

# The archaeological evidence for the route of Stane Street from Mickleham Downs to London Road, Ewell

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*Stane Street between Mickleham Downs and Thirty Acres Barn, Ashtead is a good example of a surviving Roman road. The visible remains are so well preserved that this whole section is a Scheduled Monument that has been the subject of attention by a number of researchers over the years. The author's work, while leading a team from Surrey Archaeological Society's Roman Studies Group, revealed that there was a body of archive material that had not been published and which contained much of interest. This paper incorporates photographs and details from past excavations, aerial photographs, evidence for the use of the plough in the construction of the road, evidence for side ditches, an analysis of alignments, a suggestion as to the survey procedure originally employed, a possible source for the metalling of the Pebble Lane section and conclusions concerning the width of the road. The very clear surviving remains of the road running north-eastwards cease entirely at Thirty Acres Barn, Ashtead and the ensuing route towards the Roman settlement at Ewell has been the subject of a good deal of speculation. Details are given of all known previous excavations of the road in Ewell and this information has been used as the basis for a successful campaign of excavation by the Roman Studies Group to discover the route.*

## Introduction

The course taken by Stane Street (Margary's Roman route number 15) from *Noviomagus Reg(i)norum* (Chichester) to *Londinium* (London) – has been documented in the past by a number of writers. Of particular note are the works of I D Margary, who drew heavily on the work of S E Winbolt in respect of this road (Margary 1965); Winbolt, a Master at Charterhouse School, who brought together what was known and filled in a number of gaps from his fieldwork (Winbolt 1936); W A Grant, a retired army engineer, who examined the topography and methods used in laying-out the road (Grant 1922), and Hilaire Belloc (1913), whose work was unreliable in some respects and was largely superseded by that of Winbolt.

In Surrey, Stane Street has largely gone out of use as a road, remaining in a few places only as a bridle path, although parts of it seem to have continued in use as a major route until the Middle Ages. The Mickleham Downs to Dorking section of the road (fig 1) was in use in the 14th century when it was cited in a deed as 'the royal road from Dorking to London' (Leatherhead Deeds 1307, Part VII, 260). The section to the south of Ashtead (Pebble Lane) was known as Pybylstret in 1358 (Gover *et al* 1934, 81) and the whole of this alignment was known as Ermine Street in Victorian times (fig 2: see handwritten caption to a contemporary photograph).

Although much of the route has been charted in detail, the line has remained unclear between Thirty Acres Barn, to the south of Ashtead, and the Roman settlement at Ewell. (The route taken through Dorking is also uncertain but it is not dealt with here.)

The purpose of this paper is to outline, with commentary as appropriate, what is known from previous published and unpublished work and to incorporate the results of recent fieldwork by the author and the team from Surrey Archaeological Society's Roman Studies Group in order to provide, where possible, a detailed description of the route. The Appendix contains an illustrated glossary of constructional terms used in this paper.

In planning the fieldwork, it was recognised that any excavation was likely to be undertaken in restrictive surroundings. The requirements of householders, within whose gardens the team would be working, would, in every case, reduce the likelihood of uncovering the whole of a road surface and any side ditches. This limitation was deemed to be acceptable as the main purpose of the exercise was to ascertain the route taken by the road although, wherever possible, details of construction would be recorded.

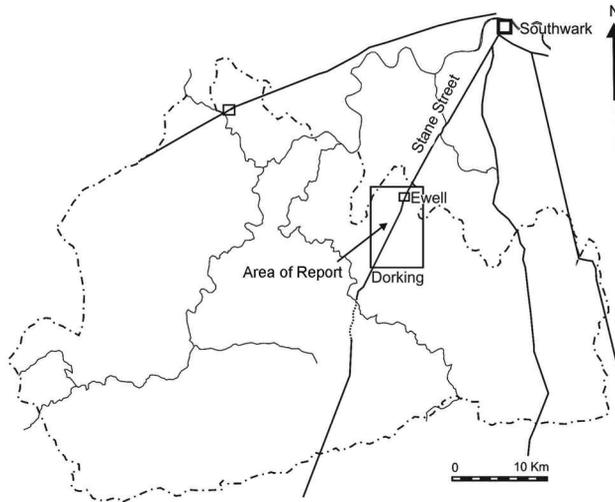


Fig 1 Stane Street. Location of area of report.

### **The Pebble Lane alignment: Mickleham Downs to Thirty Acres Barn** (fig 12)

The first part of this report deals with the extant remains of the Pebble Lane alignment. Although this stretch of road is well known and documented, observations from fieldwork and previously unpublished work have revealed new details of alignments and constructional features.

In order to trace the route of the road to the north-east of Thirty Acres Barn, it was necessary to assess what was known of the route leading up to that point from the south. Although there is little excavated evidence to verify the precise route immediately north from Dorking, the road appears to have been constructed to the north-west of Mickleham Downs as a series of seven straight sections (Hargreaves 1996, 155) on cut and mixed terraces. This would appear to be the likely course as it preserves an approximately level surface and there are places where possible scattered surface metalling can still be seen. At TQ 1815 5390 the terrace appears to take a short right-angled diversion to avoid a deep combe after which it makes a sharp turn to the north-west again. It can then be observed for a short distance in woodland as a cut terrace, which develops into an agger before turning right at the southern extremity of the Leatherhead parish boundary where the straight Pebble Lane alignment begins. Recent woodland clearance has highlighted the impressive engineering of this mixed terrace lying to the south-east of Cherkley Court. At the end of the terrace the road descends into a combe adjacent to Cherkley Court and ascends again through woodland. Side ditches can be seen on either side of the modern track, which retains a camber and shows water-washed pebbles within its make-up. In 1971, in this vicinity, Turner directed an excavation across a ditch lying alongside the road at TQ 182 544 and cut a partial section through it to reveal 'a compact but very thin layer of flint metalling on undisturbed chalk' (Turner 1971, 2). Other details are not available, but this method of construction was also noted nearby (Poulton & O'Connell 1984: see below).

The next stretch of the road, along the western boundary of Tyrrell's Wood Golf Course (the Cherkley Court embankment), runs on what Margary described as 'a very fine well-preserved agger 21ft [6.4m] wide' and the water-washed pebble surface metalling, which gives the road its local name of Pebble Lane, is clearly visible on the surface.

In 1981, during the laying of an oil pipeline, a section across the road was recorded at TQ 1842 5476, revealing that it survived to a width of 5.6m and a height of 0.4m with a U-shaped trench on the uphill side to the east. The road was formed of a layer of water-worn



Fig 2 Stane Street. Tyrrell's Wood: 1905 photograph of embanked terrace.

pebbles laid directly on the chalk (Poulton & O'Connell 1984, 289). In order to achieve this height, the land had been artificially raised as an embanked terrace to create a level way when the road was laid out and a 1905 photograph (fig 2) indicates that, in part at least, it stood at a height of *c* 2m above the adjacent land. Unfortunately, the ground immediately to the west (which is not shown in the section drawing) had been subject to illegal 'fly tipping' in 1988–90 that has artificially raised the level of the surrounding surface, thereby disguising the height of the embanked terrace (David Bird, pers comm). It would seem likely that the material from which the embankment is formed was taken from cutting the terrace to the south.

Winbolt considered that 'the plough coming up to the fence has probably levelled out the western edge of the road and emphasised the bank' (Winbolt 1936, 146). This can be shown to be incorrect from an examination of an aerial photograph showing a prehistoric field system, which has not been ploughed away but is cut, or more probably overlaid, by the road embankment. Furthermore, Winbolt stated that the road measured 'only 12–13 feet [3.6–3.9m] over the top' (*ibid*). This is contradicted by Margary, who indicated a width of 21 feet (6.4m) (Margary 1965, 71) and by Poulton & O'Connell (1984) and one must presume that Winbolt was relying solely on the width of visible metalling but had failed to realise that the road extended further to the east under the present ground surface.

The embankment runs for approximately 500m before descending 20m to the east–west valley of Mill Way, after which the route climbs again steeply up a hollow-way to regain the previous elevation. Hereafter, the remains of the road lie immediately under the present-day bridle path. The road is much degraded (fig 3) and the remains consist of occasional raised earthworks. What appears from its profile to be the western side of the agger can be seen in the wooded margin of the rear garden of Rose Cottage at the entrance to the Golf Club (TQ 1805 5548). Similar portions of cut terraces and an apparent western edge together with traces of possible pebble metalling can be seen as far as Headley Road, notably where groundwork has recently been undertaken for an electricity sub-station to the east of Rose Cottage.



Fig 3 Stane Street. Tyrrell's Wood: degraded agger at TQ 1900 5585.

Immediately to the north of the crossing of the driveway to the golf club there is an ancient quarry pit adjacent to the road on its eastern edge (fig 4). This contains at its base water-washed pebbles from the Reading Beds of the type seen as metalling by Poulton & O'Connell (1984) and which are visible within the surface of the road throughout this alignment. Without excavated evidence of a Roman date for the quarry there can be no certainty that this is a source of metalling for the road but, as there does not appear to be any other indication of quarrying located conveniently to the road, it must be a strong candidate.



Fig 4 Stane Street. Tyrrell's Wood: roadside extraction pit.

Careful comparison of the location of the visible remains of the road with the 1:25,000 OS map indicates a change of alignment at the Headley Road crossing of 1° to the east.

A short length of apparent agger was excavated in 1977 by Rosamond Hanworth at a point (TQ 1920 5624) where it was to be crossed and destroyed by the construction of the M25 motorway; her excavation revealed remains of the road. While her full report was submitted for publication, only the part describing the existence of two types of ploughmark (Fasham & Hanworth 1978, 175–7) was actually published. The first marks, which were set at an angle of 45° to the road alignment, were present on both sides of the road – which clearly cut them – and were interpreted as representing more than one season’s agricultural ploughing at a time before the road was constructed. The other marks, which underlie the metalling of the road, were aligned in the direction of the road and were thought to be the method by which the Roman engineers had cut a terrace into the hillside to form a level way for its construction. Similar features have been observed by Peter Fasham on the Silchester to Chichester road (*ibid.*, 178). The site archive has been made available by courtesy of Rosamond Hanworth, from which it appears from correspondence with Dr John Blair that the road was overlaid, at the point of excavation, by a short stretch of the Thorncroft Manor boundary (later the Leatherhead–Ashted parish boundary). This interpretation was supported by finds of medieval pottery within the overlying bank. Davies (2002, 112) – albeit without supporting documentary or other evidence – suggests a possible parallel for a boundary overlying Stane Street in the high narrow agger seen at Gumber Down in West Sussex.

The road metalling, which lay at a depth of 1m below the ground surface, was contained within two parallel chalk berms. The uphill berm had been left undisturbed in the cutting of an uphill drainage ditch and both berms had been surfaced with medium-size stones to form kerbs. Between the kerbs a metalling of small stones had been laid of which only a 3m-wide section remained *in situ*, the remainder having been removed and incorporated into the overlying boundary bank. The road was *c.* 6m wide from kerb to kerb; the features described are illustrated in figure 5 and are clearly visible in a contemporary photograph (fig 6).

The use of a plough to cut a terrace for the road is not reported elsewhere on Stane Street and it appears to be an unusual feature in this country. However, it may have been a more common constructional procedure elsewhere in the Empire. A poem by Statius, in which he praises the *via Domitiana*, a shortcut associated with the *via Appia* (*Silvarum*, lib. iv. Iii), explains the construction of a Roman road as follows:

*Hic primus labor inchoare sulcos,  
Et rescindere limites; et alto  
Egestu penitus cavare terras,  
Mox haustas aliter replere fossas,  
Et summo gremium prare dorso;  
Ne nutent sola, ne maligna sedes,  
Et pressis dubium cubile saxis.  
Tunc umbonibus hinc et hinc coactis,  
Et crebris iter alligare gomphis.*

which may be translated:

The first task here is to trace furrows, ripping up the maze of paths, and then excavate a deep trench in the ground. The second comprises refilling the trench with other material to make a foundation for the road build-up. The ground must not give way nor must bedrock or base be at all unreliable when the paving stones are trodden. Next the road metalling is held in place on both sides by kerbing and numerous wedges.

Hanworth devoted much time to searching for a downhill drainage ditch, which at the time was assumed to be a ubiquitous and defining feature of Roman road construction, but it became clear that none had existed. Indeed, recent analysis indicates that side ditches are by no means a standard feature of Roman roads, particularly where the underlying geology is free draining (Davies 2002, 72).

North of Headley Road, from the M25 crossing, the remains of the road – which appear to take the form of side ditches and a 6.5m-wide central agger – are evident in wooded field margins to the east of Pebble Lane for 800m, as far as Thirty Acres Barn. This is perhaps surprising, given the depth below ground level of the road surface in Hanworth’s excavation,





Fig 6 Stane Street. Ashted, M25 crossing: photograph of the excavation. (Photograph: Rosamond Hanworth)

but there has been no excavation within this section to clarify the nature of the remains. The extant remains of the road cease at the point where the modern lane, Shepherds' Walk, commences by diverging by some 10° eastwards from the Pebble Lane alignment

### **Thirty Acres Barn to Woodcote Park** (fig 13)

According to Margary (1965, 71), Stane Street 'was found under the tilth' by Winbolt on a continuation of the Pebble Lane alignment in a field to the west of the Shepherds' Walk line. The site of the excavation is shown on Margary's strip map of the area but no further details have been published. This excavation was undertaken to settle a long-running debate as to whether this alignment continued beyond Thirty Acres Barn or whether the road turned eastwards along the modern Shepherds' Walk and Langley Bottom Road making for Epsom Downs and onwards, possibly, to Croydon (*ibid*). Winbolt had demonstrated that the Pebble Lane alignment did indeed continue.

The evidence provided by the Ordnance Survey's 1948 excavation at a point some 150m further along the alignment from Winbolt's trench (at TQ 19622 57035) is detailed and informative (Fox 1949, 147–51). The alignment was shown to continue beyond Winbolt's excavation and, although only half the road surface was sectioned, six layers of construction were revealed consisting variously of rolled chalk, rammed chalk, small rounded pebbles and large flints. The road here crossed a south-east to north-west combe and, while the bottom three layers appeared to be part of the original construction, the three layers above were interpreted not as repairs but as attempts to raise the road surface above waterlogged surroundings as a causeway topped with a layer of large flints. An unusual find was a linchpin – dated to the 1st century AD by the excavators – which lay within layer 2 of the road.

Although not mentioned in the report, the section drawing indicates that the basal layers were laid within a depression in the underlying chalk. With the benefit of hindsight, it might be thought that this was a plough-cut channel as seen further south in Hanworth's excavation.

Side ditches are apparent in aerial photographs immediately north-east of this point but time did not permit a search for these here. The orientation of the drawing (Fox 1949, fig 1) is not given so it is not possible to identify an 'uphill' side where a ditch might have been located, as in Hanworth's excavation.

The Ordnance Survey excavator reported having seen evidence of the road further along the alignment under ploughing near to Headley Road. Precise details of the location are not given but this may be on land subsequently occupied by Woodruff Stables.

Aerial photographs taken by John Hampton in September 1975, at the end of a long dry summer, show parch-marks apparently of side-ditches at two further points in the alignment (NMR: 884/346 and 886/301); Hampton's transcription is reproduced as figure 7 but his analysis questions the nature of the ditches. He calculates that each ditch measures some 13 feet (4m) across with a width of 29 feet (8.8m) between the inner edges of the marks and

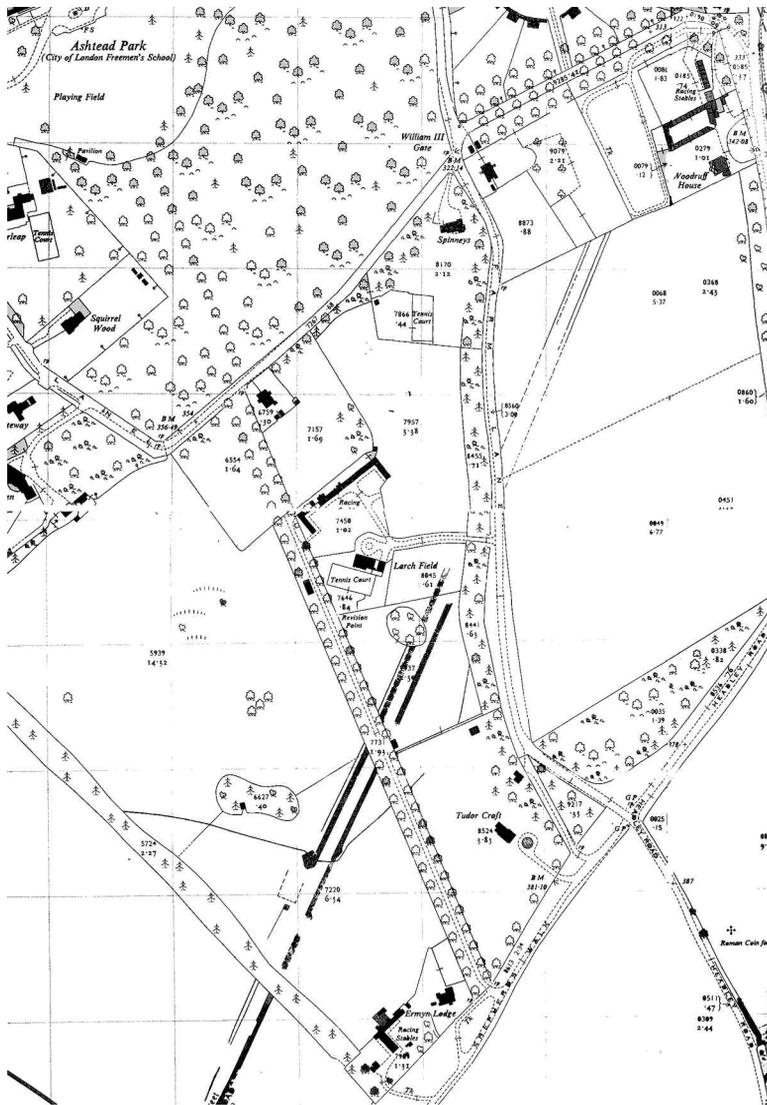


Fig 7 Stane Street. Ashted: Hampton's transcription of aerial photographs. (© Crown Copyright Ordnance Survey. All rights reserved)

suggests that they may be connected with marking out the road (Hampton 1977, 26). Another possibility is that they were quarries bounding an agger constructed from their material.

An aerial photograph taken over Tudor Croft (fig 8), shows the road most clearly and Hampton noted that the alignment of the road had shifted by  $1^\circ$  to the west at *c* TQ 1940 5680. This was the first occasion on which such minor alignment changes had been noted in this section of the road, suggesting that the continuing route into Ewell might not be as described by Winbolt.

An aerial photograph taken in the vicinity of the Ashtead Woodruff Stables (centred on TQ 1999 5785), although less clear, repays careful examination as it appears to show parch marks similar to the above but with a change of alignment of  $3^\circ$  to the east, which has not been noted previously. Interestingly, aerial photographs taken at the same time within Woodcote Park did not reveal traces of the road. The photograph (NMR: 886/314) suggests that any remains of Stane Street were obliterated in the construction of the RAC golf course.

Given that Winbolt (1936, 146) would not have known of the variations in alignment revealed by subsequent aerial photography, his discovery of the road just inside the north-eastern boundary of the RAC golf course at Woodcote Park (at TQ 2074 5914), identified by extension of the last known line at Pebble Lane, was fortuitous. Clearly, the road engineers were aiming for this high point and the adjustment at Woodruff Stables appears to have been made to gain this vantage point.

Winbolt's site was immediately inside the boundary wall of the park, now occupied by the RAC Golf and Country Club, and it lay between the 4th green and the park wall. The area was much disturbed in the construction of the golf course when the green was raised some 1.5m above the surrounding land and a wide ditch formed at the rear and eastern side. It is



Fig 8 Stane Street. Ashtead, Tudor Croft: parallel parch marks of side ditches.

probable that the road has been destroyed elsewhere in this vicinity as well. Winbolt excavated a 40 ft (12m) long trench to reveal the surface of the road only 4 inches (0.10m) beneath the ground surface. This is reported to have consisted of a metalling of gravel pebbles 'from the bed just below the club house' 10 inches (0.25m) thick overlying sand laid on clay. The road was bounded by two side ditches measuring 3½ ft (1m) each and had a cambered surface 21 ft (6.4m) in width. The present ground staff of the golf course are unaware of any bed of gravel in the vicinity of the club house.

### **Woodcote Park to Ewell** (fig 14)

Winbolt was aware of the claim by Roach Smith (1876, 481) that the road had been sighted in Twelve Acre Piece, which was formerly bounded on the north-east by Reigate Road, Epsom and on the south-east by the railway. Unfortunately, the field has been lost to housing development and the exact position and alignment of the road within the field were not recorded, but its location gave Winbolt reason to believe that the Pebble Lane alignment continued in this direction. Accordingly, he merely extended the line from Thirty Acres Barn to Woodcote Park towards Ewell (Winbolt 1936, 152). However, as is now known, this was not as straightforward as Winbolt thought. In so doing Winbolt anticipated an alignment angle of approximately 20° somewhere in the region of Twelve Acre Piece, at the Windmill Bridge over the railway, to align with contemporary discoveries in Ewell.

Margary concurred with this approach but he had seen on the ground an old hedgerow that is now the boundary between properties in St Martins Avenue and Downs Road. This he interpreted as a cut terrace 'with much flint' (Margary 1965, 74). Accordingly, his postulated line diverged from that of Winbolt and is some 40m to the west of Winbolt's at this point.

This raised the question as to why the road makes a diversion in Ewell and executes a 20° change in alignment. Projection of the alignment of the London Road, Ewell, section in a south-westerly direction shows that the road would have followed a straight and relatively level route before entering the northern section of the Mole valley at the junction of Young Street and the A24 – much the route taken by the present A24. Winbolt and Margary agree that the diversion had been arranged to seek the chalk in Ewell and so avoid the London Clay of Ashted and Epsom Commons, which can be near impassable in winter (Winbolt 1936, 157; Margary 1965, 73). Figure 16, taken from the OS map (British Geological Survey), shows how this was achieved and it is now apparent why the sighting point at Woodcote Park was of critical importance to the route in avoiding the London Clay. It seems likely that this point was established as a first step and subsequently linked by a series of extrapolated sightings to the south-western end of the alignment on Mickleham Downs. It is interesting to note that at least one historic route from Leatherhead to Epsom, as shown in a map of 1638, (SHC: P63/1/1), took a similar route over Epsom Downs.

The evidence for the route to the north-east from Woodcote Park was scant and, as the authorities were at variance, excavations were undertaken recently to trace the actual course of the road. The owners of 10 Downside, Epsom thought that the road ran through their property and invited an investigation of their back garden; they also arranged for an excavation at the neighbouring 10a Downside. Excavation revealed no evidence for the road (Hall 2004) but the terrace identified by Margary was visible in nearby gardens. The exercise was useful in that it disproved Winbolt's line at this point and suggested that further investigation on Margary's route might be useful.

### **Albert Road allotments** (figs 9 and 10)

A continuation of the line between Winbolt's Woodcote Park trench and the terrace seen near 10 Downside passes through St Martin's church, Epsom. An unpublished excavation at the rear of the church had apparently discovered part of the road, albeit without being

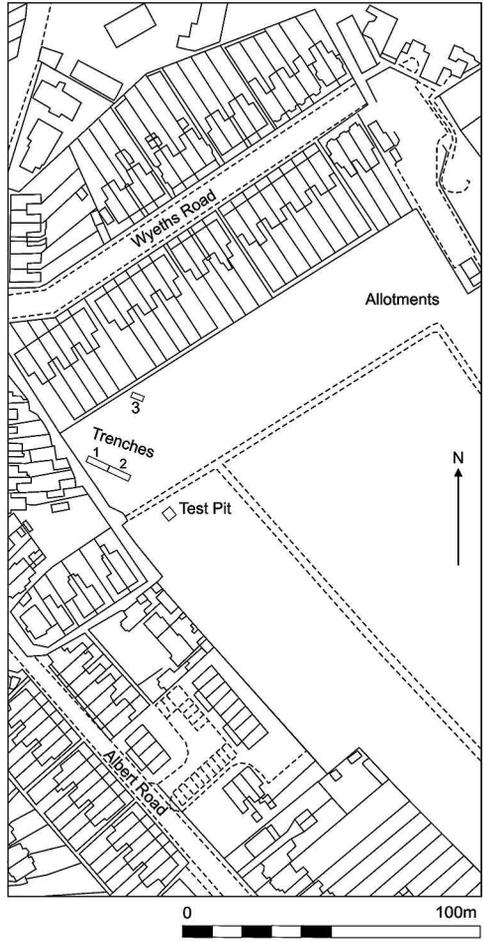


Fig 9 Stane Street. Epsom, Albert Road allotments: location of trenches. (© Crown Copyright Ordnance Survey. All rights reserved)

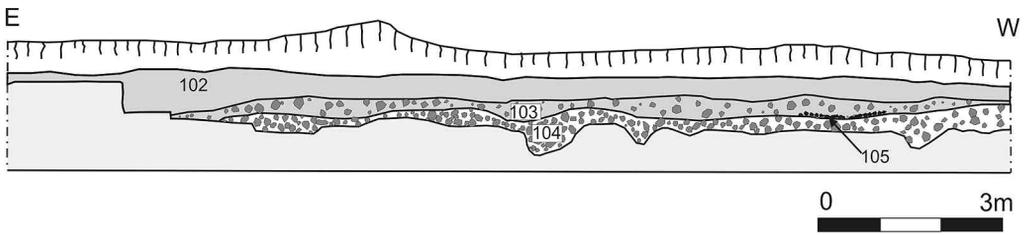


Fig 10 Stane Street. Epsom, Albert Road allotments: section of trench 1.

able to ascertain the direction of alignment in a narrow trench. The excavator, Norman Nail, has since died and details of the excavation have been lost, but the discovery lends some credence to this possible line. The Albert Road allotments, close to the church (fig 9), were identified as a suitable location at which to investigate further and at the end of September 2004 a trench measuring 8 x 1m (trench 1) was laid out along their western edge (Hall & Pemberton 2005, 8).

Beneath the topsoil, excavation revealed layers of sandy soil, which presumably originated from the adjacent Thanet Beds. At a depth of 0.8m the sandy soil contained abundant small flints of which approximately 1.5m<sup>3</sup> were removed. As these do not occur naturally in the sands they must have been brought in from elsewhere. Also within this layer were found two residual sherds of 4th century Alice Holt greyware pottery.

At 0.95m below ground level a layer of closely packed flints (some up to 0.3m across) was revealed which was, in places, up to 0.5m thick. The trench was extended (as trench 2) a further 8m to the south and the stratigraphy was found to be continuous and it was evident that the flints had been laid in a *c* 0.1m-deep cutting. Towards the western end of the trench, this layer was overlaid by a 20mm-thick layer of gravel that extended for 1.5m. As it was not possible to reach the western edge of the road, it could not be determined whether this cutting formed part of a trench in which the road had been laid or whether it was part of a terrace cut into the slope. The compacted flints were removed to reveal a natural surface of weathered and deeply fissured chalk.

A further trench (trench 3) was opened 30m to the north-east and on the projected alignment (fig 9). This revealed a similar stratigraphy, with a flat layer of large packed flints at the same level below the surface as those in trenches 1 and 2, but extending across the projected width of the road for only 0.9m as it had been severely truncated at either end by two 19th century pits. The position and length of the trenches did not permit a search for side ditches or the western edge of a road so, in order to prove that the flint layers were not natural, a 1 x 1m test pit was excavated 30m away from the postulated line of the road. This revealed a 0.3m topsoil layer overlying a clean mid-brown sandy soil to a depth of 1.5m and containing only eight small pieces of frost-fractured flint. Beneath this was the natural weathered chalk. Therefore, the substantial flint layers in trenches 1 to 3 are probably the remains of Stane Street lying on the line predicted by Margary.

### **Bridge Road**

While the excavations at Albert Road allotments appeared to confirm the line of the road, further work was needed to confirm the 20.5° change of alignment suggested by Margary (1965, 74). Extension of the line towards Windmill Bridge and the old Twelve Acre Piece led to investigations in Bridge Road. Permission was given for two 1.5 x 1.5m test pits on the projected line of the road at the end of the rear garden of 3 Bridge Road.

In each pit the natural chalk surface lay *c* 1.3m below the ground surface above which was 0.9m of modern disturbed subsoil covered by 0.15m of topsoil. There was no sign of flint, pebble metalling or any other constructional features (Hall & Pemberton 2006, 1). An explanation for the modern soil disturbance was not forthcoming, but the whole area is likely to have been affected by the construction of the adjacent railway cutting that is *c* 20m deep in this locality.

### **G H Hargreaves' work on alignments and line of sight analysis**

In an unpublished 1996 thesis, G H Hargreaves discussed the correspondence of the London Bridge to Ewell alignment that projects almost exactly to the east gate of Chichester. He concluded that three high points (Mickleham Downs, Leith Hill and Glatting Beacon) were used as intermediate sighting points to create a continuous straight alignment from which local variations would be controlled. However, the mechanism for controlling diversions from the notional main alignment is not discussed although this would have been helpful, as he suggests the use of controlling points within the area of this study on high spurs of Mickleham Downs at TQ 1835 5476 (Cherkley Court embankment) and Pebble Lane at TQ 1930 5647 (to the north-east of the M25 crossing) (Hargreaves 1996, 48).

Hargreaves' analysis includes a schedule of postulated sighting points within primary alignments. Those given for the Pebble Lane alignment (*ibid*, 155) are:

- TQ 1885 5558 Rose Cottage and near to his suggested control point
- TQ 1893 5566 8m further on from the above point
- TQ 1893 5571 5m further on from the preceding point.

The first is situated on a high point from which an alignment on Thirty Acres Barn can be sighted, but the remaining two are questionable as they are located only a few metres apart on a gentle slope which descends from the previous point and does not offer a different view from the first.

Alignment changes that are evident from examination on the ground and comparison with modern maps and are not included in the Hargreaves alignment analysis are:

- TQ 1850 5460 High point at commencement of Cherkley Court embankment (Hargreaves' controlling point is not an optimum situation at some 20m north-east and 5m lower)
- TQ 1910 5600 Alignment change at Headley Road
- TQ 1940 5680 Alignment change to south of Thirty Acres Barn and close to Hargreaves' suggested control point
- TQ 1999 5785 Alignment change at Woodruff Stables
- TQ 2074 5914 High point at Woodcote Park.

Clearly, the surveying of straight alignments depends on the intervisibility of successive survey points and Hargreaves recommends employing the technique of 'sighting line inclination analysis' in which precise distances and Ordnance Datum heights are employed (Hargreaves 1996, 27). This may be suitable for large data sets where a computer algorithm can be employed but an alternative, which is useful where a small number of sites only are under investigation, is the manual production of an intervisibility line by drawing a cross-section of the contours on the map and representing this against a vertical scale. Figure 11 shows the result of applying this technique to the Pebble Lane alignment, which may be summarised as follows:

- 1 From the southern end of the alignment the only other point that would have been visible is at the commencement of the Cherkley Court embankment (near Hargreaves' sighting point).
- 2 From this point the observer can see as far as the top of the rise at Rose Cottage, but no further.
- 3 From Rose Cottage, the route can be seen as far only as the alignment change at Thirty Acres Barn (Hargreaves' sighting point).
- 4 From Thirty Acres Barn, the alignment change at Woodruff Stables, the high point above Woodcote Park and the alignment angle near Windmill Bridge can be seen.

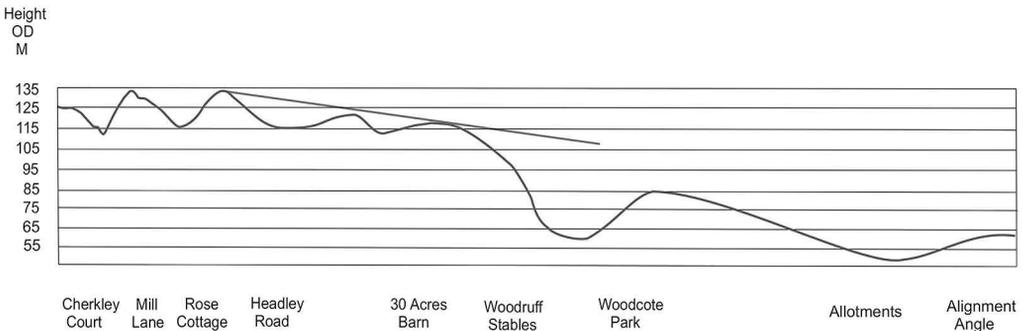


Fig 11 Stane Street. Pebble Lane: line of sight analysis.

The utility of these lines of sight would depend on clear unobstructed views across open countryside such as arable fields. Prehistoric fields are known to have existed at the Cherkley Court embankment and to have been present as part of a large co-axial system covering the whole of Mickleham Downs (Hall 2002, 15). However, dating is a problem and there is no archaeological evidence that the fields were 'open' at the time the road was laid out. Furthermore, there is no specific evidence for more field systems further along the line although the soil conditions are similar to the north as far as Ewell. Excavations at the Looe, Reigate Road, south of Ewell, do indicate cereal production (Cotton 2001, 36) although there is a possibility that the land could have been used for grazing.

However, employing Hargreaves' data and the line of sight analysis (fig 11), the following survey procedure may be postulated:

- 1 The selection of a first marker at the alignment angle near Windmill Bridge as the commencement of the sighting line was critical in exploiting the geology of the region.
- 2 A sighting point at the high point above Woodcote Park would have allowed the line to be extrapolated south-west to the next visible sighting point to the south-west of Thirty Acres Barn.
- 3 The next intervisible point is at Rose Cottage.
- 4 A target might have been positioned at the southern end of the alignment on Mickleham Downs being a point fixed by the requirement to circumnavigate the Downs by an optimum route.
- 5 *Gromae* might thus have been situated on high points between the northern and the southern ends of the alignment at Woodcote Park, south of Thirty Acres Barn, Rose Cottage and the southern end of the Cherkley Court embankment.
- 6 The four *gromae* would have been manoeuvred until each was in register with the others and the sighting line start and finish markers.

The minor alignment angles noted at Headley Road, Thirty Acres Barn and Woodcote Park may reflect stretches of road allocated to individual gangs of builders or, at least, to the adjustments of alignments and slight realignments made when a high point was gained. The realignment of 3° at Woodruff Stables was made to re-sight the road on the point above Woodcote Park that was implied by extension of the line from Thirty Acres Barn and which becomes critical to the route further to the north-east. There does not appear to be any topographical reason for this realignment and it may represent an error that became magnified as the construction proceeded to the north-east.

### **The Pebble Lane alignment: conclusions**

The excavations of Winbolt and the Ordnance Survey, taken together with the evidence of aerial photographs, Margary's recognition of a cut terrace near to Downside, and the recent excavations at Albert Road allotments combine to demonstrate that the Pebble Lane alignment continues to the east of Epsom on its previous heading (with minor changes) probably as far as the supposed alignment angle at Windmill Bridge – a distance of 9km overall. The route in the scheduled area is now well established and there will be opportunities for further work in the area immediately to the north-east of Woodcote Park. However, thereafter the area is built up and possibilities for excavation are restricted. This precludes detection of any unknown further minor alignment changes that might account for the negative results of the excavation at Bridge Road.

Line of sight analysis facilitates a suggested survey procedure, which does not indicate the use of a single 'control point', but rather the establishment of the two ends of the alignment by reference to geographical features and interpolation of the line by sighting *gromae* on successively intervisible high points between these two locations.

The expected line in the Bridge Road area is overlain by the railway, the adjacent Bridge

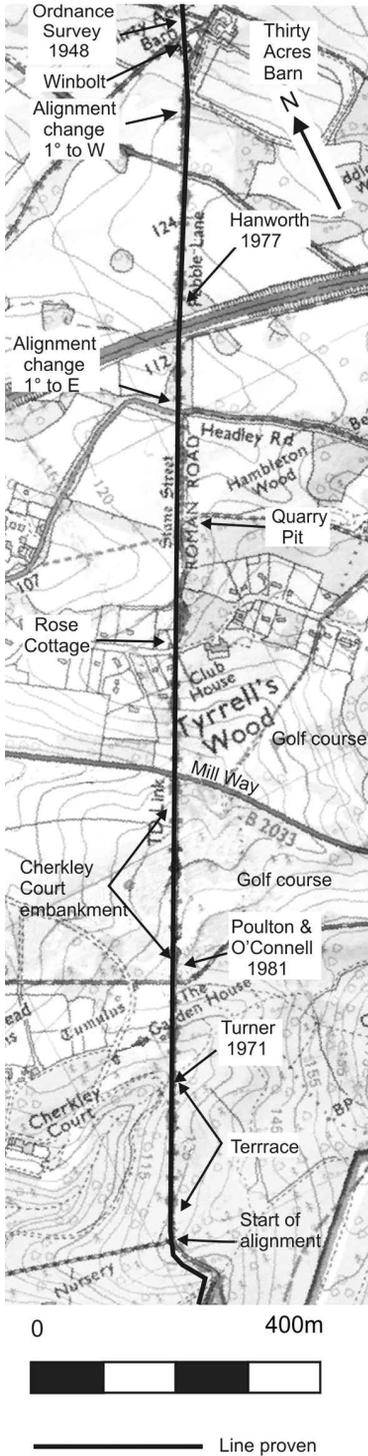


Fig 12 The route from Mickleham Downs to Thirty Acres Barn. (© Crown Copyright Ordnance Survey. All rights reserved)

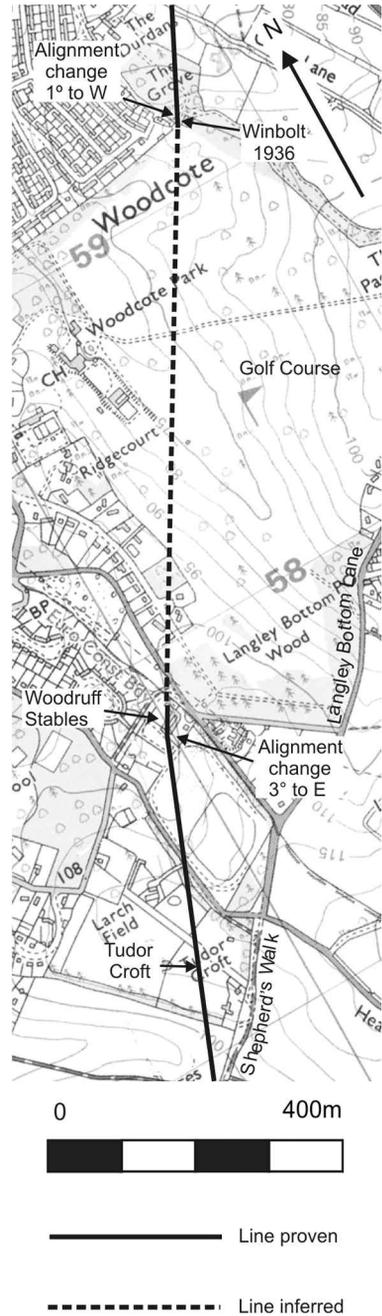
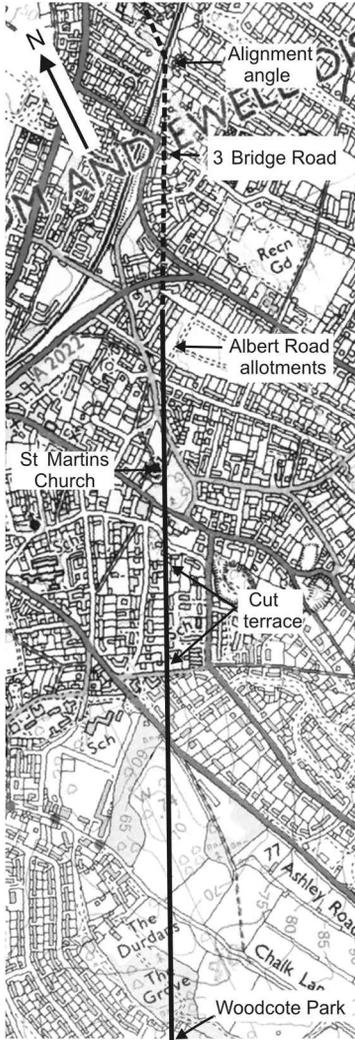
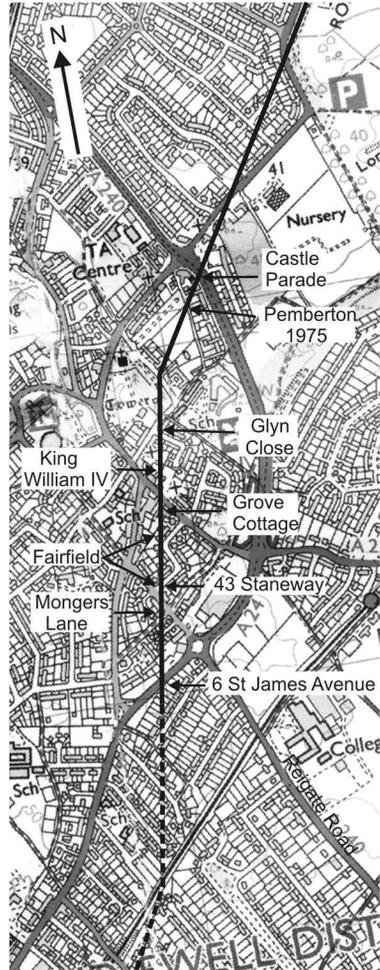


Fig 13 Stane Street. The route from Thirty Acres Barn to Woodcote Park. (© Crown Copyright Ordnance Survey. All rights reserved)



0 400m  
 Line proven  
 Line inferred

Fig 14 Stane Street. The route from Woodcote Park to Ewell. (© Crown Copyright Ordnance Survey. All rights reserved)



0 400m  
 Line proven  
 Line inferred

Fig 15 Stane Street. The route: Ewell alignments. (© Crown Copyright Ordnance Survey. All rights reserved)

Road and associated housing, and opportunities for excavation are limited, which reduces the possibility of discovering the precise location of the change in alignment. However, it is significant that the area is a local high point, at an elevation of *c* 60m OD, and plainly visible from the Woodcote Park sighting point.

An alternative approach to locating the change of alignment is to examine the known line within Ewell and its course south-westwards and to plot this against an extrapolation

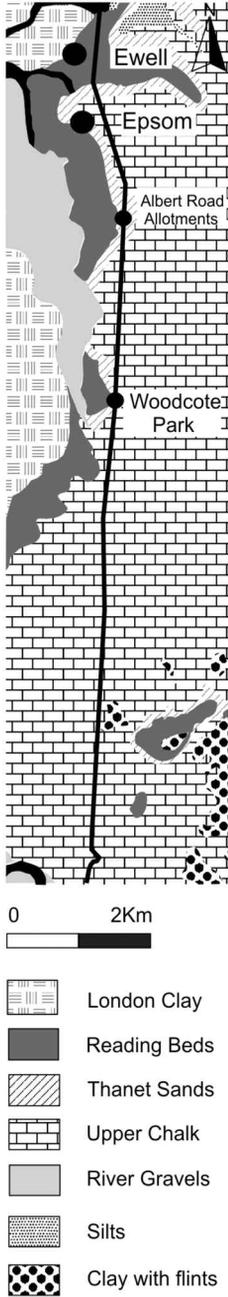


Fig 16 Stane Street. The geology of the route. (© Crown Copyright Ordnance Survey. All rights reserved)

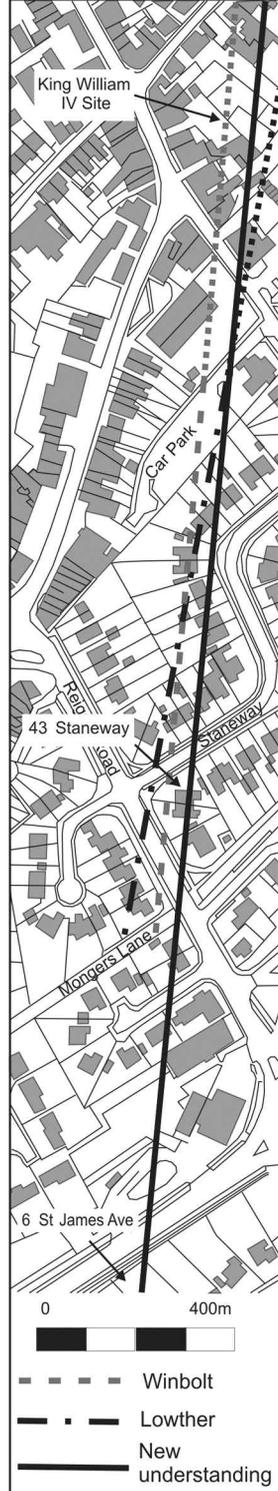


Fig 17 Stane Street. Ewell: the new understanding of the route. (© Crown Copyright Ordnance Survey. All rights reserved)

of the known portions of the Pebble Lane alignment to identify the location of the intersection.

### **The Ewell alignments** (fig 15)

The course of Stane Street, running north-east from Ewell towards London, is largely followed by the modern A24 road (Margary 1965, 76). Ewell has been suggested as the possible site of a 'posting station' or *mansio* (as seen further south at Alfoldean and Hardham) although the distances between stations would militate against a location at Ewell (Bird 2004, 43) and no evidence has been produced in support of this proposal. However, Ewell was clearly a substantial settlement, stretching for *c* 1km along the road, although its precise bounds remain unknown.

As to the route of Stane Street through Ewell, useful observations were made in the 1930s at a time when the village was expanding, with demolition of old large houses and construction of smaller housing and shops. The route of the road, as it extended south-west from London Road, was fixed and further work in the 1960s and 1970s established the alignment angle in Church Street. Unfortunately, separate reports of observations in the Fair Field (now Staneway) showed inconsistencies which left in question the precise route of that section of the road that lay within the settlement area to the south of Church Street.

#### CASTLE PARADE AND ST MARY'S CHURCHYARD

The line of the road from the north-east as it enters Ewell was clarified in 1934 during the building of the Castle Parade shops at the junction of the Ewell Bypass and London Road. At the rear of the buildings, excavation revealed the road with 21 inches (0.58m) of metalling spread over 25 feet (7.6m) overlying Thanet Sands, which in turn, overlay the natural chalk. The alignment was clear as the road was seen also in a foundation pit to the rear of the buildings, in a 'stanchion' pit at the front and across the road where a petrol station was under construction (Lowther 1935, 32).

Immediately behind and to the south-west of Castle Parade lies St Mary's churchyard and cemetery where a series of rescue excavations between 1970 and 1975 revealed evidence of the road. This work in the north-east corner of the churchyard suggested that Stane Street continued to be aligned on the Castle Parade locations, although its apparent structure was not distinguishable with precision from an adjoining spread of flints which was interpreted as a yard. The supposed road was found to consist of a basal layer of firm grey sandy soil, overlaid by medium-sized pebbles in orange sand and topped by flint nodules and coarse gravel, in all 12 inches (0.3m) thick at the crown and measuring 20 feet (*c* 6m) across. At the edges of the agger there appeared to be what was interpreted as separate carriageways formed of a single layer of sandy yellow gravel. The road was somewhat fragmentary but it appeared to have drainage ditches on both sides (Pemberton 1973, 4). A three-track highway is rare on Stane Street but there is a parallel at Gumber Corner in Sussex (Margary 1967, 500 fig A). Two stone-foundation buildings with a cobbled pavement between fronted the road on the east side and on the west was an extensive yard-type feature with three postholes, which may have supported a roof to some form of open structure (Pemberton forthcoming (a)).

Further excavations were conducted in St Mary's churchyard in 2003 that revealed Stane Street at a depth of *c* 1m. The road structure here was clear and consisted of an agger of yellow/orange sand with a metalling of flints overlaid by rammed chalk and flints. A 1m-wide and 0.15m-deep side ditch was found to the south-east of the road (Pemberton forthcoming (b)). The extension of the London Road alignment across the churchyard was thus established. However, it was apparent that the road existed for a period in the 1st/2nd centuries only and there was a substantial build-up of earth over the road before the 4th century stratum. This may suggest that either the road fell out of use as a major route at an early date or, more likely, that there was a realignment of the route in this area. This brings

into focus Bird's (2004, 42) suggestion that the road took a double bend through the settlement, possibly to give prominence to a religious area somewhere in the region of the spring at Bourne Hall. Unfortunately, there has so far been no excavated evidence of a road in this area and carefully targeted fieldwork would be necessary to test this possibility.

#### GLYN CLOSE

Both Margary (1965, 76) and Winbolt (1936, 170) had predicted a change of alignment of 25° somewhere in the region of the old church tower in Church Street. The position of this can be inferred from a sighting of the road in a trench in the front garden of the house on the corner of Church Street and Glyn Close (Frank Pemberton, pers comm) and subsequent discoveries at Grove Cottage, Staneway and St James Avenue.

#### KING WILLIAM IV SITE

Various excavators undertook a series of investigations over the period 1967–77 and their work was drawn together in one publication by Orton (1997). The location of this work – a car park to the rear of the King William IV public house and other properties at 19–29 High Street – had been expected to locate Stane Street according to the knowledge of the line at that time. A discussion of the route refers to work by Hargreaves (1990) in assessing the relative merits of alternative lines suggested from an interpretation of the differing published details by Lowther (1935, 16) and Winbolt (1936, 165) of what was essentially the same work at the Fair Field, a short distance south of this site. Hargreaves favoured the Lowther line and Orton (1977, 116), reporting that evidence of the road had not been revealed in these excavations, concluded that either the road did not cross the site or was unusually narrow, without side ditches and had been entirely robbed out.

#### GROVE COTTAGE

Excavations in 1972 by Pemberton (forthcoming (c)) in the car park behind Grove Cottage identified the western edge of the road as a packed dark brown layer of sandy soil and flint nodules against the eastern boundary of the site.

#### THE FAIR FIELD

In 1934, the old Fair Field was under development for housing along the road subsequently to be named Staneway. The area lay adjacent to the old manor house and within the bounds of Mongers Lane to the south, Reigate Road to the west and Cheam Road to the east. In all, four trenches were excavated and evidence of Stane Street was found in each one. Winbolt, who undertook the work at the request of Lowther (who was otherwise engaged at the time), reported that 'the road was composed of big gravel flints laid on a bed of small flints rammed into wet chalk [...] with a surface of gravel pebbles, the whole grouted in hard with sand, the depth of the metal in the centre averaging 1 foot 5 inches [0.43m]. The biggest flints formed a kind of kerb at the sides. The width of the road was the standard width of 21 feet [6.4m] (22 Roman feet), and the depth of the surface below the grass was about 21 inches [0.53m] in the centre. There were V-sided ditches, about 15 inches [0.38m] – possibly layout trenches'. He mentions also that he was present when Lowther subsequently found the road in a garden in the corner between Mongers Lane and Reigate Road. He gives precise locational details of the line relative to the junction of Cheam Road and High Street and a very precise bearing of 8° 22' 47.41" (Winbolt 1936, 164–5). These measurements were obtained through the offices of Capt W A Grant, the surveyor. In particular, Winbolt indicated that the line to the south would pass between the fourth and fifth houses on the north side of St James Avenue.

Lowther reported the findings separately but does not give detailed locational measurements. His map shows the Mongers Lane site in a different location and a comparison of his map with that of Winbolt shows a different bearing for the road (fig 17). Other information given by him is: a maximum depth of metalling of 2 feet (0.6m) (in trench 1), although he stated, without discussion or evidence, that the road had been built as a causeway with metalling 3–4 feet (1–1.3m) thick at this point; that the road had been laid between shallow ‘marking-out’ trenches; the metalling consisted of very coarse gravel, mixed with sand which appears to have been mixed to form a ‘mortar less concrete’ (contrast this with Winbolt’s more detailed – and differing – description) and a series of four postholes from an earlier timber structure underlay the road (Lowther 1935, 16).

One can only speculate as to what gave rise to the disparities in reporting between these two authors, differences of which they must have been aware at the time and that have given rise to much subsequent confusion and debate as to the course of the road within Ewell.

#### MONGERS LANE

Lowther does not treat his Mongers Lane find as separate and does not comment on it specifically in his report although Winbolt states that it ‘consisted of gravel flints mixed, and sand grouting; also of rounded pebbles for the surface. There was a 2 foot [0.6m] depth of road metal laid on natural chalk, the top 6 inches [0.15m] of which metal was disturbed’ (Lowther 1936, 168).

#### DOWNS GARAGE

In February–March 1933, on the strength of the details provided in Lowther’s map of the Fair Field excavations, Sheppard Frere undertook an exploratory excavation in an orchard lying to the rear of the petrol station/garage at the north-western corner of the junction of Ewell By-pass and Reigate Road. His field notes indicate that he found no sign of the road (SyAS: RR278c).

#### 6 ST JAMES AVENUE

Despite the confusion generated by the contradictions surrounding the Fair Field site, the Mongers Lane trench and the negative evidence at the King William IV site and Downs Garage, it appeared worthwhile to project a line south from Pemberton’s observations at Grove Cottage in order to identify sites worthy of exploration.

The possibility of confusion with other road remains was considered. The gazetteer of Abdy and Berton (1997) records two other Roman roads in Ewell: an east–west oriented road running west from Tayles Hill and a north–south road branching off Stane Street and pointing south towards Purberry Shot. Clearly, the first road is remote from the area under examination and, although the second was potentially confusing, it was seen also on the western margin of the Grove Cottage site.

Extrapolation of the line appeared secure and led to the rear garden at 6 St James Avenue (fig 18) where a series of three test pits revealed substantial volumes of loose flint in the subsoil and, at a depth of 0.80m, the presence of the road as a layer of closely packed flints 0.15m in depth (fig 19; Hall & Pemberton 2006, 1). The eastern test pit contained a man-made cut into the underlying chalk, which appeared to be a roadside ditch. Flints continued over and beyond this ditch but this was interpreted as degradation and spread of the original surface – possibly due to later agricultural operations. The western pit showed an edge to the packed flints, although no ditch, giving a width of 6.5m for the road at this point (fig 19). Unstratified finds from the site included a bronze nail, 4th century pottery sherds and a partial rim of a Mortlake ware vessel. The latter is important as it is the first pottery of Neolithic date to be recorded in Ewell (Jonathan Cotton, pers comm).



Fig 18 Stane Street. Ewell, 6, St James Avenue: location of road. (© Crown Copyright Ordnance Survey. All rights reserved)



Fig 19 Stane Street. Ewell, 6 St James Avenue: road metalling in central test pit.

Success at the St James Avenue site led to an attempt to confirm the line a short way northwards at 43 Staneway. Two trenches were excavated – one in the front garden and one to the rear of the property – each of which found the road at a depth of *c* 0.9m below the ground surface. The front garden trench revealed the western edge as a 0.15m layer of compacted flints overlying Thanet Sands (fig 20) but that to the rear, showed the road overlying, and terraced into, chalk and consisting of up to 0.30m depth of flints and water-washed pebbles from the nearby Reading Beds (fig 21). The road at this point appeared to be 6.8m wide, which compares with that seen at St James Avenue (Hall & Pemberton 2006, 2).

Lowther had claimed that the road, as found in the Fair Field, was constructed of metalling sunk into sand and, although sand was present in the matrix of the metalling, it was not possible to discern if this was a constructional feature or whether the sand had permeated the layer as the road became buried under a wash of Thanet Sands.

### The Ewell alignments: conclusions

Careful overlays of the Lowther and Winbolt published location plans on a modern map reveal that Winbolt's line was offset by 10m and Lowther's by 15m, to the west of the true line. Furthermore, Lowther's line is misaligned by 4° to the south and east. The actual line runs to the east of both the King William IV site and Frere's excavations at Downs Garage. No doubt the inconsistencies between the Lowther and Winbolt plans and the actual route arose out of their attempts to fix the position in a featureless field whereas the position can now be related on the ground to housing.

Although not shown in figure 17, a projection northwards of the newly established line passes through the Glyn Close site to form an alignment angle in Church Road with a back-projection across St Mary's churchyard of the known London Road alignment. Projection of the line to the south shows a possible intersection at the railway line with the line north-east established from the Albert Road allotments, approximately as predicted by Margary. This completes the route of the road from Thirty Acres Barn, Ashted to London Road, Ewell.



Fig 20 Stane Street, Ewell, 43 Staneway: location of road. (© Crown Copyright Ordnance Survey. All rights reserved)

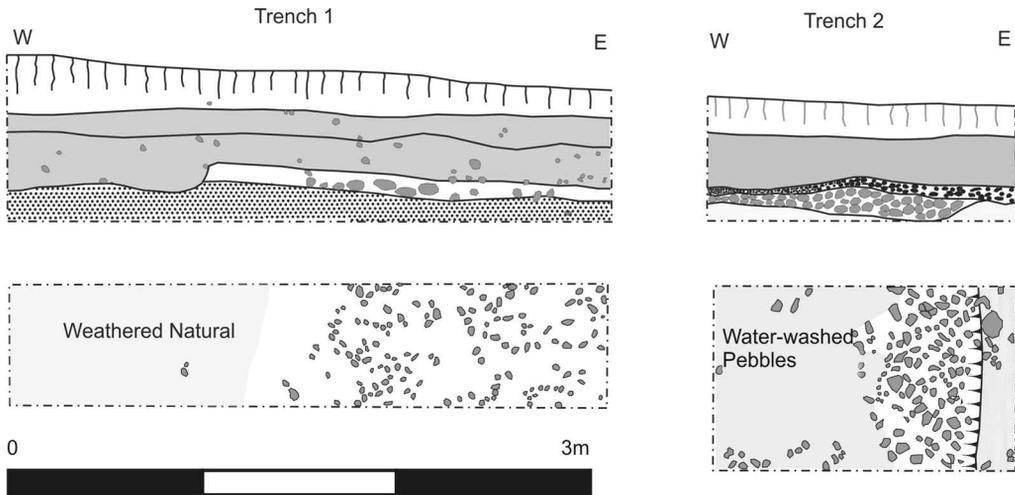


Fig 21 Stane Street, Ewell, 43 Staneway: sections and plans of road.

### Proving the course of Roman roads: a practical procedure

Margary set the standard for proving the course of a Roman road by excavating and recording sections at a 'sufficient number of points to fix definitely each alignment for the satisfaction of the most sceptical critics, and also to show the general nature of the road construction and any points that may be of special interest'. He emphasised, also, the importance of revealing the edges of the road in order to distinguish it from a general geological stratum of stone (Margary 1965, 34). Within this programme of work it has been possible to meet this standard by identifying sufficient points of alignment and delineating the edges of the road within each of the excavations – although one edge only at the Albert Road allotments site, where a 'control' trench was excavated to demonstrate that the metalling was not a natural geological feature but had been imported. In some circumstances it may be that the edges of a section of road have been damaged or completely worn away, in which case evidence of terracing, constructional layering or artefacts would provide acceptable evidence.

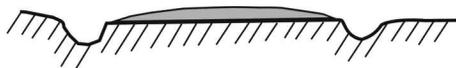
A feature common to each of the excavations reported here is that remains of the road have been buried from 0.6m to 1m beneath the ground surface. Whether this is a result of a build-up of soils over the road by colluvial action, plough movement of soil, a build-up of decayed vegetation or some other mechanism, or whether the road has subsided to some degree under its own weight (Margary 1965, 19) is not known. The fact remains that surface indications of the presence of Roman roads occur infrequently and that much physical effort must be expended in their discovery. This became apparent at the Albert Road allotments where a trench measuring 16 x 1 x 1m required the removal of many tons of overburden. The backfilling was a major operation and the whole exercise took five weekends to complete. Clearly any prospecting method that relies on opening trenches of this size will rapidly lose the enthusiasm of a team and selective test pitting may be a more suitable approach. Given that previous work has shown that Stane Street was *c* 6m wide, it was decided that pits located at intervals of 4m would allow a team of twelve people to dig three pits and backfill in a weekend with time to spare. This technique is also more acceptable to householders where it is required to excavate a lawn. This method was tried with success at Bridge Road, 6 St James Avenue and 43 Staneway, but it became apparent that a pit of 1 x 1m is too small and a 1.5 x 1.5m is easier to excavate using a mattock or spade. Furthermore, this size allows the use of a 1m<sup>2</sup> planning frame. If the road is found, it is a simple matter to join pits as a single trench to achieve a full profile of the road (as was done at 43 Staneway). At this stage

it has been found that householders have become sufficiently interested in the project to permit the excavation to be expanded. Thus, using this procedure, and provided there are indications or clues as to the likely presence of a road, a team can be kept motivated to prospect even where they encounter negative evidence from time to time.

## APPENDIX

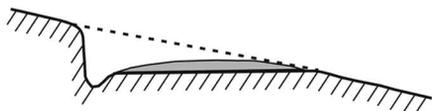
### Agger

A raised causeway designed to provide a level and free-draining surface for a road. The agger is often accompanied with ditches to the sides that improve drainage and also provided a 'quarry' from which the base of the agger was formed. There is no standard make-up to the overlying metalling but, commonly, larger stones form the lower level with smaller stones and/or gravel forming the surface. The form will generally be dictated by what materials are available locally.



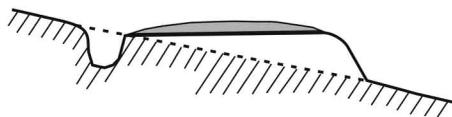
### Cut terrace

A level way is created by cutting into the underlying earth/rock, which is then removed for use elsewhere. An agger is laid on top and is often accompanied by a ditch uphill but rarely on the downhill side.



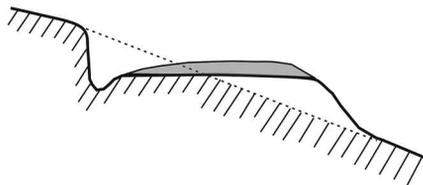
### Embanked terrace

Material is brought in from elsewhere and compacted to create a level terrace. An agger is laid on top and is often accompanied by a ditch uphill but rarely on the downhill side.



### Mixed terrace

Earth and rock, which is cut away from the uphill side, is dumped and compacted on the downhill side. An agger is laid on top and is often accompanied by a ditch uphill but rarely on the downhill side.



## ACKNOWLEDGEMENTS

Thanks are due to Rosamond Hanworth for making available the site notes and archive of her 1977 excavation and to John Hampton for drawing attention to aerial photographs in the NMR and supplying a copy of the mapped transcription of these. Further, the project to locate the 'missing' portions of the road would not have been possible without the support of Frank Pemberton and members of the Roman Studies Group who worked enthusiastically and without complaint in all weathers and the householders who allowed their gardens to be excavated.

## BIBLIOGRAPHY

### Manuscript sources

- NMR: National Monuments Record, Swindon  
884/346; 886/301; 886/314 Aerial photographs taken in 1975  
SyAS: Surrey Archaeological Society, Guildford  
RR278c S Frere field notebook, Downs Garage, Ewell, 1943-5 (currently deposited with Guildford Museum)

SHC: Surrey History Centre, Woking

P63/1/1 John Lawrence map of the manor of Ashted, 1638

### Published and secondary sources

- Abdy, C, & Bieron, G, 1997 A gazetteer of Romano-British sites in Ewell, *SyAC*, **84**, 123–41
- Belloc, H, 1913 *The Stane Street*, London: Constable
- Bird, D, 2004 *Roman Surrey*, Stroud: Tempus
- Clark, A J, 1959 Excavations: Mickleham, in Report of the Council for the year ended December 31st 1959, *SyAS Annual Rep*, 4–5
- Cotton, J, 2001 Prehistoric and Roman settlement in Reigate Road, Ewell, *SyAC*, **88**, 1–42
- Davies, H, 2002 *Roman roads in Britain*, Stroud: Tempus
- Fasham, P, & Hanworth, R, 1978 Ploughmarks, Roman roads and motorways, in H C Bowen, & P J Fowler (eds), *Early land allotment*, BAR Brit Ser, **48**, 175–7
- Gover, J E B, Mawer, A, & Stenton, F M, 1934 *The place-names of Surrey*, English Place-names Soc, **11**
- Fox, J, 1949 Stane Street, *SyAC*, **51**, 147–51
- Grant, W A, 1922 *The topography of Stane Street*, London: John Long
- Hall, A R, 2002 A downland archaeology, unpublished BSc dissertation, University of Surrey
- , 2004 Searching for Stane Street, *SyAS Bull*, **375**, 1–2
- , & Pemberton, F, 2005 Searching for Stane Street – Albert Road allotments, Epsom, *SyAS Bull*, **380**, 2–5
- , & Pemberton, F, 2006 Searching for Stane Street – the Epsom alignment, *SyAS Bull*, **393**, 1–5
- Hampton, J, 1977 Roman Ashted, in A Jackson (ed), *Ashted: a village transformed*, Leatherhead: Leatherhead and District Local History Society, 26–34
- Hargreaves, G H, 1996 Roman surveying on continuous linear constructions, unpublished PhD thesis, University College, London
- Leatherhead Deeds, 1307 Grant of 15 acres of land by John de Ponnshurst and his wife to Thomas Faukes and his wife. Edward [I, 26 January 1307] [trans Blair, J], in *Proc Leatherhead Dist Local Hist Soc*, **4.8**, 203
- Lowther, A W G, 1935 Excavations at Ewell in 1934, *SyAC*, **43**, 16–35
- , 1936 ‘Stane Street’, further excavations at Ewell, *SyAC*, **44**, 168
- Margary, I D, 1965 *Roman ways in the Weald*, London: Phoenix
- , 1967 *Roman roads in Britain*, London: John Baker Publishers Ltd
- Orton, C, 1997 Excavations at the King William IV site, Ewell, 1967–77, *SyAC*, **84**, 89–122
- Pemberton, F, 1973 A Romano-British settlement on Stane Street, Ewell, Surrey, *SyAC*, **69**, 1–26
- , forthcoming (a) Excavations at St Mary’s churchyard, Ewell 1974–76, *SyAC*
- , forthcoming (b) Excavations at St Mary’s churchyard, Ewell 2003, *SyAC*
- , forthcoming (c) Excavations at Ewell Grove and Grove Cottage, Ewell, *SyAC*
- Poulton, R, & O’Connell, M, 1984 Recent discoveries south of Tyrrell’s Wood Golf Course, *SyAC*, **75**, 289–92
- Roach Smith, C, 1876 Letter, in Proceedings, *J British Archaeol Ass*, **32**, 481
- Turner, D J, 1971 Mickleham: excavations near Cherkley Court (TQ 182544), *SyAS Bull*, **82**, 2
- Winbolt, S E, 1936 *With a spade on Stane Street*, London: Methuen

