*Annals* 14.38), arrived from Germany, and then he continued to describe soldiers being placed in winter quarters and the famine of the rebels, presumably also in the winter and beyond. He did not describe any difficulties in moving the continental reinforcements, nor mentioned opposition south of the Thames Estuary. This circumstantial evidence indicated that the tribes in modern Kent took no part in the uprising or, if they did, it was localised, small-scale and easily and quickly crushed. The weight of this evidence, coupled with the history of tribal friendship with Rome, and the simple strategic fact that the Roman authorities could not countenance leaving an enemy near such a critical conduit, suggested there were none in this region for Petronius to ignore. The same was probably true for much of the rest of southern Britain south of the Thames. Barring a few renegades hidden within forests and marshes, the Romans would have been compelled for strategic and political motives to restore their order and control south of the Thames – there probably would have been no enemy tribes here. Furthermore, a large part of southern and central England (from the southern channel coast north to the Thames valley) was controlled by the King of the Atrebates (Figure 1), Cogidubnus, who was a trusted ally of Rome, as Tacitus made clear in his *Agricola* (14). All of which suggested that Suetonius, as he pondered his position in London, might have thought the south and east of England as far as the western margin of the Atrebates' land was relatively safe for his withdrawing force.

Of the tribes in the south-west – the Belgae in and around Hampshire, the Durotriges in Dorset and the Dumnonii in Somerset and Devon (Figure 1) – any of them may have revolted, might have been responsible for the burning at Winchester, and may have trapped the 2nd Legion in Exeter or elsewhere in the region. However, if they did revolt, then for Petronius to leave those enemies, for example, astride the Fosse Way and/or threatening the south coast ports at Porchester and Chichester, seems unconscionable: they could not have been the enemies that Petronius ignored or might have been already suppressed by Suetonius. For the governor Suetonius in London the allegiance of these tribes would have been important, but remote from his role as army commander and the immediate need to escape Boudica. Nevertheless, he may have thought it prudent to not test their allegiance and so avoided their land.

As for the far west, for Petronius to have left extant enemy tribes on the English side of the western military zone also seemed to be very unlikely. Firstly, because such opposition might have encouraged the Welsh tribes to misbehave and secondly, suppressing them if they did exist would have required relatively little military effort from the forts in the area.

The last few paragraphs could be summarised by stating that Suetonius would probably have considered the area south of the Thames as far as the western boundary of the Atrebates' land to be safe, but areas further west questionable to varying degrees; that after the Boudican battle and initial

suppression by Suetonius, Petronius probably could not – for strategic and logistical reasons – have allowed enemies to exist anywhere south of Watling Street (as a general demarcation line). Therefore the only remaining area outside of immediate Roman control, and containing tribes large enough to warrant a mention by Tacitus as enemies left in peace by Petronius, was to the north of Watling Street – the Coritani and, probably more likely, elements of the troublesome Brigantes and/or Parisi (Humberside).

If these northern tribes had revolted, singularly or as a confederation with their southern near neighbours, the Iceni, then it may have been these warriors that were hostile to Suetonius as he marched south to London. As for Petronius' actions after the revolt, he might have considered a peace of sorts north of Watling Street to be prudent, a holding action while the area south was calmed and Roman influence and control more firmly established. After all, a period of peace following hostile acts by tribes outside of the area formerly conquered by the Romans in 60/61 AD was just a delay in the overall plan of Roman conquest - that is, Petronius' intention was to conquer those 'enemy' northern tribes when the time, resources and forces were appropriate: revenge would be Roman, and in a manner and time of their choosing.

As for Suetonius in London, the considerations above might have meant that he thought the more northwards he marched the greater the possibility of attack, flanking, general skirmishing and other hostile acts including attacks on friendly tribespeople. This would have been especially so if Tacitus' 'hostiles' were the Brigantes and/or Parisi. These were necessarily relative appraisals of risk. Marching north-east into the rebel heartland was probably clearly untenable, less so for marching north-west along Watling Street and even less of a risk to turn west at St. Albans.

Having described the cons the discussion will now revert to the remaining pro: 14 in Table 6 – the extremely favourable battle-sites in the Bulbourne river valley.

The candidate battle-sites in the Bulbourne river valley are shown in Figure 16 and in more detail in Figure 18. Nearly all the parameters and criteria measured, weighted and ranked in earlier sections were very beneficial to Suetonius, so that the river valley contains sites 3, 5, 7, 8, 10, 11x2, 24 and 30. Essentially the length of the river valley from sites 5 to 8 was a strong candidate for the real battle. A simple selection would naturally have suggested site 3 as the best candidate, but this simplicity may hide localised complications of terrain or some other factor which, on further, detailed examination, might lead to the selection of another site in the valley. Nevertheless, sites 3, 5, 7, and 8 were outstanding candidates.

At least, that was correct for the topographic, riverine, etc. criteria but two problems made the river valley less than perfect in comparison to other routes Suetonius could have chosen. Firstly, the valley was only 13 km south of the Dunstable battle-sites discussed above and would have been prey to the same difficulty, namely Tacitus' hostile rebels encroaching and possibly attacking the marching camp and/or the front-line from the rear. Secondly, all the sites were less than two days march from London.

The first problem need not be discussed further, it being adequately dealt with previously (North-west, to the far north, along Watling Street, con 10).

Not so the second problem which was not unique to the sites in the Bulbourne valley but applied to all battle-sites close to London – what was the minimum distance or days from London that Suetonius would march, and then stop and offer battle? Unfortunately none of the classical writers tell us how far Suetonius did march. However, Tacitus' choice of words, "when he prepared to break

off delay and fight a battle" (*Annals* 14.34), does give an impression of a significant time-gap between Suetonius choosing to withdraw, or retreat, from London and he then changing his mind and selecting a battle-site. But what was the minimum amount of time that could be considered plausible – one, two, three or more Roman marching days; 29, 58, 87 or more kilometres (Figure 22)?

Figure 22 shows the one, two and three day distances from London for all routes. One day's march could have taken Suetonius to St. Albans, Staines, Mickleham (just north of Dorking), Limpsfield or Northfleet. Within this area were located the following top 100 battle-sites: 25, 28, 57, 64, 74, 79 and 81 (Figure 15), all of which, except for 57 north along Watling Street, were located south-south-east of London on or adjacent to the London to Lewes road (Margary 14). There were no other battle-sites further south along this road.

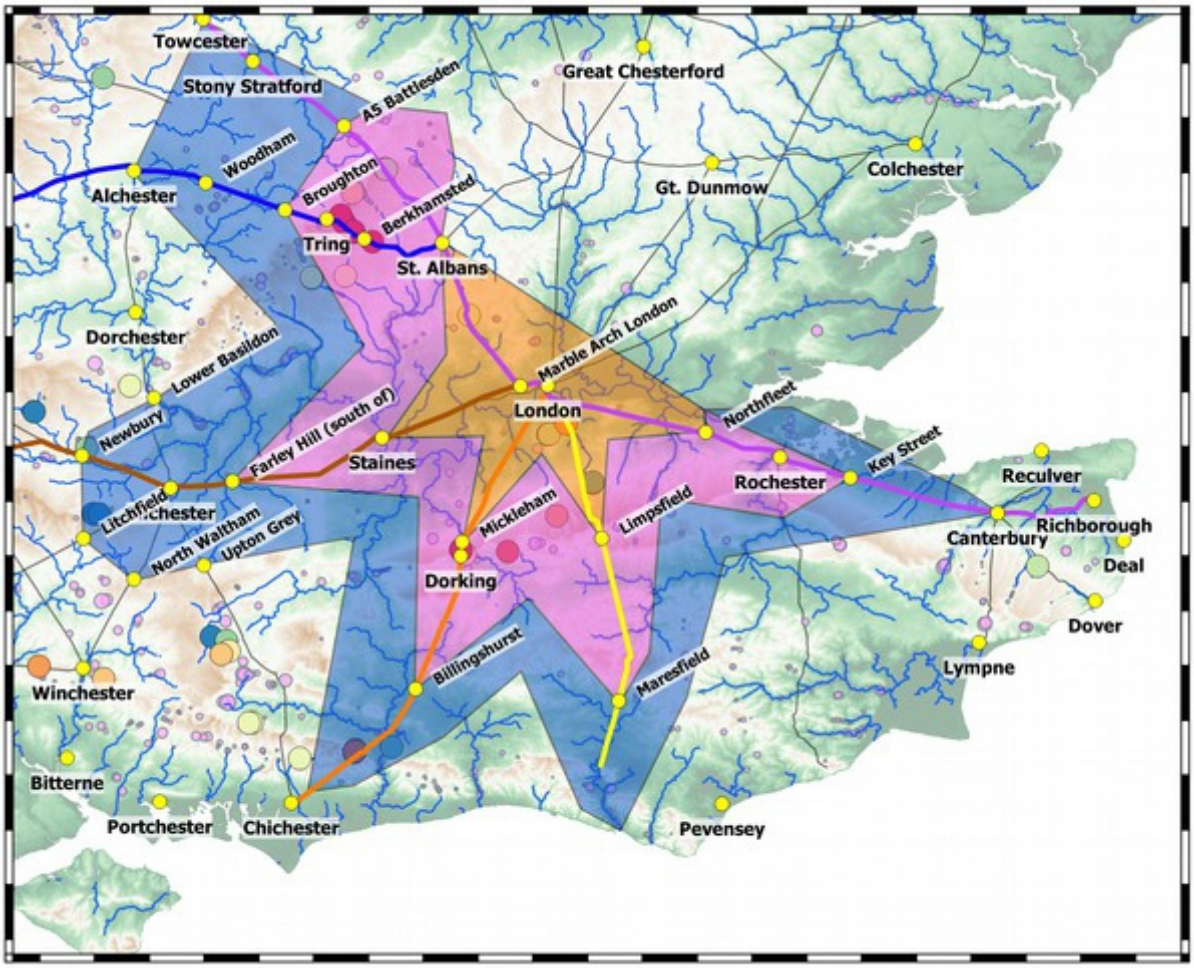


Figure 22: Legionary marching distances along roads from London at 29 km per day. The coloured polygons show the 1, 2 and 3 day distances from London (note the omission of measurements to the north-east where Suetonius almost certainly did not march). The 29 km rate was measured along the various roads. Off-road the polygon boundaries are roughly based on a march rate of 15 km per day (0.6706 m/s; 1.5 mph; 2.41 kph), starting at London and simply expanding by additional 15 km as each day passed. Hence, the off-road sections are only indicative, they are not intended to mark a realistic routing. Rotated location names were the places most likely to have had legionary marching camps. Other daily terminus locations such as forts at Alchester, Chichester and Towcester would also have had marching camps. Only the main military roads used in this study are shown but others would have existed in 60/61 AD. Watling Street is purple; Akeman Street is blue; The Portway is brown; Stane Street is orange; and the road from London to Lewes (Margary 14) is yellow.

Initial considerations of Suetonius' predicament – London could not be saved, and that his small force and entrained civilians were in danger of annihilation – suggested he would not have ordered a march of just one day or less and then turn and offer battle. He surely had to extricate himself from the approaching rebel horde(s), gain distance, time and logistical advantage, as has already been discussed. One day of travel was too short for these province-saving attributes to fully materialise in Suetonius' favour. Surely too, Suetonius would have thought his men and their commanders would think it peculiar to be ordered away from London and then halted after a day or

less of marching; the effect on morale would have been negative and Suetonius might have been labelled as indecisive - a quality despised by all military men down the ages, especially if it placed their lives in danger.

With regard to the London to Lewes route, to select a battle-site on the London flood-plain or low-elevation margins of the surrounding chalk uplands would have given the Boudican horde the opportunity to swarm around the Roman front-line, to approach it from many directions and probably would not have allowed Suetonius to arrange that, "there was not a soldier of the enemy except in his front, where an open plain extended without any danger from ambuscades" (*Annals* 14.34). These considerations, coupled to the relatively low-grade candidate battles-sites adjacent to this road, might have lead to a premature dismissal of the possibility of a very short march. There were, however, some valid counter-arguments.

If Suetonius had marched south across the bridge over the Thames, and destroyed at least the carriageway, then he may have gained a number of days respite from the immediate attentions of the Boudican horde. It would have been forced to either rebuild the carriageway and/or march west to Staines, cross the Thames and then return in an easterly direction; or to make use of the native bridge(s) and/or tidal causeways/paths and other crossing points within the tidal reaches of the Thames (these were mentioned by Cassius Dio in his account of the conquest in 43 AD (Roman History 60.20)). Of course, the rebel wagons that Tacitus mentioned (*Annals* 14.34) were present at the final battle would probably not have crossed the Thames without a bridge at any location other than Staines – an initial few might have crossed an estuary reach but the river bed would soon have been impassable to other wagons. If correct, this factor alone would have given Suetonius a minimum of five to six days south of the river preparing his positions (the equivalent for the travelling rebels of 60+ km at a velocity of 16 km/day plus one or two days to cross the Thames at Staines). Not that this would have helped him in these close locations because firstly, many rebels independent of the wagons would have crossed the Thames within that five to six day period, probably resulting in his position being surrounded and his forces harassed and secondly, the horde approaching with the wagons could have done so from any westerly direction, rendering his position in a depression untenable. The other river crossing option for wagons, i.e. repairing the bridge, would have taken an unknown amount of time. However, if the Romans had sufficiently destroyed the carriageway by burning or throwing its constituent parts into the river, the time taken probably would have been close to matching the six or so days to Staines and back.

So might Suetonius have thought as he considered his options in London. The weight of negative outcomes, if he only marched a day or less from London along the road to Lewes, strongly suggests he would not have chosen this tactic. Furthermore, as previously mentioned, there were no other top 100 candidate battle-sites along this road. Therefore the road could be struck from the list of routes from London the Roman commander might have taken.

The next Roman road to the west was Stane Street, from London to Chichester and the south coast ports, with battle-sites 1 and 2 located between the possible camping-ground at Mickleham and modern Dorking (Figure 22). Mickleham was one day's march from London, which suggests that these sites – even though they were outstanding in terms of their topographical and other weighted attributes – may have been viewed by Suetonius, as he probably did those along the London to Lewes route, as being too short a distance away with not enough time elapsing to gain a logistical advantage, and so on. However, there were significant differences. Sites 1 and 2 are a full day's march from London, and those rebels who could cross the Thames without the Roman bridge would have been two days away. The wagons, again forced to loop around Staines to cross the Thames, would have taken five to six days to reach Mickleham. However, this time the wagon horde would

not have been able to approach Suetonius' position from any direction other than from the north-west along the river Mole and, because of the blocking nature of the North Downs (Figure 17), neither the more mobile rebels nor the wagon horde would have been able to surround the Romans and/or approached from the south - at least, not in any significant numbers. On balance, therefore, and given their seemingly near-perfect match to Tacitus' description of the true battle-site, these sites were not dismissed as candidates but merely downgraded in terms of their suitability.

A similar distance logic could be applied to the battle-sites within two days march of London along Akeman Street in the Bulbourne valley or, as was more equitable, if sites 1 and 2 near Dorking were not dismissed for being too close to London, then neither should sites 3, 5, 7, 8, 10, 11 etc. in the Bulbourne valley. Necessarily, therefore, sites 63 and 84 near Dunstable, which were also within a two-day march along Watling Street, were also not dismissed for being too close to London. However, these northern sites had a disadvantage in comparison to the Stane Street sites, because there was no lengthy detour required for the rebel wagon horde – meaning that the whole rebel force would have been able to gather at the northern sites in three days or less from London – whereas sites 1 and 2 along Stane Street had a potential respite of four to five days due to the Staines detour. Clearly these were minimum, relative figures, as it is not known how far from London the rebel horde was when Suetonius left the proto-city to be burnt, or how many days Boudica spent in the town. Consequently the actual number of days available to Suetonius to enhance any battle-site is unknown, but it was considered beneficial in this study to have more days. Thus sites 1 and 2 along Stane Street were relatively more appealing to Suetonius in this regard than those along Watling or Akeman Streets.

While considering Akeman Street as a route from London, Suetonius would have given thought to his options beyond the Chilterns and the Bulbourne valley. In this case there were no other candidate battle-sites along the road, only the two forts at Alchester and Cirencester before reaching the fortress at Kingsholm. If he thought of the possibility of turning and offering battle after the Chilterns, then he might have been aware of suitable off-road battle-sites available to him if he had left Akeman Street beyond Alchester and followed north-westwards the Evenlode river valley as it descended off the Cotswold escarpment (Figure 14). Candidate sites 42 to 44 and 46, 47 were located south of Stow-on-the-Wold at the eastern end of the Bourton-on-the-Water valley through which the Fosse Way passed. Other sites in the high Cotswolds were also available, with some such as 16 at Longborough being even more favourable, and all, to varying extents, offering the possibility of further post-battle withdrawal along the Fosse Way or its off-shoots. However, there was the possibility of demonstrating that the Boudican revolt may not have extended beyond the Chilterns.

In the previous decade (2000s) exploratory archaeological excavations at Alchester (Sauer, 2005a, b and c) have confirmed the existence of a marching camp, a substantial Roman fort and associated annex, adjacent to or underlying the later Roman town. The fort has been tentatively dated to 43 AD and its annex, based on dendrochronological evidence from gate posts, to 44 AD and in combination, the fort and annex covered an area (c.14-15 ha) that could have housed a full legion. That legion, based on the finding of a tomb-stone, is claimed by Sauer to be the 2nd under Vespasian, the conqueror of the tribes in the south-west of Britain and who later became Emperor. The military occupation of the site is assumed to continue through to the 50s AD or possibly early to mid-60s AD. Admittedly the excavations have, so far, only revealed a very small area of this military complex. Nevertheless, there would appear to be no evidence of destruction of the military structures, for example, burnt beams or posts, a burnt layer or any other sign of an hiatus due to violence which might give weight to the thought that Suetonius and Boudica did not progress as far as this fortress.

How so? Firstly, the fortress was probably still upstanding and of military use in 60/61 AD, but probably not by the 2nd Legion who most commentators believe was in Exeter. If he had arrived, Suetonius would probably have emptied it of all provisions and equipment, burnt what remained, including the fortress, and taken with him any garrison as he departed for the west. Even if Suetonius had not fired the fortress, Boudica certainly would have for a variety of strategic, tactical and propaganda reasons. Simply, neither protagonist would have wished the abandoned fortress to be of use to their opponent.

Secondly, the fortress is presently thought to have been 14-15 ha in size, i.e. comparable to the same at Kingsholm (c.20 ha; Exeter was 15 ha). If it was accepted that Suetonius would have been safe in such a structure then, just as at Kingholm, the Alchester fortress should have offered a terminus to his withdrawal and presumably lead to an attack by Boudica on the fort and/or a siege. Of course, another assumption was that there were sufficient foodstuffs to withstand a siege until the 2nd Legion offered the chance of relief. The obvious fact that Tacitus described a battle in a depression, of which there were none near Alchester to which Suetonius might have decamped, renders this scenario extremely improbable. In which case, the first point became dominant, i.e. if Suetonius marched to Alchester and did not occupy the fort, then it should have been destroyed. There is no evidence for this. Admittedly these conjectures were based on the relatively small excavations, and the absence of evidence of destruction, which may be confirmed or otherwise by further archaeological works. Nevertheless, the current knowledge supported the idea that Suetonius did not march this far west and furthermore, if he had taken Akeman Street from St. Albans, then the actual battle-site must be sited east of Alchester in the Bulbourne valley of the Chilterns, the only locations prior to the fortress for top 100 sites matching Tacitus' description. Of course, if it is eventually shown that none of the sites in the Bulbourne valley were the actual battle-site, then Suetonius did not take Akeman Street which also removes the suitability of those top 100 sites in the Cotswolds north of Cirencester.

However, there was an historical difficulty that could be argued against either party needing to burn Alchester; for Tacitus wrote:

> ... the barbarians, who delighted in plunder and were indifferent to all else, passed by the fortresses with military garrisons, and attacked whatever offered most wealth to the spoiler, and was unsafe for defence. (*Annals* 14.33).

Here Tacitus was making the point that the rebels were marauding across the land, attacking defenceless farms, villages and towns and that they avoided the investment and destruction of forts and fortresses. Unfortunately Tacitus does not differentiate between fast- and far-travelling war-bands and Boudica's horde, probably because his audience would have been disinterested in such detail. Nevertheless, a difference did exist. The war-bands would have sensibly operated as he described, avoiding the forts and soldiers and instead looking for easy pickings. For strategic reasons Boudica would have approved such tactics. She would have preferred these groups to spread widely, feeding themselves separately from the horde and even possibly contributing food to the larger body, and probably harassing Suetonius, thus limiting his cavalry's attempts at reconnoitring the horde's movements. Additionally, the devastation of the unprotected land beyond the foraging limits of the horde might have encouraged otherwise loyal tribesmen to abandon the Roman cause and instead join the uprising – better to eat, live and fight than to die in an outlying farm or village, unprotected and unnoticed by the Roman authorities. As an aside, it might be prudent to remember that barely a generation (18 years at a maximum) had passed since the Romans arrived on the island, so that loyalty to Rome was probably a thin veneer covering an ancient fealty to tribe and overlord. And, if a few lucky citizens or loyal tribespeople were given

sanctuary in a bypassed small fort, it would have been seen by Boudica as only a temporary gift of life, given in strategic exchange for the pursuit of Suetonius and his force – a compact of war to be terminated after the defeat of the governor's army, when time and resources would allow Boudica to surround and starve the tactically-barren fortifications. Barren because such forts were designed to allow a relatively small group of soldiers safe domination of surrounding, usually pacific, people and land. If those few men were engulfed behind a rebellious front-line then, unless the soldiers escaped, the fort would eventually become an earthen mausoleum. However, a large fortress such as Alchester, capable of holding a legion or more of soldiers and barring the horde's route, would have been a far greater threat both at the point of approach and later by way of attack from the rear. Evacuated or not by Suetonius, it could not be left intact by the advancing horde; that would have been a strategic bypass too far. Hence, in this study the destruction or otherwise of the Alchester fortress, and the implications arising, were valid considerations.

A quick note on the sizes of Roman fortresses is probably in order: the full extent of the fortresses at Alchester, Exeter and Kingsholm are usually recognised as estimates because either they are hidden under later works (Exeter and Kingsholm), or have not yet been fully examined (Alchester – although, of course, later works also hinder a full examination). As previously mentioned, the Alchester fortress was comparable in size to that at Exeter (14-15 and 15 ha, respectively) and might be considered too small for Suetonius' army and citizens, roughly estimated to have been 15,000 (Kaye, 2013a). However, the area would have been large enough to house this number, albeit with some crowding. Furthermore, Suetonius could have eased the space requirement by simply sending his troop-baggage-train of 2,500 mules westwards to Cirencester or elsewhere – if they survived, fine; if not, unfortunate but not critical to the survival of his army. In addition, Suetonius could have rapidly extended Alchester's fortifications, as he would have had a minimum of three days before the Boudican horde arrived, more than enough time to enlarge and enhance the existing fortifications. For example, the Roman army could dig a ditch 2.5 m wide and raise a rampart 2 m high from the spoil (giving a throw of 4 m) in approximately 7:30 hours, irrespective of the length of the enclosure (Kaye, 2013c) but also assuming there were enough men, which would have been true in Suetonius' case. These additional points support the idea that the Alchester fortress could have been used as a refuge by Suetonius.

At which point it is probably appropriate to issue a warning applicable to all routes: to re-iterate, it is not known where Suetonius marched or in what manner. He may for example have taken Akeman Street and then performed a convoluted sequence of marches west of the Chilterns, taking various Roman roads and tribal route-ways, and eventually arrived in the Cotswolds north of Cirencester. So, although most commentators assume (as has this author) from reasoned and practical constructs, that Suetonius would have used the main military roads out of London, this may not have been true. In which case, the deductive process described for Alchester, and much of the current strivings to understand or give meaning to the Boudican revolt, may not be productive. Needless to say, the findings of the 'reasoned and practical constructs' persuade this author that these probably closely matched Suetonius' thought processes, and that careful deduction, aligned with the historical narrative, known archaeology and techniques discussed earlier in this essay will, eventually, lead to the finding of Boudica's last battle.

Having reached the end of this discussion on the pros and cons of the Akeman Street route, it can be compared to others already discussed. In terms of suitability, it far surpassed the route to the north-east and into the heart of the rebel lands and it was superior to continuing north-westwards from St. Albans along Watling Street. An additional finding was that the London to Lewes road would have been an implausible choice by Suetonius due to the close proximity to London of any candidate battle-sites.

East along Watling Street to the ports on the Kent coast		
	Pros	**Cons**
1	Cross and destroy the bridge at Southwark, London	Only one top 100 battle-site, 61, between Canterbury and Dover
2	Possible safe haven in the fort at Richborough	Possibility of skirmish and attack by rebels fording Thames
3	Cross and destroy bridge at Rochester – limited benefit as easily bypassed by rebel force	Abandoning south-central England to rebels or further tribal uprising
4	Good communication and planning with continental forces	Warfare spreads into southern Britain – danger to tribal allies
5	Friendly tribes south of Thames	Cut communication with western military zone and 2nd Legion
6	Supply and reinforcements from Europe by *Classis Britannia*	Move to east Kent was a strategic cul-de-sac – trapped by the sea and The Weald
7	Undepleted foraging and grazing	May take two summers to suppress uprising
8	Citizens content to march south and east; possibly take ship	Suetonius likely to be replaced
9		Strategic error in endangering reinforcements from Europe

Table 7: Pros and cons for Suetonius crossing the Thames bridge and taking Watling Street east to the Kent ports. The numbers do not imply any rating, just identification.

Suetonius could have chosen to cross the Thames bridge, destroy it and then march eastwards along Watling Street to the Kent ports and forts used as military supply depots (Table 7 for pros and cons), with Richborough being the most likely (Figure 22). It may have been a fort since the invasion in 43 AD, although the size is unknown; if it was too small then it could have been extended in a similar manner as discussed for Alchester. However, there was also a question mark over the water-supply capacity of this fort in the event of a siege, it being 4.2 km from a suitable river (Kaye, 2014). The same would have been true for the fort at Reculver (Figure 22), resulting in both forts being normally supplied by wells. A siege in either fort would have led to water-stress for the 15,000 humans, and any animals within, if that number greatly exceeded the regular inhabitants. Whether the military buildings found at Canterbury were part of a fort is not yet confirmed, but this location may not have posed the same water constraints. Although the size and water-supplies for these forts might have been problematic, the result of destroying the Thames bridge would have meant the rebel wagon horde had a 151 km journey around Staines. They would have taken ten days to reach Canterbury while Suetonius could have been there in three; enough time to significantly enhance and enlarge any existing fort.

Additional pros for this route included the friendly nature of the tribes (Table 7, pro 5), the possible support of the Roman navy, commonly known as the *Classis Britannica* (pro 6), the undiminished

forage and fodder along the route (pro 7), and the probability that the London citizens would not have objected to the route, especially if they could have reached the ports and taken ship to Europe (pro 8).

Pro 4, the good communication, planning and possible reinforcement from Roman Europe, might have been very important to Suetonius as he considered his dilemma in London. Might he have been so convinced that his own "scanty" force (plus any additions he could have somehow gathered from the west) would not be capable of defeating Boudica and he therefore had to march east towards the European ports? Did he hope that the continental legionary forces would pour forth and join him, and together save the province?

If so, this would probably have had the result of extending the revolt into a second summer, as the intervening period would have allowed Boudica to consolidate her hold on the land she had traversed, and possibly persuade other tribes to join her cause (con 7). Thus her growing forces, operating freely across southern Britain because Suetonius was bottled up in a fort, and capable of targeting and opposing a continental landing, would only be defeated by a much larger Roman military effort in a second summer. As for the other cons, the most strategically-damaging to Suetonius' cause would have been the peninsular-like nature of the land, as he would have marched into east Kent with little prospect of manoeuvre or escape from a land surrounded by the sea on two sides and The Weald to the south (con 6). On the other hand, he may have contemplated, as opposed to actually planned, evacuating his force from Britain at one or more ports (whether the *Classis Britannica* was capable of such an act is open to speculation). Together with isolating and trapping his force, Suetonius would have also broken any communication with, or support from, his western military forces, including the 2nd Legion (con 5); given over the southern and central area of England to the rebels (con 3); and presumably abandoned Rome's strongest ally, Cogidubnus of the Attrebates, to – at the very least – subjugation by Boudica.

These negative consequences, together with the loss of the 9th Legion and the disobedience in some manner of the 2nd, the destruction of Colchester and by that time London, in conjunction with Suetonius' force displaying the signs of a force in retreat (or in more unkind eyes, disarray) might have given cause for Suetonius' replacement by a continental force commander. In other words, Suetonius could have been seen as a failure, an incompetent, someone who needed removing from responsibility. As discussed earlier, this possible outcome would have been an anathema to Suetonius, and most easily avoided by not taking Watling Street to the Kent ports (con 8).

Con 9, the strategic error in endangering reinforcements from Europe, related to such forces being landed at the Kent ports – an effect that would have existed variously for all routes chosen by Suetonius. The strategic error would have been to bring the rebels close to these ports, so that they were then in a position to oppose the landings or soon after engage the relief force. For example, if Suetonius had over-wintered in the fort at Canterbury and a European force had sailed for Richborough, then Boudica could have left a containing force at Canterbury and engaged the landing force. This action could have resulted in the destruction of the European force, or damaged and weakened it so that it could no longer assist Suetonius. Of course, this scenario does raise the question of how the rebel force would have itself over-wintered in the vicinity of Canterbury (a question improbably answered because of innumerable vagaries and unknowns, and need not detain the discussion further) for, as Suetonius deliberated on his choice of route, the possibility of his assured strategic error would have outweighed the uncertain logistical damage done to Boudica. In contrast to this dangerous eastern route, what mitigated the danger to the European force would have been distance from Boudica. If Suetonius had marched from London taking nearly any other route, he would have increased the distance between himself and any relieving force from Europe

landing in Kent and compelled Boudica to follow him, thereby giving the European force the chance of an unopposed landing and thereafter independent manoeuvrability, possibly resulting in a strategic pincer movement between itself and Suetonius during the following summer. If, on the other hand, Suetonius had thought it possible that the relieving force could have landed on the south coast, for example near Chichester, then this strategic error was moot – almost. Almost because the obvious strategic solution to these damaging possibilities was simply to not march towards any ports when withdrawing from London!

It is also worth noting that, if Suetonius had decided to withdraw to a port, then those on the south coast, for example, at Chichester-Fishbourne, would have been strategically more favourable. In this case the Kent ports, with their much shorter, direct distances to Europe, would have remained open. The reverse case, i.e. Suetonius in Kent, would mean that the European force might have had a much longer and more tidally-difficult sea journey. The odds of a successful, timely landing of European forces was much higher for Kent than Sussex – better, then, for Suetonius to draw Boudica south along Stane Street and away from the Kent ports. Even better, possibly and as already mentioned, to not march towards any continental-facing port.

Finally, if Suetonius had considered this eastern route to a safe haven, he might also have thought of other outcomes, namely, ending delay and fighting a battle. In which case, he would have quickly appreciated how sparse were the top 100 battle-sites, as only one (61 between Canterbury and Dover (Figures 15, 22 and con 1)) matches Tacitus' description. To state the obvious, this site would have been a poor choice in comparison to others elsewhere in southern Britain, and probably one that Suetonius would have dismissed as detrimental, one where the battle's outcome was not assured. In which case, he might have reasoned it better to stay in a fort but, of course, he did not. Therefore, a battle at site 61 was considered extremely unlikely.

In summary of the pros and cons it might reasonably be said that this route held little to praise, but much to avoid: one could think (perhaps presumptuously) that Suetonius probably thought likewise. Finally, in overall comparison to other routes already discussed, this eastern direction was certainly better than marching north-east (rebel homeland) or north-west (Watling Street beyond St. Albans), but worse than taking Akeman Street to the west.

South along Stane Street to the southern Channel ports		
	Pros	**Cons**
1	Cross and destroy the bridge at Southwark, London	Not known if forts existed in 60/61 AD
2	Possible safe haven in a fort or supply base at Chichester or Fishbourne	Warfare spreads into southern Britain – danger to tribal allies
3	Excellent terrain in places for a defensive front-line	May take two summers to suppress uprising
4	Good communication and planning with continental forces	Suetonius likely to be replaced
5	Friendly tribes south of Thames	Possible besiegement in fort/ports
6	Supply and reinforcements by *Classis Britannia*	Strategic error in endangering reinforcements from Europe
7	Undepleted foraging and grazing	
8	Citizens content to march south; possibly take ship	
9	Could turn west towards the 2nd Legion	
10	No flanking or ambushes likely	
11	Rebels always trailing the Romans	

Table 8: Pros and cons for Suetonius crossing the Thames bridge and taking Stane Street south to Chichester. The numbers do not imply any rating, just identification.

What might Suetonius in London have thought of using Stane Street to march south-south-west to Chichester (Table 8 for pros and cons; Figures 15 and 22)? First he would cross the London bridge and destroy it (Table 8, pro 1) before marching at the legionary standard rate (29 km/day) for just three days to reach Chichester and Fishbourne (pro 2). It would have taken the rebel wagon horde seven to eight days to reach Chichester if it had looped around the Thames crossing at Staines, turned south down the Mole valley and rejoined Stane Street north of Dorking. Suetonius would therefore have a four to five day time advantage to repair and enhance whatever fortifications still existed at Chichester or Fishbourne. Unfortunately for this scenario the archaeological evidence of fortifications is sparse (con 1), although military ditches and buildings have been found at both locations (Manley, 2002). Generally these military remains are attributed to the invasion period of c.43 AD when it is assumed that the Romans used the favourable coastline to land supplies and build, at the least, substantial supply depots. Much is made of these depots in the story of the conquest of the Isle of Wight and south-west Britain by the 2nd Legion led by Vespasian. After the conquest period, both Chichester and Fishbourne seem to have been quickly de-militarised such that by 60/61 AD the extent of fortifications is not known.

Nevertheless, if Chichester was Suetonius' terminus, and with four to five days respite from attack, he may have had time to restore any remaining fortifications or build a new fortress. For example, an earthen fortress, sufficient in size for 10,000 men at an occupation density of 690 men per hectare, could have been built within the four to five days. This construction would not have had the finer details of a standard Roman fortress (for example large, wooden-gated structures), but instead would have resembled an enhanced marching camp with additional enclosing ditches. The inner

perimeter would have been 1654 m long and, at a digging spacing of 1.5 m per man, would have allowed 1085 men to dig a ditch 2.5 m wide by 2.0 m deep and with a rampart 2.0 m high (built by other men in the digger's team) in 7:30 hours. In other words, a four man team occupying a digging space 1.5 m wide would have created a defensive ditch and rampart with a throw of approximately 4 m in a day or less (Kaye, 2013c). At any one time only 4341 men, or less than 50% of the total available, would have been needed in the construction, and no doubt there would have been a relay of digging teams throughout the day. Additional enclosing defensive ditches of increasing perimeter length could have been constructed in the remaining three to four days, thereby creating a fort with multiple enclosing ditches and rampart, probably enhanced with an inner palisaded rampart plus various caltrops etc. deployed in the ditches. Hence, Boudica could have been faced with a formidable structure designed to restrict easy access to the inner ditch and rampart and, in a similar manner to a Roman front-line roughly one km in length ensconced in a depression, designed to negate her numerical advantage and produce a final one-to-one combat ratio at the rampart. The rebel losses from Roman missiles as they crossed the intervening outer ditches might have been a price too high for the (un)lucky British warrior who finally faced a legionary standing high above him on the rampart. Furthermore, assuming that the Roman legionary spacing on the rampart was 1 m (which may be a little tight but has the benefit of numerical simplicity), then only 1654 men would have been in contact with the rebels at any one time. Thus approximately 80 % of the 10,000 armed men were in reserve and not directly involved in fighting the rebels (no doubt a strong force would have been standing by to defend any gates that had not been sealed, but that observation is probably a detail too far). The fortress was a defensive fighting machine every bit as efficient and effective as the legionary; couple the two and Boudica would have found it very difficult to breach the defences. All this Suetonius would have understood, and would probably have factored into his thoughts when considering a march to Chichester or, for that matter, any other route.

If Suetonius chose not to restore the fortifications then he may have thought it possible to continue the march westwards, maybe by way of Winchester, towards the 2nd Legion in Exeter (pro 7), or take the road north-westwards from Chichester to Silchester (Margary 155, also known as the Chichester to Silchester Way). The point was that moving to Chichester was not the strategic cul-de-sac that marching to Richborough would have been: other routes and options would have been available to Suetonius. As an aside, Suetonius would not have considered marching directly east from Chichester along the South Downs because that route did lead to a strategic trap: the Channel coast on one side, The Weald to the north.

Stane Street would have allowed continuous communication with Roman units in the western military zone and Europe, possibly leading to re-supply and reinforcements by the *Classis Britannia* (pros 4 and 6); the support, or at least friendly compliance, of local tribes (pro 5); and the probably more substantial support of Cogidubnus of the Atrebates who, it is known, later built the famous royal villa at Fishbourne (note that in 60/61 AD Fishbourne was probably still within the lands of the *Regnenses*).

This route would also have been acceptable to the London civilians: they would have marched directly away from the rebels; have a burnt London bridge acting as a dam holding back Boudica; were travelling through the land of friendly tribes; and there was the possibility of taking a ship at Fishbourne to the continent. Of course, this last option, essentially a tactical benefit, would probably have crossed Suetonius' mind as he studied the positive and negative aspects of the Stane Street route.

As for the cons, most have been already discussed when dealing with other routes and need not be touched upon again, except for re-emphasising the importance to Suetonius of not being replaced

(con 4) and the strategic error of dragging the rebels to a port which could have been used as a disembarkation point for reinforcements from Europe.

So far, pros outweighed cons, to the extent that Stane Street was probably a better choice than Akeman Street (also bearing in mind that Akeman Street route was better than the rest already discussed). This positive outcome was further enhanced by pro 3 – the excellent terrain in places for a defensive front-line – which will now be discussed.

There were two locations along Stane Street that could be described as excellent: north of Dorking in a gap in the North Downs (Sites 1 and 2: Table 3 and Figures 15 and 17), and Bignor, situated in a north-facing roughly v-shaped cleft within the South Downs (Sites 18, 29, 39, 87: Table 3 and Figures 15 and 23).

As has already been discussed, even though sites 1 and 2 were only one day's march from London they were still considered to have been desirable. However, the lack of distance from London, and hence the limited time for Suetonius to prepare the position and camps, may have caused him enough concern to march a further 45 km or 1.5 days south to Bignor. This act alone would have meant that the rebel wagon horde, looping around Staines (c.100 km plus one or two days to cross at Staines), would have taken at least seven to eight days to reach Bignor, giving Suetonius a minimum respite of four to five days before the battle could commence (a minimum because we do not know how many days the rebels were from London when Suetonius left, or how many days Boudica spent in London). Nevertheless, the highest rank for a Bignor battle-site was 18 which, on the basis of the computed attributes, would seem to be a poor trade for time versus the undoubted qualities of the Dorking sites. However, the Bignor sites had a peculiar and unique set of qualities which could raise their ranking.

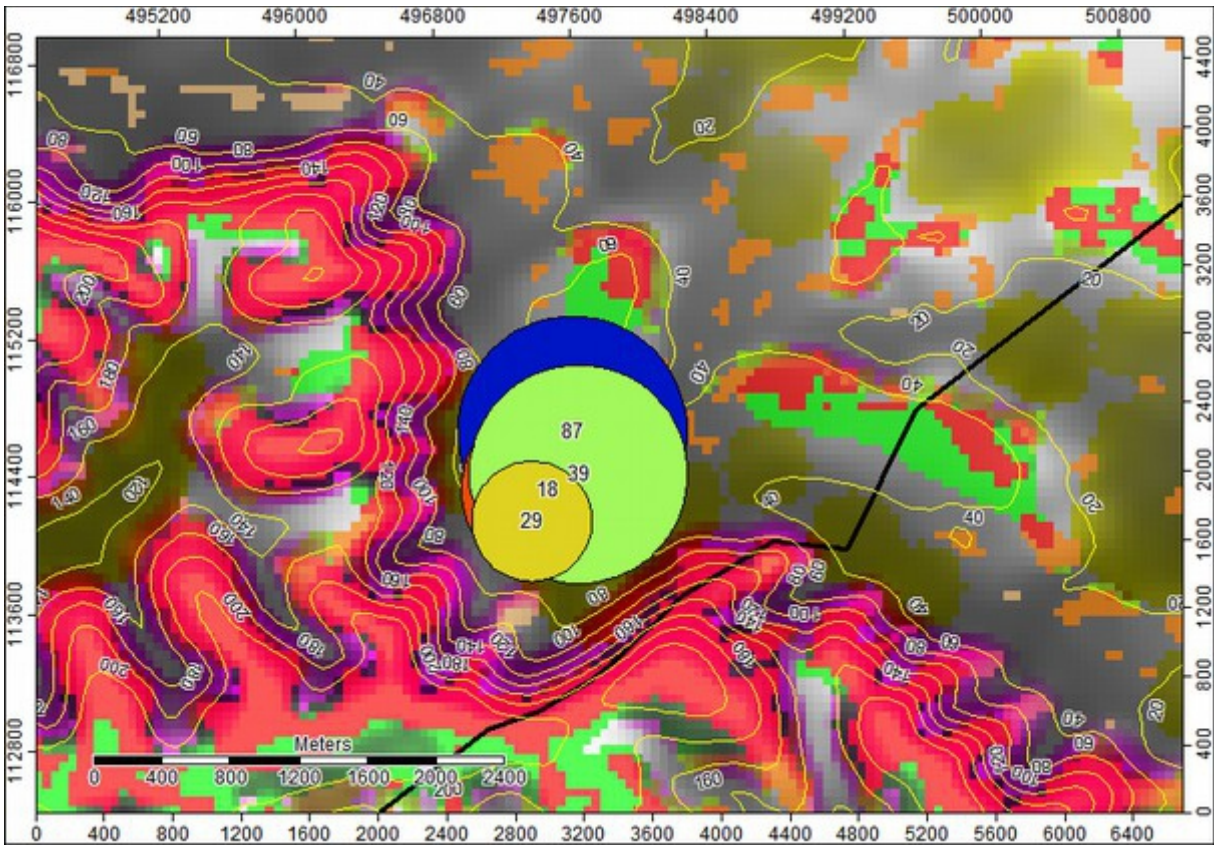


Figure 23: candidate battle-sites at Bignor, West Sussex. The village of Bignor is located at the centre of the cluster of possible sites (18, 29, 39 and 87). Elevation changes from c. 50 m at Bignor up to c.200 m for the enclosing South Downs. Stane Street is in black. Elevation contours at 20 m intervals. Coloured areas are: plains in yellow; ridges in red; ridge slope areas of less than 5 degrees in green; slopes greater than 5 degrees in purple – all overlying, shaded or merged into normalized heights in grey-scale.

Taking battle-site 18 at Bignor as an example, it could be seen that the topography was highly advantageous to Suetonius but that the distance to a river reach with flow sufficient for his army was over 7 km (the Lavant, located on the high chalk to the west). It was this factor that degraded the site to rank number 18. If the distance to the reach on the Lavant where the flow was sufficient was actually 4.5 km or less, then the site tops the ranks at number 1, demoting the site at Dorking. This possibility could not be disproved as the hydrology calculations in these high chalk areas was finely balanced.

However, a re-balancing may not be required (and leaving aside the desirability of such an exercise based on, as it would have been, a subjective preference for one site) because Suetonius could have simply sent the mules and civilians to a site behind the front-line with sufficient water, or simply halted the 10,000 armed men at Bignor and allowed the rest to continue along Stane Street to Chichester. The 10,000 men required roughly 50% of the water demand of the whole army, equivalent to 0.004 m^3/s of river flow (excluding that required by horses, the number of which is unknown) which could have been found from the Lavant 5.5 km westwards from Bignor. No doubt extraction from local streams, of which a few existed around Bignor, would have augmented the supply. This simple stratagem of separating the soldiers from mules etc., was only available to Suetonius along the routes south of the Thames (Stane Street, Watling Street to Richborough,

London to Lewes and The Portway) because he was marching through the land of friendly tribesmen and the hostiles, reported by Tacitus on his route south from Wales, were somewhere north of London. Therefore the possibility of separating the armed men was a significant differentiator between the southern benign routes and those blighted by hostiles north of London, especially for Watling Street beyond St. Albans but marginally less so for Akeman Street. Needless to say, separating mules and civilians from the soldiers while marching north-eastwards into the rebel heartland would have been a death sentence for the former group.

However, just as an hydrological rebalancing was deemed unnecessarily subjective, so was re-evaluating and re-ranking the Bignor sites, especially site 18, based on the concept of a split Roman force. After all, if the same was applied to all top 100 sites, how would such an exercise be terminated, what criteria or parameters would be valid, and at what point would the increased subjectivity based on imagined possibilities exceed the relative objectivity of the ranking process? Therefore, in the question of re-ranking the Bignor sites, Occam's razor was applied: *essentia non sunt multiplicanda praeter necessitatem* (hypotheses are not to be multiplied without necessity): Site 18 remains ranked at 18.

This almost concludes the discussion of Stane Street as possibly viewed by Suetonius while in London, except to re-state the earlier comment that this road was probably more favourable to Suetonius' cause than the westward-bound Akeman Street; a judgement enhanced by the realisation that the Portway out of London was a better route if the goal was to go west, i.e. Stane Street should be compared with the Portway, not the comparatively weaker westward route of Akeman Street.

West along the Portway to Silchester and on to the military zone		
	Pros	**Cons**
1	March to Staines, cross the Thames and gain 2 days on Boudica	Possibly abandon SE England to uprising
2	March directly away from the rebels and avoid the hostiles north and adjacent to Watling Street	Warfare spreads into central-southern Britain – danger to tribal allies
3	Excellent terrain beyond Silchester for a defensive front-line	May take two summers to suppress uprising
4	Shortest and quickest route to western military zone	Communications with Europe cut: less chance of coordination and joint planning
5	Many optional routes at and beyond Silchester	Water, forage and grazing less bountiful in chalk and limestone uplands
6	Communication with western units improved or maintained; better planning, liaison, etc.	
7	Friendly tribes south and west of Thames, especially the Atrebates (Cogidubnus)	
8	Safe havens in forts: Kingsholme, Cirencester, etc.	
9	Undepleted foraging and grazing	
10	Extensive chalk and limestone uplands difficult for rebels	
11	Citizens content to march west	
12	Marching towards the 2nd Legion	
13	Improbability of flanking or ambushes	
14	Rebels always trailing and lagging behind the Romans	
15	Probable break of communication with Europe: Suetonius not replaced	
16	Reinforcements from Europe free to use ports and march inland without rebel resistance	

Table 9: **Pros and cons for Suetonius marching west along the Portway towards the military zone.** The numbers do not imply any rating, just identification.

Leaving London by the western back door, marching diametrically away from the advancing Boudica and crossing the Thames at Staines then continuing along the Portway towards Silchester, might have been logically viewed by Suetonius as a safe option, certainly one less prone to interference by any rebel forces (Table 9 for pros and cons: Figures 14, 15, 22).

The cons for this route have a familiar ring. Suetonius would have realised that he was possibly abandoning the south-east of England to revolt (con 1); that by moving west he would drag the rebel forces into direct contact with allied tribes (con 2); that if he took refuge in a legionary force then the conflict would probably extend into two summers (con 3); that communication with Europe might be cut (con 15), thereby damaging any liaison; and that marching west entailed crossing the logistically-difficult high ground of the chalk and limestone uplands (con 4).

However, some of these negative aspects were common to other routes but with varying

ramifications; to state the obvious, none were free from detrimental effects. For example, it could be argued that Suetonius would not have marched west or indeed taken Stane Street, because either would have endangered his most valued ally, Cogidubnus (con 2), but this beneficence was unlikely to have ranked very highly in Suetonius calculations. His primary responsibility lay in protecting and preserving the province, so consequently he must preserve his force. These responsibilities were evidenced by Tacitus (the text below will be familiar to the reader but in fragments; the whole is reproduced to aid the discussion):

> he resolved to save the province at the cost of a single town [London]. Nor did the tears and weeping of the people, as they implored his aid, deter him from giving the signal of departure and receiving into his army all who would go with him. Those who were chained to the spot by the weakness of their sex, or the infirmity of age, or the attractions of the place, were cut off by the enemy. (*Annals* 14:33).

Tacitus goes on to write that about 70,000 citizens and allies died, and that St. Albans was also attacked. As discussed earlier, Suetonius demonstrated a hard-nosed, tactical and strategic policy towards towns, citizens and allies that could have resulted in their jeopardy: essentially, they were expendable, for example, the people of London, while his force and the province were not. There was no reason to suppose Cogidubnus' Atrebates would have been treated any differently by Suetonius, except cynically, as providers of foodstuffs, other forms of succour, protection, information and free passage. Ultimately this Roman commander would not have changed course to save the lives of the Atrebates, or any other allies; why would he choose otherwise after already knowingly consigned the citizens of London to death?

His immediate need was to save his army from annihilation, a task best accomplished by marching directly away from the rebels from London (pro 2), a need uniquely met by the Portway, and further enhanced by utilising the superior march rate of his army and its practised discipline in crossing rivers. Simply by taking the Portway as far as Staines and crossing the Thames might have given his force a tactical and life-preserving additional two days advantage over Boudica's horde, an equivalent distance of 58 km which could have placed the Romans at Newbury as Boudica finally crossed the Thames at Staines (pro 1). These postulations were based on Boudica being close to London when Suetonius departed, an assumption unconfirmed by historical writers. If she was not then the distance gaps increased further, to Suetonius' advantage. The point was, of course, that these postulates were based on the worse case for Suetonius: Boudica at London's gates; she spent little time ransacking the town – maybe a night; and instead marched as quickly as her force would allow to Staines. One could construct more beneficial scenarios for Suetonius' escape – for example, a strong possibility for this and routes south of the Thames was for the general to send the entrained citizens and pack-mules ahead of the main army – but these constructions were considered an unnecessary complication. Even so, the advantages of the Portway route were clear, including in the most adverse starting conditions.

For each day of Roman marching the advantage would increase by approximately 13 km a day (the difference between the Roman march rate of 29 km/day and Boudica's estimated 16 km/day) – Suetonius could have gained almost a day over the rebels for each day of marching.

The hostiles mentioned by Tacitus, and the horde that may have destroyed the 9th legion, may have been moving south towards London along the Watling and Akeman Street corridors. However, they were unlikely to have yet arrived alongside the Portway located some 40 to 50 km south of Akeman Street, thus giving Suetonius an unmolested passage to the west (pro 2). Neither would his rear-guard have been greatly troubled, as any fast-moving rebel forces would have been directly in his

wake, forever attempting to match the Roman march rate but without the logistical support and know-how of the legions to sustainably achieve that.

Suetonius would have known that at Silchester he could have taken a number of roads further west: north towards Dorchester, or south-east towards the coast at Chichester, or south-south-west towards Winchester, or south-west towards Old Sarum, or north-west along the Kennet Valley, towards either Cirencester and Gloucester or Mildenhall and Bath (pro 5). The implied ability to confuse, tire and dissuade the following rebels from further pursuit would have been enhanced by additional route changes at, for example, Winchester, Old Sarum and Bath. The crucial point was that in choosing the Portway, Suetonius could have marched into the essentially open and non-hostile west – the largest area for manoeuvrability of all the routes – and, at the same time, any change of route would have left open the option of withdrawing to the western legionary fortresses (pros 4 and 8).

The benefit of a multiplicity of routes had a negative dimension, as the Portway and other secondary routes traverse the high chalk and limestone regions of southern England; areas less productive in foodstuffs, with poorer grazing and fewer rivers of relatively-limited flow, the reverse of that in the lowland regions. The cumulative effect would have been detrimental to the Roman army's performance, especially if the delay between leaving London and the final battle was many days or weeks (con 5). This continually-debilitating pressure would have been understood by Suetonius as he considered his choices in London, but he would also have recognised that his professional force was well-practiced in the art of self-sufficiency while on-the-march, and the rebel force was not (pro 10, Kaye 2013a). As already mentioned, Suetonius would have realised that Boudica had to destroy him in battle before he found refuge in a legionary fort or support from the 2nd Legion. She therefore had to follow him, even if her forces were placed in logistic jeopardy. Suetonius might have reasoned that marching his superior and well-trained, -practised, -provisioned, -equipped and faster legionaries (Kaye, 2013c) into high and dry land would strain his adversaries far more than his units. He might have planned that eventually the Boudican horde would be so weakened by lack of food and/or water that it could be drawn into a rash frontal attack on his front-line rather than surround, besiege and then destroy his army as it was forced to march to sustenance elsewhere (cf. the destruction of Varus' Roman army in the Teutoberg Forest, 9 AD). Rashness appears to have prevailed but in reality the frontal attack might have been due to logistical desperation. Boudica might have had no other choice but immediate attack; no food, little water while the smaller and provisioned Roman army sat within its watered depression. For Boudica, then, the choice might have been to attack or disperse; Suetonius may well have foreseen, even planned, these outcomes while in London. He might also have reasoned that if the rebels were not weakened sufficiently, his quicker army would still be able to escape before contact to a legionary fort in the west country and then plan the re-conquest. He might even have thought it possible that the rebel horde(s) might disintegrate on-the-march if dragged deep enough into the uplands; only a western route would have allowed this possibility.

Suetonius would have also thought that the Portway was the quickest and shortest route to the western military zone (pro 4), each step improving the communication with those units and further distancing him from replacement as commander (pro 15). Tacitus writes that Suetonius was able to draw auxiliaries from local forts to his force, thereby making the “10,000 armed men” at the final battle. This act further demonstrates the freedom of movement the Roman forces could have had in the west. If there was less freedom, then small auxiliary units might have been intercepted and destroyed by marauding bands of rebels or the horde(s); a strong possibility for the Watling and Akeman Street routes but not so for Stane Street to the south of London. If scattered auxiliary units could be communicated with, and then ordered to march to Suetonius' assistance, then probably so

could the 2nd Legion in Exeter. Suetonius would have been very aware that the Portway was superior to all other routes in this respect and sent his orders by senior officer to Silchester and then onwards via either Bath and the Fosse Way, or south-west to Old Sarum and then on to Exeter. Of course, it was possible that Suetonius had already issued such orders prior to reaching London but this understanding is lost to history.

The western route was outstanding for outdistancing Boudica (pro 14), for avoiding flanking and ambushes (pro 13), for pulling the rebel horde(s) even further from the Channel ports, thereby giving any continental force time and manoeuvrability, unhindered by opposition (pro 16). This list of time- and distance-related benefits was further enhanced – possibly preordained by Suetonius having pre-selected *the* battle-ground while in London – by Tacitus' comment that the Roman commander had arranged that at the battle-site, "there was not a soldier of the enemy except in his front".

It would have taken Suetonius at least two and half days to reach Silchester and a further half day to arrive at the first of the top 100 sites, number 75, near to Newbury (Figure 14). Not that this lowly site would have been selected by Suetonius for, as in selecting his route from London, he would have chosen the best of battle-sites, those located deeper into the chalk uplands of the North Wessex Downs or Salisbury Plain (Figure 1). Clearly the distances involved negate the concern discussed earlier of prospective battle-sites being too near to London. Indeed, the opposite would probably have been seen by Suetonius as a benefit, in that the rebels would have to march for at least seven or eight days to reach Newbury (assuming the wagon horde required either one or two days to cross the Thames at Staines), giving the Romans at least four or five days advantage. The deeper into the hills Suetonius progressed, the further behind the rebels languished; time enough to "break off delay", move to the battle-site, prepare the ground, build a substantial marching camp to protect animals and citizens (or as previously discussed, send them further west). If necessary, even enough time to consult local officers and Atrebaten leaders about the location of a suitable battle-site, in the unlikely event that Suetonius and his officers had not already selected one. Furthermore, if the actual battle-site was number 4 at Ogbourne St. George (Figures 14, 20 and Table 3), then Suetonius would have had time to send orders for the local auxiliaries and legionaries in the forts at Cirencester, Old Sarum, Winchester and Bath to join him (within two marching days), while those from Gloucester could have arrived on the third day of marching. For the prospective battle-sites near Shalbourne in Wiltshire, 9, 13, 19, 20, 21, and 26 (Figures 14 and 19; Table 3), the distances change but the result could have been the same. This relatively easy reinforcement of his "scanty force" if he marched west may have been a critical deciding issue for Suetonius when in London, especially as the operations could have been conducted in the free and open west, away from any interference by Boudican rebel forces. And if, having chosen his battle-site, his scouts or local tribesmen informed him that the rebel horde was larger than he thought his front-line could withstand, then Suetonius could have withdrawn along the nearby roads, taken up his original plan again, and sought refuge in the western fortresses.

But which of the top 100 sites might be thought more likely to be the actual site? Not only was Ogbourne St. George (4) a very good positional match with Tacitus description but it also had the great benefit of being directly reached by a road that heads north to Cirencester and on to Kingsholme. Contrastingly, sites near Shalbourne (9, 13, 19, 20, 21 and 26) could only have been reached by either a convoluted road-march that left open the possibility of flanking, or by off-road marching of at least 8 to 10 km (Figure 14). This factor, together with their lesser topographic suitability, might have meant Suetonius would have thought them significantly less commendable than Ogbourne St. George. The same may have been true of the sites situated on a stepped-plateau below White Sheet Hill, part of Salisbury Plain, and above the river plain of the Nadder (6, 17, 32,

34, etc.). To reach these sites required the Roman army to leave Silchester for Old Sarum and then probably march off-road south-west for at least a day. The arguments against Suetonius selecting the Shalbourne sites also applies to these Nadder sites, but with the added disadvantage of having to march much further west to reach them (80 km or three days from Silchester; 152 km or 5.5 days from London). However, it should be remembered that history does not say when Suetonius chose to fight or how far from London he had progressed; he may have marched a great distance with the hope that the 2nd Legion would eventually rendezvous.

In which case the modern investigator would be prudent to assume that the high ranking sites in the west – Ogbourne St. George at 4, Donhead St. Andrew at 6, and Shalbourne at 9 – should be treated as equals during future examinations.

Irrespective of the equality or otherwise of the prospective sites, the western route offered time, space, manoeuvrability, rebel-debilitating terrain, reinforcements, and support and succour from trusted allies. These were some of the factors that allowed Suetonius to conduct his battle as he wished but, if the enterprise seemed doomed, then he could envisage retreat, await the spring and a continental legionary force before regaining control of his province. Thus, he may have thought before he took a step away from London, it was the Portway out of London that gave Suetonius such planning possibilities.

No matter the choice made – immediate battle or winter retreat – in his subsequent revenging march to the east he might also have seen the burnt, rubble remains of Silchester, if the archaeological findings discussed earlier are eventually shown to be the result of Boudica's westwards passage.

Summary

This essay is the third since 2010 with a title that begins with, 'Finding the Site of Boudica's Last Battle'. It is a culmination of earlier insights and findings based on various pieces of GIS work on terrain analysis, hydrology, legionary marching velocities, marching camps, the known archaeology and, of course, the historical evidence (nearly always Tacitus' *Annals*).

This latest work incorporated a technique called template matching into the terrain analysis process, in an endeavour to increase objectivity in selecting candidate battle-sites within the terrain of southern Britain. Hence, a terrain model was created based on ridges, plains, slopes, widths of valleys or depressions equal to or exceeding 15 m in height, along with other topographic descriptors. To this model were applied, by the template matching algorithm, nine templates designed to match all of the possible terrain forms for the battle-site given by Tacitus. This operation gave an initial 2,700 template matched sites that were then refined to 2187 by removing those due to computational errors, those extremely large or small and those beyond the area of interest, e.g. west of the Severn river valley.

The next step was to eliminate sites that had the most obvious of faults. These included a water supply insufficient for the Roman force, access to a river under rebel control, the Roman front-line faced a significant uphill gradient, to reach the battle-site required an infeasible Roman route, the front-line could have been easily flanked, and any sites where a substantial number of rebels were very likely to have been behind the Roman front-line. This action reduced the 2187 to 862 template-matched sites.

The calculated or measured values of ten attributes were assigned to the 862 active sites, and the value of each site was then normalised with respect to the others (0 to 1), and then weighted and ranked.

The 10 attributes were:

normalised height

terrain ruggedness

the suitability of the Roman front-line length

terrain wetness

distance to London

distance to the nearest Roman road

induced stress on the British rebels

distance from rivers supplying sufficient water for the Romans

effect of a river flowing through the front-line

effect of blocking or trapping by large rivers.

The top 20 weighted and ranked sites were displayed in Table 3, repeated below.

RANK	X (OSGB36)	Y (OSGB36)	Lat (WGS84)	Long (WGS84)	NEAREST LOC.	TOWN	LANDRANGER	RIVER
1	516841.25	151154.35	51.2476003917	-0.3273181807	Bradley Lane	Dorking	TQ168511	Mole
2	516934.25	151057.52	51.2467184998	-0.3260176524	Bradley Lane	Dorking	TQ169510	Mole
3	497191.60	209280.75	51.7737736773	-0.5927359021	Alyngton	Berkhamsted	SP980084	Bulbourne
4	420152.47	174206.67	51.466480519	-1.7112763099	High Street	Ogbourne St George	SU201742	Og
5	500696.84	207360.10	51.7558885374	-0.5425097503	Bank Mill Lane	Berkhamsted	TL005071	Bulbourne
6	393799.97	124730.33	51.0219110569	-2.0897573726	Sands' Farm	Donhead St Andrew	ST959248	Nadder (trib.)
7	497283.00	209280.75	51.7737578857	-0.5914174236	Alyngton	Berkhamsted	SP972092	Bulbourne
8	494912.35	212220.34	51.800581508	-0.6249677352	Tring Station	Tring	SP949122	Thame
9	430839.77	162121.60	51.357338	-1.558482	Sandy Lane	Shalbourne	SU308621	Shalbourne
10	495455.12	210925.83	51.7888582076	-0.6174512843	Newground Road	New Ground	SP954109	Thame
11	495455.12	211108.62	51.7905030843	-0.6174009938	Newground Road	New ground	SP954111	Thame
11	495455.12	211108.62	51.7905030843	-0.6174009938	Newground Road	New ground	SP954111	Thame
13	430931.67	162209.30	51.3581178889	-1.5571385937	Sandy Lane	Shalbourne	SU309622	Shalbourne
14	421974.58	132967.00	51.0955966341	-1.6875572244	Crewkerne Farm	Firsdown	SU220329	Dun
15	525432.26	150788.78	51.24249696	-0.2044201734	Birkheads Road	Reigate	TQ254507	Mole
16	418313.93	229033.16	51.9594854229	-1.7348713857	Banks Fee Lane	Longborough	SP181291	Dikler
17	400749.17	128197.19	51.0531211011	-1.9906760006	Brook Street	Fovant	SU007281	Nadder
18	497465.78	114322.69	50.919522	-0.606211	Glatting Farm	Bignor	SU980142	Lavant
19	429965.36	161540.32	51.352152	-1.571096	Sandy Lane	Shalbourne	SU299615	Shalbourne
20	431022.56	162304.38	51.3589671268	-1.5558234704	Sandy Lane	Shalbourne	SU310623	Shalbourne

Repeat of Table 3: locations of the top 20 battle-sites, weighted and ranked.

Having identified the best of possible sites throughout the southern UK did not necessarily mean that site number one was the actual battle-site. That distinction might only be made once the direction of march from London had been examined. Suetonius would have chosen the most advantageous route and, in doing so, may have selected in advance the location for a battle, if the need or opportunity arose. Therefore, the pros and cons for seven routes out of London were studied with the aim of thinking like the Roman commander, both at the point of departure and at later strategic changes in fortune as the Roman army withdrew in front of Boudica's horde. The seven routes were (Figure 1):

North-east (1) towards the homeland of the Iceni and Trinovantes and Colchester;

North-west (2) to the far north, along Watling Street;

North and then west (3) taking Watling Street to St. Albans and then west along Akeman Street;

East along Watling Street (4) to the ports on the Kent coast: Reculver, Richborough, etc.;

South along Stane Street (5) or the London to Lewes road (6) to the southern channel ports: Chichester, etc.;

West along the Portway (7) to Silchester and onwards to the military zone.

It was concluded that route 1, north-east towards the rebel homeland, was not chosen by Suetonius (also there were no top 100 sites in this region). The pros and cons for route 2, north-west along Watling Street, strongly suggested Suetonius did not choose to march along this route further north than St. Albans, which logically brought the study to route 3 westwards from St. Albans, along Akeman Street. It was decided that this route was much superior to continuing north of St. Albans along Watling Street and that, because the Roman fort at Alchester has not revealed any signs of

destruction, battle-sites further west in the north Cotswolds were unlikely to have been reached. Therefore, if this route had been chosen then the actual battle-site may be within the Bulbourne river valley of the Chilterns (sites 3, 5, 7, 8, 10, 11 etc.; Figure 16).

The eastern arm of Watling Street, between London and the Kent ports (route 4), was similarly examined by way of pros and cons, found gravely wanting in positive aspects which, together with only a single poor top 100 site in the region (61), degraded it to below Akeman Street as a choice by Suetonius.

Like 4, route 5 along Stane Street also involved crossing the Thames bridge in London (Southwark). The difference was that the balance of pros and cons elevated the Stane Street route to a level exceeding all others mentioned above. A gilding of the route as a choice by Suetonius comes from the excellent terrain matches just north of Dorking in a gap in the North Downs (sites 1 and 2; Figures 15 and 17). In passing, it is worth mentioning that site 18 at Bignor (Figure 23), nestled in the north-facing escarpment of the South Downs could, if not for the distance to sufficient water, have been ranked as number 1.

One drawback to sites 1 and 2 along Stane Street was the short distance from London, as one day's march was a factor which may have precluded their selection by Suetonius. This same factor, when applied to the other south coast route along the London to Lewes road (route 6), removed it from consideration due to all the top 100 sites, on and adjacent to the road, being less than one day's march from London.

At this point in the examination of choices, Stane Street was marginally favoured over Akeman Street, and only the Portway, westwards from London, remained (route 7).

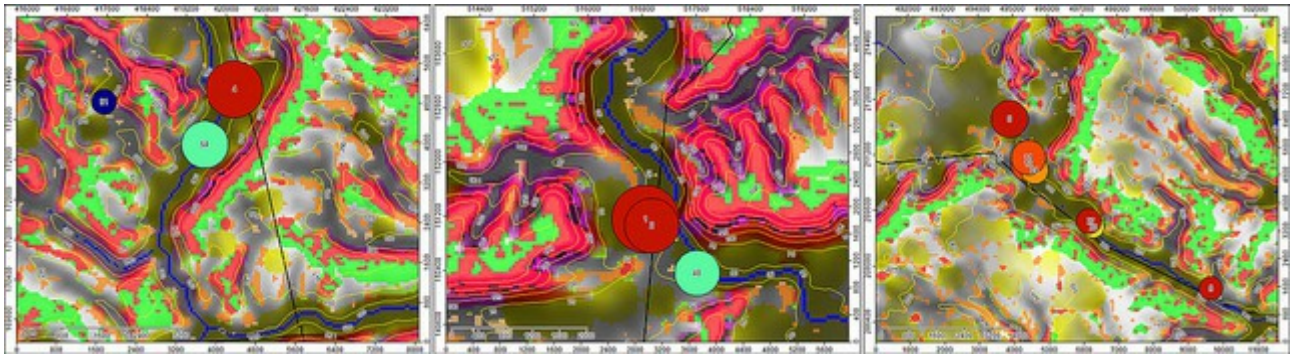
Examination of the pros and cons showed that the Portway route, west towards Silchester and onwards to the military zone, was superior to all others in terms of its strategic and tactical advantages. The future possibility of confirming the burning and destruction of Silchester and linking this to events during the Boudican uprising would further enhance this route, albeit an observation tempered by the acknowledgement that the possibility may be confounded by future archaeologists. Nevertheless, that outcome would not diminish this route's probable preference by Suetonius. Moving directly west opened access to many other choices of route and candidate battle-sites. Site 4, Ogbourne St. George, site 6 at Donhead St. Andrew, and site 9 at Shalbourne were all designated as equals with regard to future examinations. That prudent deliberation aside, and allowing the tattered mantle of objectivity to slip a little, the author does favour Ogbourne St. George (Figures 14 and 20), if only because it had been ranked as site number 1 since the earlier work in 2012 (in other words, the author has allowed himself a little fealty to an old prospect, but acknowledges his treacherous nature and a desire to maintain an open playing field for the sake of fidelity).

Such a personal observation is a reminder of the method employed in the latter stages of this essay, namely, to try and think as Suetonius may have while in London. For it was he who decided on the route that the Roman force and Boudica took, and he who eventually chose to stop withdrawing and marched to his battle-site. This study of choices – although constrained by the known archaeology, the accounts, the capabilities of the Roman army and, in a general sense, the terrain of southern Britain – might nevertheless prejudice the eventual finding of the actual site, but probably only because some facts, events and other consequential choices by the protagonists, are unknown.

In acknowledging the last observation, it seems sensible to suggest that the actual battle-site probably does lie at one of the Portway sites – Ogbourne St. George being top of that list – or at Dorking, or at one of the higher-ranking sites within the Bulbourne river valley. That leaves three locations to be studied further, two of which are quite small in area, Ogbourne St. George and Dorking, and the third stretches linearly along a river, the Bulbourne. That should be simple

enough! But, if that fails, other top 20 sites await.

For it does seem reasonable to presume that the actual site of Boudica's last battle lies in this list.



Ogbourne St. George Dorking Bulbourne river valley

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