

***Between the Monuments: Fieldwork on the West Kennet Avenue
'occupation site' and Foot of Avebury Down lithic scatter, Avebury,
Wiltshire, 2012-13. An interim report***



West Kennet Avenue occupation site, Trench 2 under excavation © Aerial-Cam

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**Allen Environmental
Archaeology**

Background

The work described here forms a key first-stage component of the *Between the Monuments Project* – a collaborative research initiative between the Universities of Southampton and Leicester, the National Trust and Allen Environmental Archaeology, with additional input from project partners in the Universities of Cambridge and Birkbeck, London. Its aims are to enhance understanding of the range of practices that constituted routine life and residence during the 4th to mid-2nd millennia BC within the Avebury landscape; their structure and tempo; their relationship to environmental regimes and natural constituents of the landscape (vegetation, streams, stone scatters, etc.); their engagement with material resources; and the relationship between landscape inhabitation and monument creation. Full details are provided in the overall project design (Pollard *et al.* 2012a) to which the reader is referred for information on background, objectives, fieldwork zones and schedule.

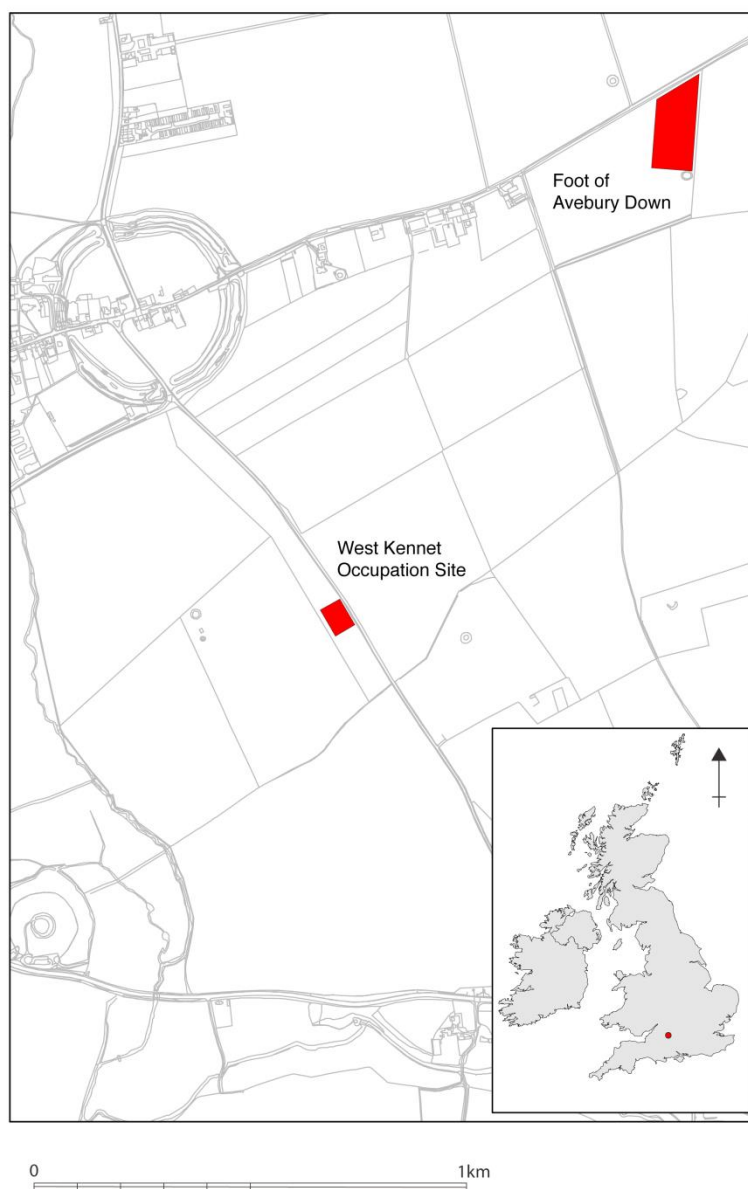


Figure 1 – Location of sites investigated in 2012-13.

During 2012-2013 two sites were subject to investigation: the first the West Kennet Avenue 'occupation site' initially recognised during Alexander Keiller's work on the avenue in 1934-5; the second a flint scatter on the foot of Avebury Down, to the east of the Avebury henge (Figure 1). Both are locations where significant quantities of Neolithic worked flint – recovered through excavation and surface collection respectively – were recognised during the first half of the 20th century. While each exceeds 0.5-1.0ha in extent, they are discrete scatters whose artefactual component suggests they span the early 4th to early 3rd millennia BC. Occupying different landscape zones –foot of slope/valley and upper slope – their investigation offers a routeway into understanding the character of settlement, aggregation, place-making and routine life during the region's Neolithic.

PART I: The West Kennet Avenue Occupation Site

The West Kennet Avenue 'occupation site' (SU16NW103; SAM28131) was discovered during Alexander Keiller's excavation and restoration work on the West Kennet Avenue in 1934 (Smith 1965, 210-6). It lies c.700m south of the Avebury henge, on the foot of the eastern slope of Waden Hill, with open views to the south and east across the dry valley between Waden and Hackpen/Overton Hills. The site is defined by a scatter of Neolithic pottery and worked flint spread over an area of >100 x 40m, Keiller's work having effectively sampled this through the linear trenches he was using to track the standing stones of the Avenue (Figure 2). Both lithics and ceramics recovered in 1934 span several centuries, beginning in the mid/late 4th millennium BC with Peterborough wares, chisel arrowheads and distinctive edge-ground tool forms, running through to Grooved Ware, oblique arrowheads, and Beaker pottery. No structures as such were revealed during the excavation, but a scatter of pits and post-holes occurred across the area. One of the larger pits contained a substantial portion of cattle skull set upright with an antler placed next to it (Smith 1965, pl. 37). Substantial portions of Group VII axes (the only ones from the site) had been placed in holes 1 and 10; while six of the 12 features contained chisel arrowheads. Grouped close to the pits were five postholes; the supports for fairly substantial timber settings. Associated with Grooved ware, the pits may come late in the life of the occupation site; as might the post-holes given the packing of 'dirty clay', burnt stone and daub (ibid., 214-6), implying they were dug through existing occupation soils.

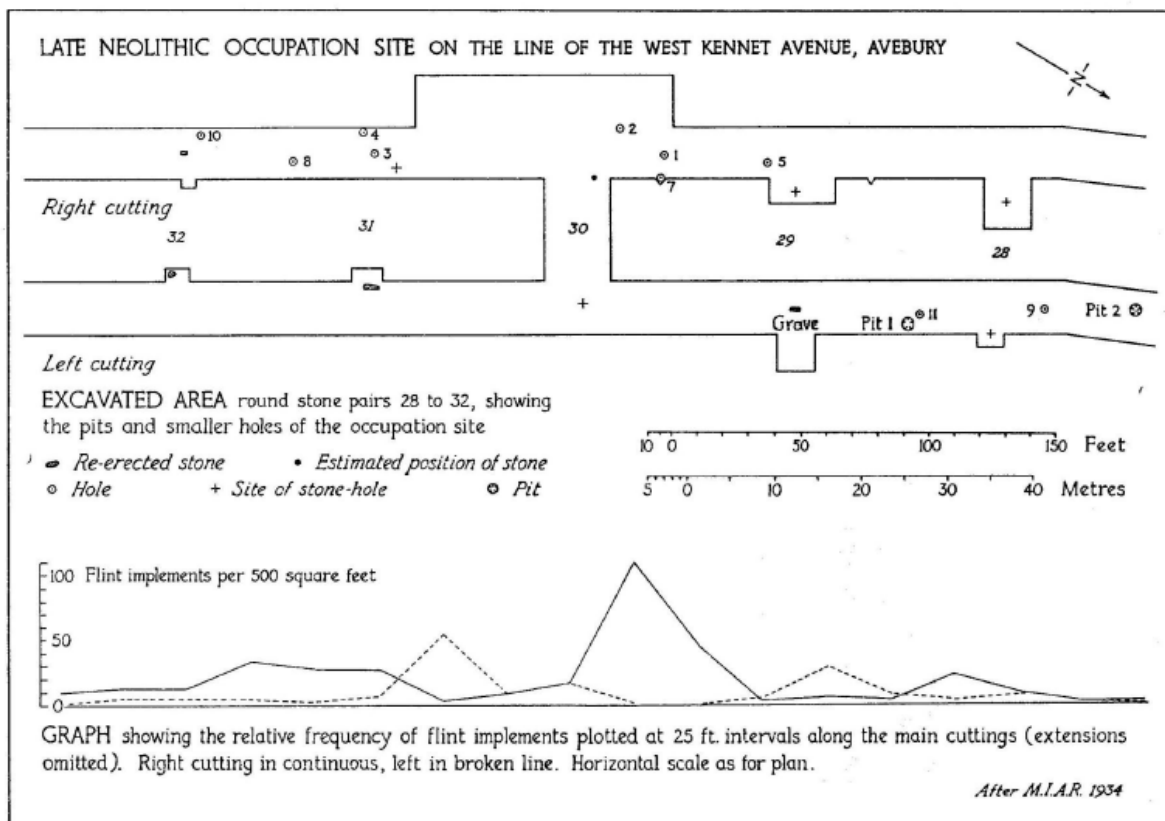


Figure 2 – West Kennet Avenue: plan of the 1934 excavations of the 'occupation site' showing pre-Avenue features and lithic densities across the area (after Smith 1965, fig. 73)

While there is every reason to assume the scatter and associated features relate to periodic occupation of this locale (i.e. settlement), there are quantitative and qualitative aspects to the site that set it apart from other Neolithic settlements in the region. First is the sheer density of material encountered by Keiller. The lithic assemblage included over a thousand flint implements and an undetermined quantity of debitage. It is estimated that densities of worked flint approached c.50 pieces per square metre (Pollard 2005), compared with density ‘highs’ of just over 20 pieces per square metre from test-pitting of the extensive and long-lived scatter on the southern slopes of Windmill Hill (Whittle *et al.* 2000), making this one of the most significant scatter sites in the Avebury landscape. Unusual and fancy implement types are particularly well represented within the West Kennet lithic assemblage. They include polished-edge knives and scrapers, and a completely polished fabricator (Smith 1965, 236-42). The working of many pieces is decidedly accomplished, with 40% of scrapers on flakes with faceted platforms, and a number of discoidal cores suggesting on-site manufacture of transverse arrowheads.

While the majority of Neolithic settlements within the local and wider region have suffered attrition from later cultivation – reducing them to ploughsoil lithic scatters with or without associated cut features – unpublished excavation records in the Alexander Keiller Museum, Avebury, suggested strongly the presence of *in situ* artefact spreads and occupation deposits across the West Kennet Avenue occupation site. The survival of soft prehistoric ceramics from ‘surface’ contexts hinted at the presence of ‘intact’ soils.

The investigation of the West Kennet Avenue occupation site marks the first major piece of fieldwork of the Project. The site has been chosen because of its perceived potential, especially that relating to the recovery of *in situ* occupation deposits, structural evidence and significant palaeo-environmental data, which is rarely obtained from Neolithic settlement sites either locally or nationally. Furthermore, artefactual evidence from the Keiller excavations suggests the main phase of activity at the site is likely to span the early 4th to early 3rd millennia BC – a poorly understood period that lies after the building of long barrows and the causewayed enclosure on Windmill Hill, but before the creation of the Avebury henge and other key elements of the late Neolithic monument complex (Gillings & Pollard 2004; Pollard & Cleal 2004; Whittle *et al.* 2011).

The aims of the fieldwork are:

- to better characterise the artefact spread and associated features belonging to the ‘occupation site’;
- to understand the range of practices that lay behind the formation of the artefact spread (e.g. occupation, formal deposition);
- to better understand the relationship, if any, between the middle-late Neolithic activity and the later construction of the West Kennet Avenue.

Specific objectives include:

- to map the artefact spread and define the presence or otherwise of prehistoric buried soils, houses or other structures;
- to enhance knowledge of the chronology of the activity that generated the artefact-rich deposit and pre-Avenue features;
- to recover information relating to environmental conditions during the time of the middle-late Neolithic activity, land-use and erosion/agricultural impacts, and to

characterise histories of adjacent (up-slope) landuse via study of colluvial deposits and buried soils, if present.

Programme of work

A first stage of work involved geophysical survey across a 140 x 60m area centred on the occupation site. This was completed in 2012, and the results are reported below. During 2013 it was proposed to excavate five trenches aligned in a complimentary fashion to the 1934 trenches excavated by Keiller and positioned across an area of 70 x 50m centred on the zone where the Keiller investigations encountered the main concentration of middle-late Neolithic artefactual material and features (roughly corresponding to the area defined by stone pairs 28-32 of the West Kennet Avenue). The trench locations were chosen to facilitate structured investigation of surviving areas of the artefact spread alongside features identified during the 2012 geophysical survey. In total the proposed excavated areas amount to 477.5 sq. m. (Figure 3).

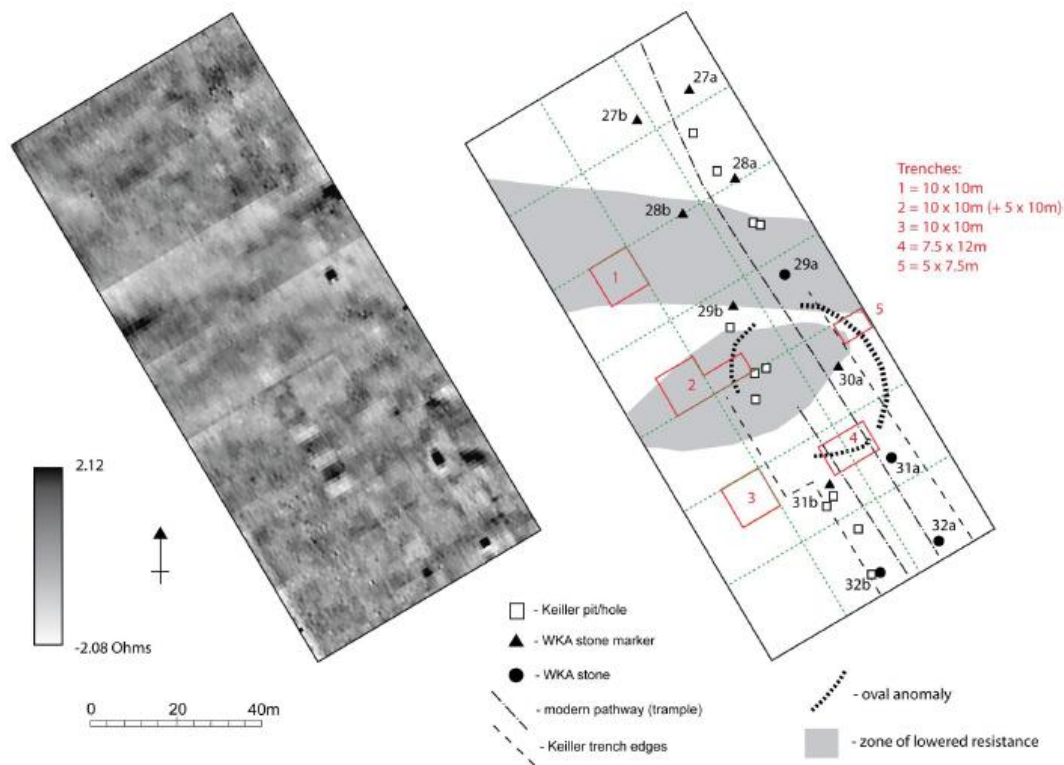


Figure 3 – West Kennet Avenue occupation site: (left) geophysical survey results; and (right) interpretation of results and location of 2013-14 trenches.

Trenches 1-3 ran alongside and to the south-west of the Keiller excavations, spaced at 20m intervals along a distance of 70m, the aim here being to map the structure and extent of the buried artefact spread and previously undetected structural remains. The middle trench (2) was located adjacent to the zone of highest lithic density identified during the 1934 excavations. A 10 x 5m extension on the north-east of Trench 2 was positioned to intersect the west side of a large oval anomaly identified during the 2012 geophysical survey. Trenches 4 and 5 were designed to characterise/map the extent and changing density of the buried artefact scatter across the line of the Avenue whilst simultaneously intersecting the southern and eastern sides of the anomaly.

It was recognised from the outset that the excavation was unlikely to be completed within one season, and indeed work undertaken during late July – mid-August 2013 ended up focussing on the excavation of Trenches 2 and 3 only. The programme of excavation will be completed in 2014.

Geophysical survey 2012

A 140 x 60m survey area was defined (comprising a total of 21 x 20m survey grids), centred upon the occupation site (Figure 4). Soil resistance survey was carried out over the course of two days using a Geoscan RM15-D with a multiplexed 3 probe parallel twin array, giving traverse and sampling intervals of 0.5 and 1.0m respectively. All data was processed using the Geoplot 3 software suite and the survey grid was geo-referenced using survey-grade DGPS.



Figure 4 – location of the Survey area. Image incorporates data ©Crown Copyright/database right 2013 2012. An Ordnance Survey/EDINA supplied service

The results

The survey revealed a number of features of interest (Figure 5). A group of four discrete high resistance blobs marked the concrete rafts used by Keiller to support re-erected Avenue stones and the edges of 1934 ‘cuttings’ can clearly be seen (marked by broken-lines on the interpretation plot). A striking chequer-board pattern (F) of alternating high/low resistance areas marks the location of Keiller’s 100 x 20’ trench extension (Smith 1965, fig. 73) implying that a very distinctive back-filling strategy was adopted by his workmen in this area. Paralleling Keiller’s trench edges and running the full length of the survey area is the modern pathway along the Avenue, showing up as a low resistance anomaly. A second broad,

low-resistance linear anomaly (D) arcs northwards from anomaly F; corresponding to a modern vehicle track.

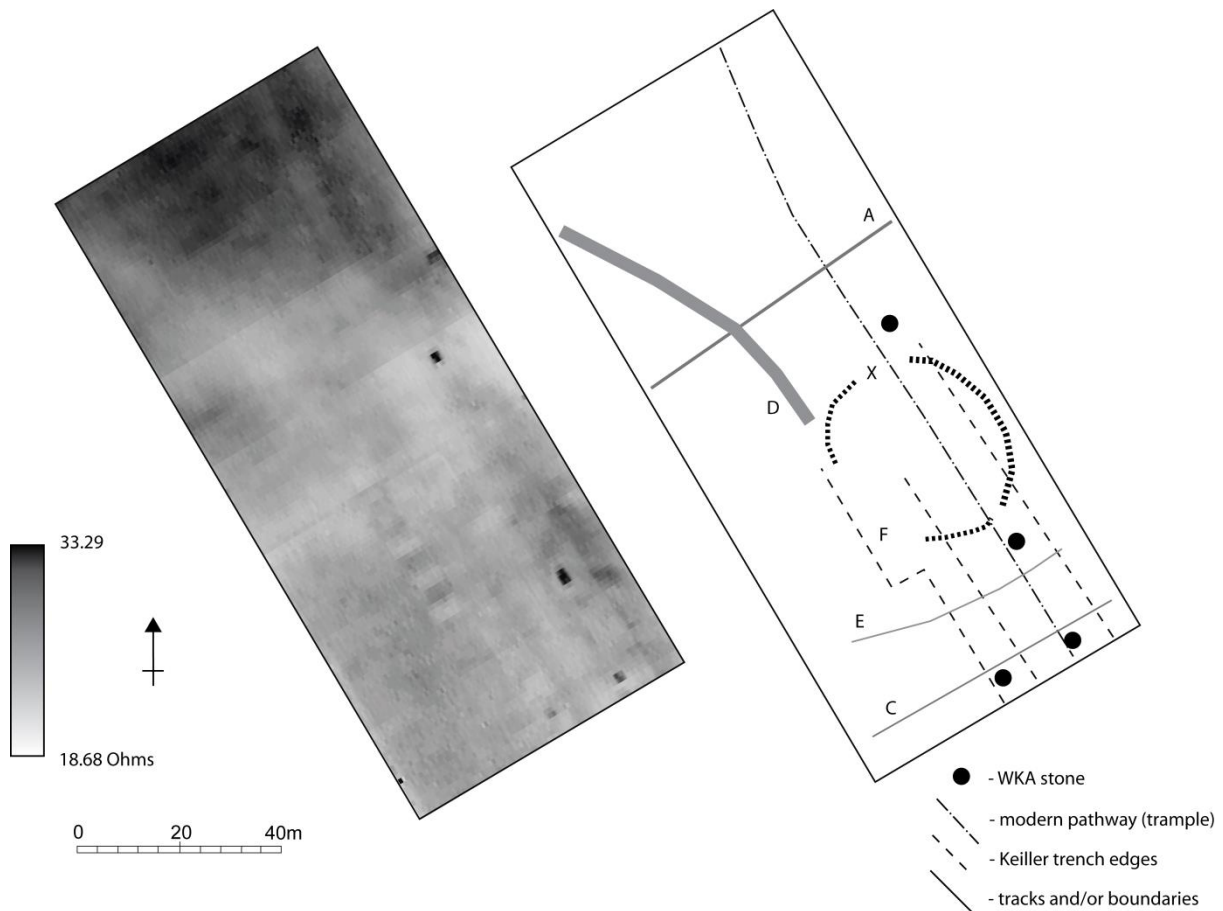


Figure 5 – the survey results (displaying +/- 3 standard deviations)

Crossing the survey area from east to west were a series of faint high-resistance linear features (A, C, E) which most likely correspond to former boundaries or pathways, presumably of post-medieval date (Stukeley, for example, depicts a linear feature (either a fence or path) crossing the Avenue line in this general area (Ucko *et al.* 1991, pl.61)). The most recent of these is A which corresponds to a distinct linear depression that aligns upon a gate at the eastern edge of the survey area.

In relation to the artefact rich deposits encountered by Keiller, two features were of note. The first was an extensive area of low resistance (Figure 6). Bounded to the north by the linear boundary A; this covered the area of Keiller's occupation site.

Second, and wholly unexpected, was the suggestion of a faint, roughly oval band of slightly raised resistance straddling the line of the Avenue (anomaly X). In Figure 7 a high-pass filter has been applied (radius = 10, uniform weighting) to emphasise smaller scale anomalies at the expense of broader background trends. As well as enhancing Keiller's cuttings, including the line of a cross-trench (anomaly B), the resulting plot confirms the veracity of the circular anomaly, c.5m in thickness and describing an oval with a maximum diameter of c.41m.

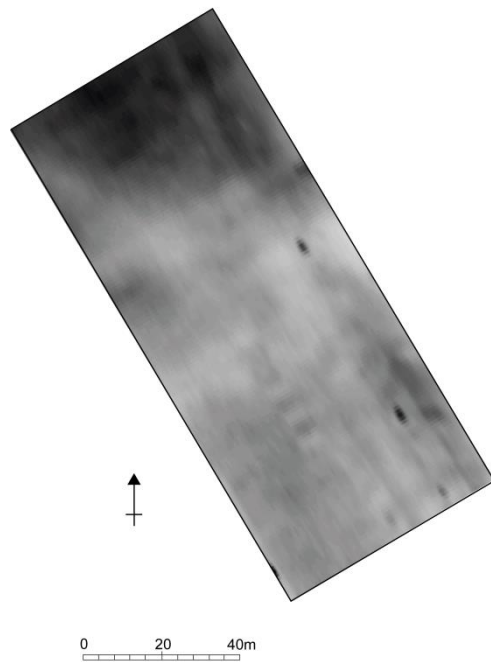


Figure 6 – data after Low-Pass filtering to enhance broad trends at the expense of finer detail

The survey failed to detect any further pits and post settings of the kind excavated by Keiller (Smith 1965, 210-16). This is not to argue that further features of this type do not exist, merely to note that given their relatively small size (less than a metre in maximum extent) they are effectively invisible to resistance survey at this spatial resolution.

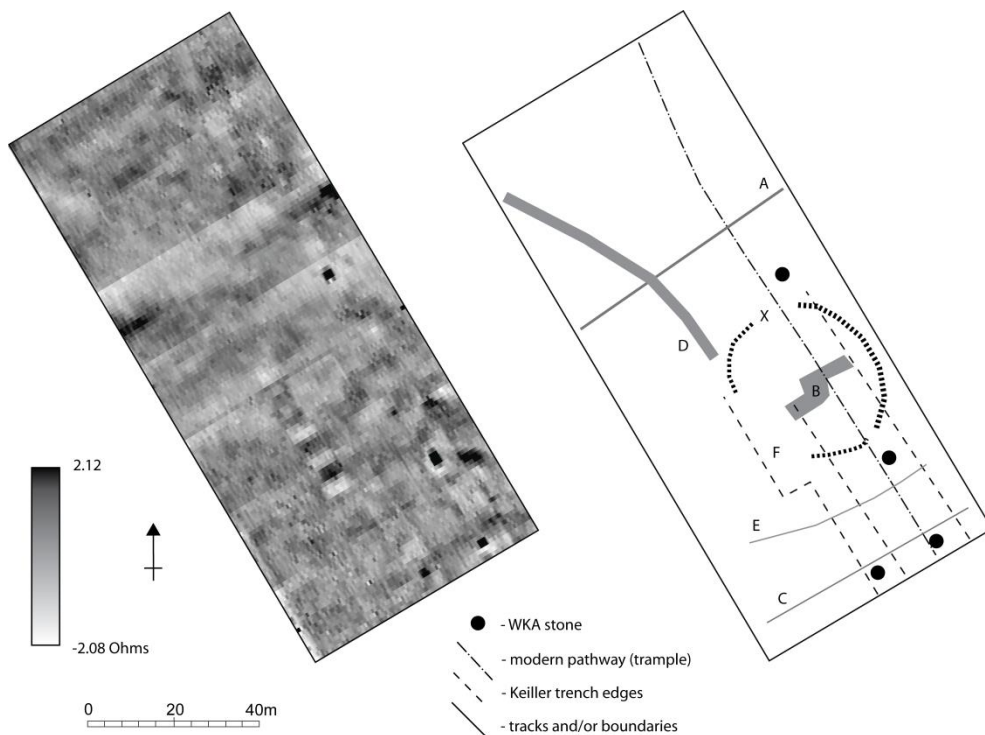


Figure 7 – data after High-Pass filtering

Excavation 2013

Methodology

Given the sensitive nature of the site it was agreed that all excavation work would be undertaken by hand. In the case of pre-modern artefactual material from the topsoil and any former ploughsoil/colluvial layers, a decision was taken to record this according to 2 x 2m units (higher precision was not deemed necessary due to likely displacement); while material within buried soil deposits was excavated and recorded by 1 x 1m square. To maximise artefactual recovery, feature fills and pre-colluvial layers were sieved through a 10mm mesh. Inevitably, this proved very time-consuming, and restricted the area that could be investigated during 2013, but the process was highly productive in terms of the recovery levels achieved.

A full written, drawn and photographic record was maintained. Recording followed a modified version of the Museum of London (MoLAS) single context system; though adherence to single context *planning* was not deemed necessary for this particular work. Excavated stratigraphic entities (e.g. a cut, layer or fill) were recorded as individual contexts, numbered sequentially ([001] onwards). Interrelated stratigraphic units (e.g. a pit and its fill) were assigned feature numbers (F.1 onwards). Drawn sections were made at 1:10, feature and deposit plans at 1:20. A full photographic record was maintained using a high resolution digital format. The site grid was geo-referenced using survey grade DGPS, and all spatial data generated during the course of the fieldwork were integrated into the current *Between the Monuments Project* spatial database (maintained by MG in ArcGIS 10). The site code is WKA-13.

Time and labour restrictions prevented any work from taking place on Trench 1 during this season, and limited work in Trench 2 to investigation to the western third of the area and a strip along its south-eastern edge. The results of work on the completed Trench 3 are described first, followed by those relating to the partially-excavated Trench 2.

Geology

The solid geology here is chalk of the Holywell Nodular Chalk Formation and the New Pit Chalk Formation. However, at no point was this encountered, being overlain by a substantial deposit of coombe rock, incised into which was a strong and regular pattern of periglacial stripes. These were most visible in Trench 3, where a greater area of exposure was achieved. Here the stripes ran down-slope on an east-west axis; the intervals between the chalk ridges forming the 'unweathered' component of the stripes ranging in width between c.0.2-0.5m. While suggestions were made by visitors and on-line commentators that the periglacial stripes were in fact ploughmarks, this can be categorically refuted, not least because they were cut by early Holocene tree-throws.

Filling the top of the linear hollows within the stripes was a brown clayey silt with moderate small flint and pea-grit (O13); probably a transformed loessic silt into which a small humic content had percolated or been introduced through worm sorting. This varied in thickness from a thin lens to several centimetres in depth and was completely sterile (i.e. lacking artefactual material). The material underneath comprised a pale beige silt with variable quantities of chalk pieces. All soils are heavily decalcified with a low pH, leading to the non-survival of bone and mollusc shell.

Results

Trench 3

The southernmost trench, Trench 3, took in an area of 10 x 10m. Excavation of the trench was completed during the 2013 season (Figure 8).

Sealed by the turf was a thin former ploughsoil (003), comprising a 0.05m thick, poorly sorted, friable dark grey-brown clay loam. From this was recovered post-medieval CBM and ceramics, glass, metal and some worked flint. Both here and in Trench 2 this layer relates to a brief and (in terms of depth) superficial episode of plough cultivation that occurred during late 19th-early 20th century. (003) overlay (001), a well sorted friable clay loam 'soil' around 0.25m thick. Excavated before its equivalent (004) in Trench 2, it was initially considered to be a colluvial layer and so removed in 2 x 2m units, artefacts being recovered by hand (numbered 1-25, starting in the north-west corner). However, it became apparent, especially because of the freshness and density of worked flint from the base of this layer, that it was in fact an undisturbed decalcified soil. This was confirmed through on-site examination by Mike Allen and Charly French. The soil comprises a well-developed rendzina and incipient brown earth, with a well-defined, deep worm-worked A horizon (see Allen, below).

From (001) came 796 pieces of worked flint, a small quantity of sarsen (both fractured and worked) and 78g of small sherds/crumbs of pottery in a flint-tempered fabric (probably Peterborough Ware). The worked flint was concentrated in the south-eastern corner of the trench, and in a band to the west of this running SE-NW parallel to the Avenue (Figure 9). It includes 59 classifiable implements (principally scrapers and microdenticulates) and 79 miscellaneous retouched and utilised pieces.



Figure 8 - Trench 3 in late stage of excavation, looking south-east along the line of the West Kennet Avenue © Aerial-Cam

There was a well-defined boundary between (001) and a worm-sorted stony horizon (002) below. Around 0.03-0.05m thick, (002) was a brown silt clay loam with abundant small flint, occasional chalk and rare sarsen (equivalent to (007) in Trench 2). It was excavated in metre square units (numbered 300-399, starting in the north-west corner) and all the deposit sieved. As in Trench 2, this was also sampled on a systematic one metre grid for multi-element analysis (ICP-AES) and magnetic susceptibility (results forthcoming). Large quantities of fresh worked flint (1187 pieces in total), 236g of Peterborough Ware (Ebbsfleet, and perhaps Mortlake), and a small quantity of fractured sarsen were recovered from this. Replicating Keiller's observations that scrapers were often encountered in groups of two or more, from square 373 came a cluster of four scrapers found together. There was no sign of a cut within which these sat, and so it is likely they were deposited on the Neolithic surface as a group. Keiller's fieldwork notes recount the regular discovery of scrapers in groups of two or more during the 1934 excavations (Keiller nd. Alexander Keiller Museum). The overall distribution of worked flint was slightly divergent from that of (001), and raises the tantalising possibility that the soil horizons might preserve an element of stratigraphic sequence. In (002) there again existed a concentration of lithics towards the south-east corner of the trench, but with a marked concentration towards the north part of the trench and other more localised 'highs' in a horseshoe-like distribution around an area of very low density extending from the west into the centre of the trench (Figure 9). The distribution of scrapers and microdenticulates (the predominant implement type) very closely followed this 'horseshoe' trend (Figure 10). The distribution of ceramics varies in detail from that of worked flint, but still preserves the 'quiet space' in the western corner of the trench.

Both flint and ceramic distributions make more sense when plotted against the plan of underlying features (Figure 9). This highlights how the bulk of the ceramics form a halo of around a tree-throw pit (F.3) in the south-eastern part of the trench, while other sherds are more generally distributed to the north of this. The two densest concentrations of worked flint likewise correlate with the presence of underlying features: one, again, to tree-throw pit F.3; the other to a linear feature, F.12, and small pit, F.6, in the northern part of the trench. Most striking though is how the zone of lowest lithic and ceramic density maps onto a putative stake-hole structure in the western corner of the trench, suggesting a space maintained clean of debris.

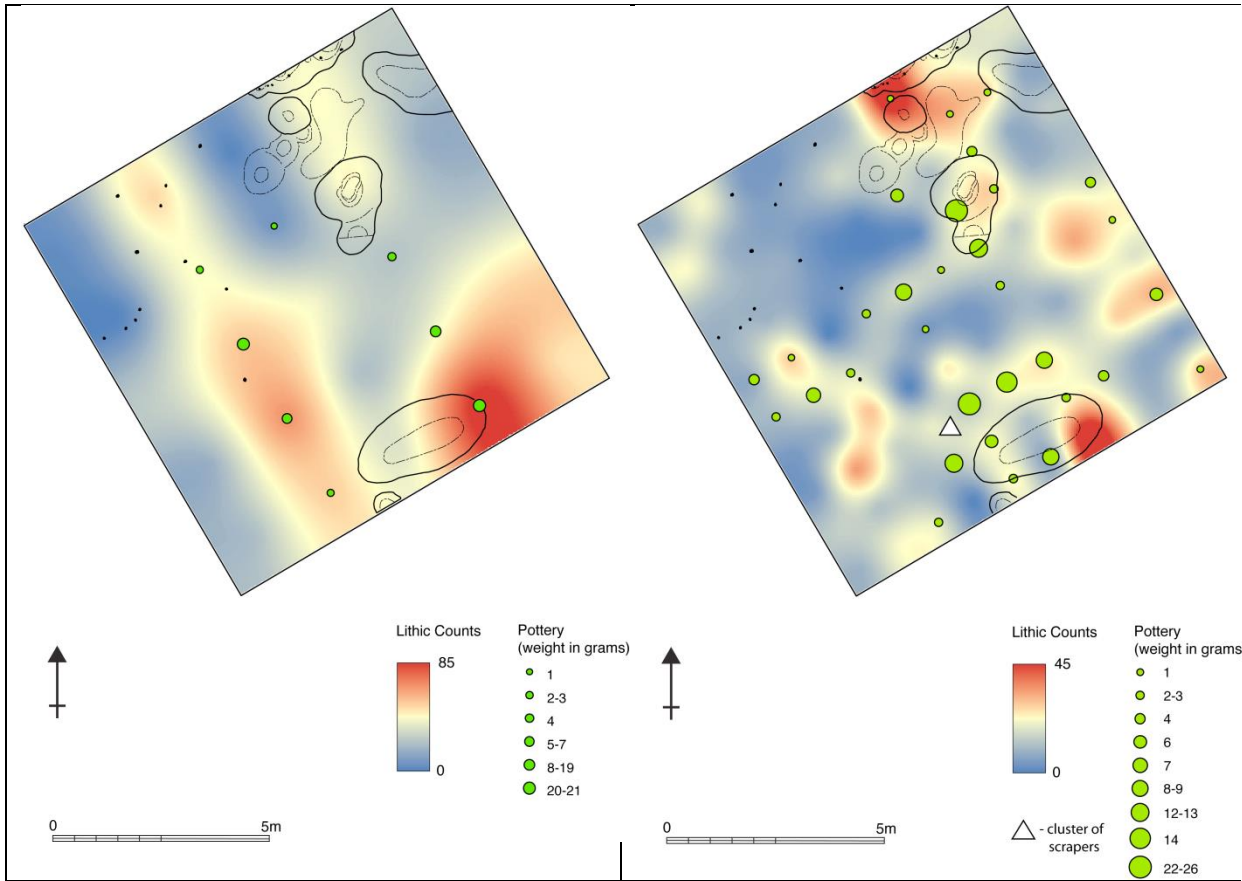


Figure 9 - Distribution of worked flint and prehistoric pottery from: left, [001]; and right, [002]

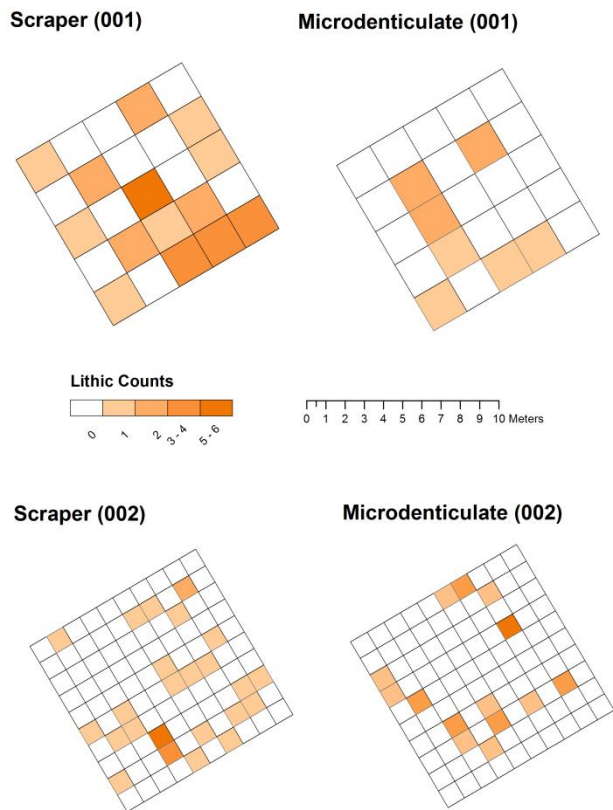


Figure 10 - Distributions of scrapers and microdenticates from [001] and [002]

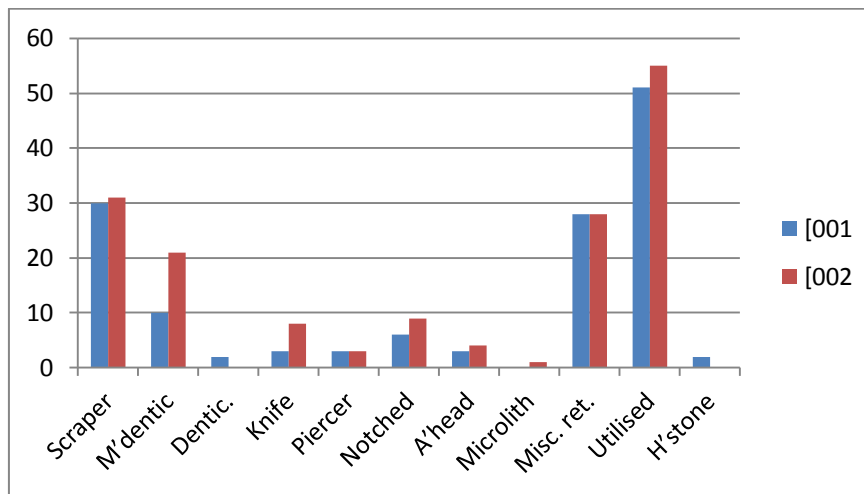


Figure 11 - Composition of flint implement assemblages from [001] and [002]

Features

Following removal of the soil deposits a number of features were visible cut into the natural. Two of these (F.5: cut [019], fill (012); and F.8: cut [025], fill (024)) proved upon excavation to be natural solution holes (Figure 12). With depth they became increasingly irregular in shape and profile and terminated in distinct solution pipes. They were filled with an homogeneous mid orange-brown clayey silt, from which artefactual material was absent.

Even after removal of (001) a series of three large soil-filled hollows were becoming visible in the southern and eastern part of the trench. That they retained a 'topographic presence' is telling of the remarkable preservation across the site, afforded by the absence of later plough disturbance and truncation. Upon excavation the three hollows (F.1-F.3) were found to be tree-throw pits that pre-dated the Neolithic occupation. F.1 (cut = [016]) extended into the north-east side of the trench. Sub-oval, >1.9 x 1.05m in maximum dimension, and up to 0.45m deep, its sides were steep to moderate, merging with an uneven base pock-marked by solution holes. Its fill, 008, comprised a largely homogenous brown clayey silt with little flint, a little darker towards its southern side. F.2 (cut = [017]) was located 1.5m to the south of F.1. Again, it was sub-oval, 1.95 x 1.30m across, though noticeably deeper than F.1 at 0.75m deep. Its sides were moderate on the south and west, and very steep on north, merging with an irregular base. The fill, (009), was a friable brown clayey silt, from the upper part of which came six sherds of Peterborough Ware. F.3 (cut = [018]) was located close to and parallel with the south-eastern trench edge. Morphologically it was similar to F.1 and F.2, though slightly more elongated, 3.20 x 1.65m in dimension and 0.50m deep. Its sides were moderate, steeper in the lower profile, and merging with undulating base, again cut through by solution pipes. It was filled with a mid brown clayey silt, (010). A number of medium-sized angular flint pieces were present in the lower part of the fill. A discrete cluster of worked flint, including cores and primary flakes, along with two sherds of Peterborough Ware, was present in the centre of the feature in the upper 0.05m of fill. From lower in the fill came a segment of large patinated blade, quite different to the rest of the flintwork on site and possibly of Upper Palaeolithic or Early Mesolithic date.

Several smaller cut features can be linked more directly to the Neolithic occupation. The richest of these in terms of artefactual and ecofactual material was pit F.6, located close to the

north-west edge of the trench. Well cut, the pit [021] was oval, 1.0 x 0.8m and 0.3m deep, with sides steep and regular merging with a dished base (subsequently penetrated by solution holes). A single dumped fill, (020), comprised a dark grey-brown clay loam with frequent charcoal flecks, occasional burnt sarsen, burnt antler fragments and localised patches of darker soil. A large quantity of worked flint was recovered from the fill, including a scraper and fine microdebitage. The fill looks to comprise a mixture of hearth debris, soil and knapping waste.

A second pit of similar dimensions, F.9, was located just to the south of F.6. This was cut on its northern side by a smaller pit, F.33. While F.33 clipped F.6, a relationship could not here be established. F.9 (cut = [027]) was oval, 1.0 x 0.8m, and up to 0.33m deep, with moderate to steep sides. Its lower fill, (031), largely confined to the sides of the feature, comprised fine chalk rubble within an orange-grey-brown clayey silt. Set within and overlying this was a dark grey-brown clay loam, (028), from which came a fresh flint blade. The shallow, oval pit set between F.6 and 9, F.33 (cut = [066]), was 0.65m in diameter and 0.18m deep. While containing a similar dark grey-brown clay loam fill to that within F.9, here the matrix of (026) included abundant medium-sized flint nodules and angular shattered pieces. It was noticeable that a crescent-shaped area of c.2 x 1m of the sorted horizon (002) to the immediate east of F.6 and F.33 contained a greater density of medium-sized flint pieces. While not recorded separately, this may represent a zone of up-cast or a made surface linked to the pits.

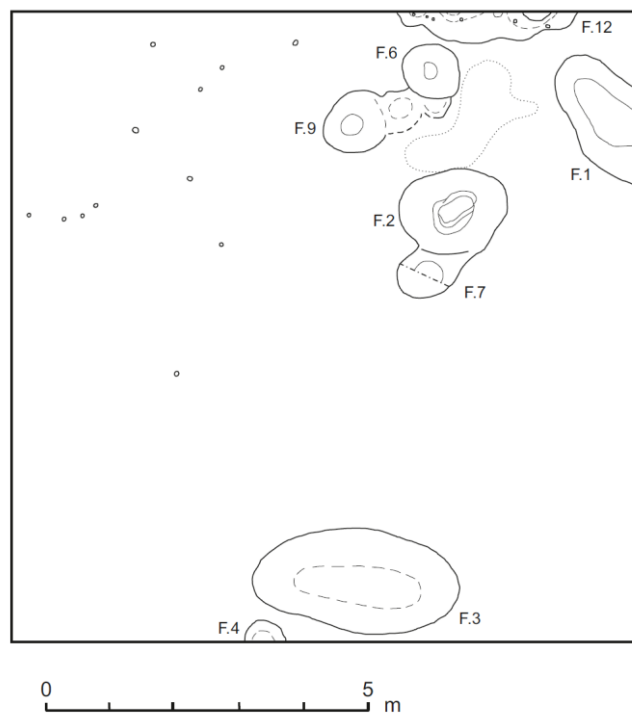


Figure 12 - Excavated features in Trench 3

The most enigmatic of the cut features was the linear pit/slot F.12. Its interpretation is made difficult because most of this lay outside the area of excavation, the feature running parallel to and bisected by the north-west trench edge. Apparently dug as a series of at least four conjoined bowl-shaped cuts (each 0.2-0.5m in diameter), F.12 (cut [033]) was identified as 2.9m in length. Over 0.5m wide and between 0.15-0.50m deep, it preserves a multi-lobate

plan; the sides merging with a markedly undulating base, deepest at its eastern end. Within the base and following the line of the cut were six possible stake-holes, F.27-32. F.28 and F.32 were excavated, and found to be 0.04 and 0.06m in diameter and 0.07 and 0.09m deep, respectively. The whole feature was filled with a dark orange-brown clay loam, (032), soft to moderate in compaction. Some charcoal flecking was present in the deeper parts of the fill.

Two small pits to the south of the F.6, F.9, F.12 and F.33 cluster are of uncertain origin. F.7 might be an extension of tree-throw F.2 (no clear relationship could be established between the two, despite slight overlap). The cut [023] was oval 0.85 x >0.7m, and only 0.12m deep. Its sides were very steep with a defined junction to a slightly undulating base. The fill, (022), comprised an homogenous orange-brown clayey silt. From this came a very fresh piece of medium-sized mammal bone, which may be intrusive given its condition within these acidic soils, and a small amount of burnt flint. F.4, which extended beyond the south-eastern edge of the trench, comprised a sub-oval cut, [015], 0.7 x >0.4m and 0.25m deep, with steep sides merging with a dished base. It was filled with an homogeneous orange-brown clayey silt, (011).

Stake-holes

Following a thorough clean of the surface of the natural, 12 certain and probable stake-holes were identified (F.15-26), concentrated in the western half of the trench. Their distribution is not random. Six of these – F.15-20 – describe a flattened arc that extends across the north-western corner of the trench, perhaps forming one corner of a small fenced enclosure or even house. The remaining six are clustered within the same general area suggesting they share a structural relationship. Their depths range between 0.06-0.17m, and diameters are consistent within a range 0.04-0.06m (Table 1). A further six stake-holes were recorded but not excavated within the base of F.12.

Feature	Cut	Fill	Diam. (m.)	Depth (m.)
F.15	[039]	(038)	0.05	0.08
F.16	[041]	(040)	0.05	0.07
F.17	[043]	(042)	0.05	0.06
F.18	[045]	(044)	0.05	0.08
F.19	[047]	(046)	0.06	0.07
F.20	[049]	(048)	0.05	0.06
F.21	[051]	(050)	0.04	0.07
F.22	[053]	(052)	0.05	0.06
F.23	[055]	(054)	0.05	0.06
F.24	[057]	(056)	0.05	0.08
F.25	[059]	(058)	0.05	0.12
F.26	[061]	(060)	0.05	0.17

Table 1 – Excavated stake-holes, Trench 3

Trench 2

Trench 2 was sighted with three principal objectives. First, to sample the occupation site to the immediate north-west of the peak in lithic frequency recorded in Keiller's so called 'right cutting' (Smith 1965: fig 73) the westernmost of his linear trenches. Second, by overlapping with the south-west edge of Keiller's cutting, to provide a direct physical link with the 1934 excavation area and deposits Keiller excavated. Third, to attempt to ground truth the diffuse

sub-circular anomaly revealed in the soil resistance results. Originally intended to cover 150m², in practice only a quarter of this L-shaped trench was fully explored by the close of excavation in 2013 (see cover photo). Work here will be completed in 2014.

Directly beneath the turf was a thin (0.05m) layer of friable, grey-brown clay loam (003) containing small fragments of flint. Finds included post-medieval CBM and pottery, glass and ferrous material, the latter including a large piece of cast-iron plough-share. This sealed a friable, well-sorted brown clay loam with little flint or chalk (004). Around 0.25m deep at the north-western edge of the trench, this soil became deeper towards the south-east (c.0.35m) where it could be seen to be filling a slight coombe running broadly east-west off Waden Hill. A continuation of the (001) deposit excavated in Trench 3, the very well-sorted nature of this soil suggested that it had not witnessed sustained disturbance or ploughing. As a result, there was the potential for artefact deposition patterns to have retained a degree of spatial integrity. As in the case of (001) the bulk of recovered artefactual material came from the base of this deposit, just above a sorted horizon (007) comprising a mid orange-brown silty clay with moderate quantities of flint along with rare pieces of sarsen. Some 0.1m thick, this sat directly above the coombe rock natural and periglacial striping. The sorted horizon (007) was sampled on a systematic one metre grid for multi-element analysis (ICP-AES) and magnetic susceptibility.

Features

Cutting through the (003) deposit were two features relating to Keiller's 1934 excavation. At the far northeast end, the trench intersected with the south-western edge of Keiller's 'right cutting' (F.10); a 2.3m wide section of which [006] was exposed over a distance of 5m. Its depth varied from 0.5m at the north to 0.6m at the south, reflecting a comparable dip in surface topography. The base of the Keiller trench was remarkably flat, and it was clear that his workmen had planed off the top c.0.1m of the natural in order to produce a cleaner surface, presumably to aid in the identification of cut features in the 'noisy' coombe rock. The floor of the trench had evidently been kept clean up to the point of backfill, since there was no sign of trample. The backfill (005) came cleanly off the base and walls of the trench. At the northernmost end a dump of re-deposited natural was encountered, otherwise the fill comprised a poorly sorted orange-brown silty clay with flint and chalk pieces, of variable compaction (005). Finds were limited to a small amount of worked flint, suggesting quite rigorous recovery, alongside an iron survey arrow, some copper wire and a late Roman coin. In an effort to further explore the extent of the occupation site, Keiller had enlarged his right cutting through a 100 x 20ft extension; the very north-western edge of this feature was also intersected by Trench 2 (F.11, cut [029]). The fill – a mid brown silty clay containing flecks of chalk and occasional pieces of angular flint (030) – was extremely hard to distinguish from the colluvial soil (004) through which it had been dug, being characterised (retrospectively) by a very compacted crust on its surface consistent with it having been deliberately tamped down. This, combined with the relatively small strip intersected by Trench 2 (only 0.26-0.47m of the length of this cut was exposed) and its excavation via alternating 1 x 1m samples, meant that this feature only became apparent where it cut through the sorted, flint-rich horizon at the base of the colluvial soil (007). In keeping with F.11, the surviving profile suggested vertical sides and a planed level base.

With the exception of the 1934 excavation trenches, only two other features were encountered in the portion of Trench 2 investigated. Visible across an area of 0.6 x 0.45m of sample square 2306 and disturbing (004) and (007) was an animal burrow, F.13. Curving in plan and tubular in profile where it intersected the edge of the sample square, the fill of this

comprised a mid-brown silty clay, moderately compacted and containing chalk flecking (035).

Sealed by the (007) in the centre of the trench was a tree-throw (F.14, cut [036]). Half-sectioned, this was >1.5 x 1.9m in maximum dimension. Sub-oval, the sides sloped shallowly in the upper profile, becoming almost vertical to merge with a slightly dished base at a depth of 0.3m pock-marked by solution holes. The feature was filled by a reasonably compact brown silty clay, largely stone-free with sparse chalk flecking (037). Marking the edge of the feature was a large angular lump of sarsen (max. 0.3m), with a further substantial (0.2m) sarsen block sitting on the surface of the fill towards the centre of the feature; neither displayed any indication of deliberate working or shaping.

By the close of excavation, only two sample squares were excavated across the projected line of the oval geophysical survey anomaly (squares 2405 and 2306); too small a window to conclusively identify the source of this feature. To compound this one of the squares (2405) contained the cut of Keiller's extension trench, whilst the other (2306) had been badly disturbed by animal burrowing. As a result, the ground-truthing of this anomaly must await further excavation in 2014.

Ge archaeology of the soils along the Avebury Avenue, 2013 (WKA-13)

Michael J. Allen

Introduction

During the excavations on the West Kennet Avenue occupation site (Trenches 2 and 3), examination of the topsoil profile (Allen site visit 27/7/13; Allen 2013) indicated a well-developed brown rendzina (or immature typical brown earth) soil. Many of the artefacts have been worm-worked down the profile towards the worm-worked stony horizon. The well-developed nature of the structure (Figure 13), suggests that this has not been disturbed or ploughed, probably for centuries, if indeed ever.

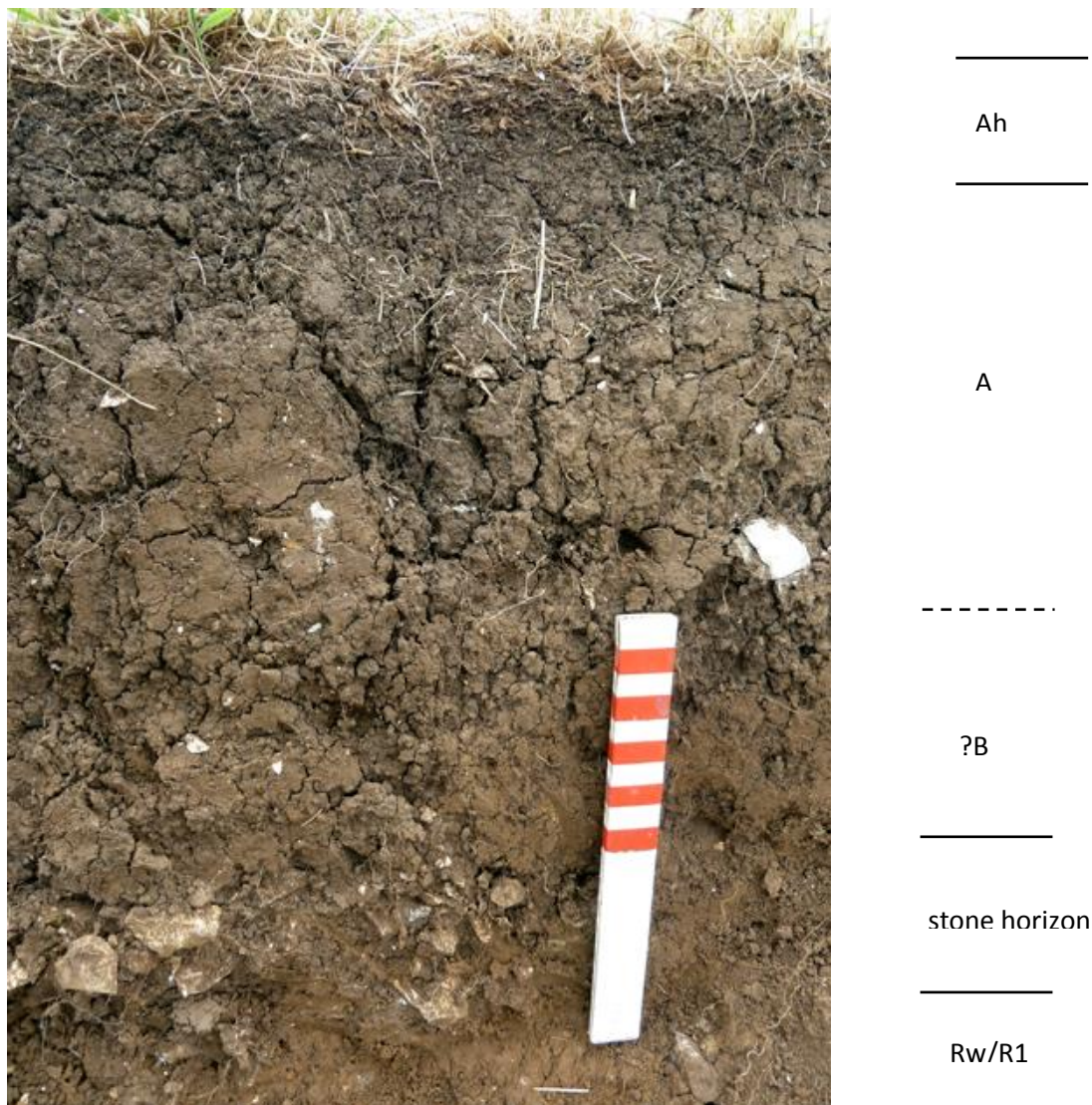


Figure 13 – Well-developed and well worm-worked topsoil

The presence of a well-developed rendzina is itself important and has implication for the site and land-use history, but also for the taphonomy of the excavated artefacts.

Potential and Implications

The deeply developed rendzina has an extensive nearly-basal worm-worked stone horizon lying over the present parent material (periglacial gelifluction or solifluction deposits). This horizon, other than features, contains the majority of the archaeological artefacts, and represents an *in situ* surface-site that has been preserved; protected and lowered into the soil and stone-horizon by the action of an extensive period of worm-working under pasture conditions.

This soil is readily identifiable in the excavation due to its well-defined structure, which can be recognised in, for instance, an auger profile. Needless to say, the presence and distribution of this potentially unploughed soil, which will be confirmed by soil micromorphological analysis by C. French), has clear preservation, management, archaeological and research potential.

Soils and soil mapping

It was considered during the excavation that an auger survey would therefore enable mapping of the:

- extent of unploughed and undisturbed soil vs ploughed or disturbed thinner soils
- areas of greater preservation of potential subsoil artefacts
- presence and/or potential for preservation of ‘midden’-type deposits, as encountered by Keiller (Smith 1965, 210-6), and of any archaeological features

The aims of the auger survey were therefore:

- to map the area of well-developed (unploughed) soil, and record this within the Between the Monuments GIS
- to relate this to the topography, the Avenue, and the midden;
- to identify and define the extent and limits of this well-developed soil initially adjacent to the areas targeted for excavation and thus surveyed previously.
- to identify areas of potential middening as seen by Keiller (Smith 1965, 210-6)
- to identify any areas of colluvial accumulation which might bury, obscure and preserve archaeologically relevant deposits

This programme of fieldwork augmented the excavation (summer of 2013) with a minimally-intrusive programme of augering of the area to the south of Avebury and along the ridge between Rough Leaze and Waden Hill, and the West Kennet occupation site. In so doing it continues and extends recent investigations carried out under the aegis of *Between the Monuments* (Allen & Snashall 2009, Pollard *et al.* 2012b).

Methods

Between 1st - 8th August 2013 the site was visited five times. Mapping of the extent of the deep rendzina soil, areas of colluvial build-up, and potential midden, was achieved through augering a series of transects (Figure 14), directly related to the excavation. This was augmented by a series of auger records carried out on a probabilistic basis (i.e. following up the results and targeting the edges of mapped deposits).

Augering was conducted using a 50mm diameter dutch (edleman) combination hand auger, at defined or appropriate intervals of 25m or 50m. Additional auger points were conducted

along the transects to clarify the extent and edges of mapped deposits. Augering did not purposefully penetrate archaeological features (if it seemed likely that the auger had penetrated topsoil and was potentially recording an archaeological, as opposed to periglacial, feature, further auger penetration was halted).

Deposit descriptions such as colour, texture and presence of stones were recorded. All auger points were recorded by the excavation team and integrated into the project survey database and GIS. In practice four transects were recorded. The main north south transect, 275m long and encompassing the excavation and proposed excavation trenches, comprised 18 auger holes and profiles. Three transects perpendicular to this were also recorded, each with six auger records. The resultant 36 profiles were augmented by two additional profiles exposed by the excavation, and the features fill-deposits recorded in part 2. In total over 40 profiles were recorded (details held in archive).

The soils

The area of survey is a strip of land encompassing the Avenue at the foot of Waden Hill. It is currently in long-established pasture. It is bounded to the west by a footslope lynchet, now largely under cultivation, and the east by land by the current road running just above the valley bottom east of the excavations. North of the excavation the land rises gently. This subtle topography is reflected in the mapped soils. The soils are mapped by the Soil Survey of England & Wales as typical brown calcareous earths of the Blewbury and Coombe 1 Associations. The fieldwork here records soils which broadly fall into this class.

The soil as exposed in excavation was a weakly calcareous well-developed rendzina, or even a weakly developed brown earth over coombe deposits with periglacial features. The well-developed brown rendzina had notable well-developed structure, and a deep stone-free worm-worked horizon. In many places a possible B horizon (or silty Rw in periglacial features) was present suggesting a shallow typical brown earth. The well-developed structure and deep worm-worked horizon suggests the absence of cultivation for centuries, which if correct, may suggest that previous cultivation was archaeological (prehistoric to Roman or early medieval times).

Mapped soil distribution

The area mapped is one of approximately 22,500m² at the foot of Waden Hill running along the line of the Avenue and encompassing the excavation and proposed excavation area. This strip about 300m long and 75m wide was seen to contain three main distinctive soil types. These are mapped in Figure 14.

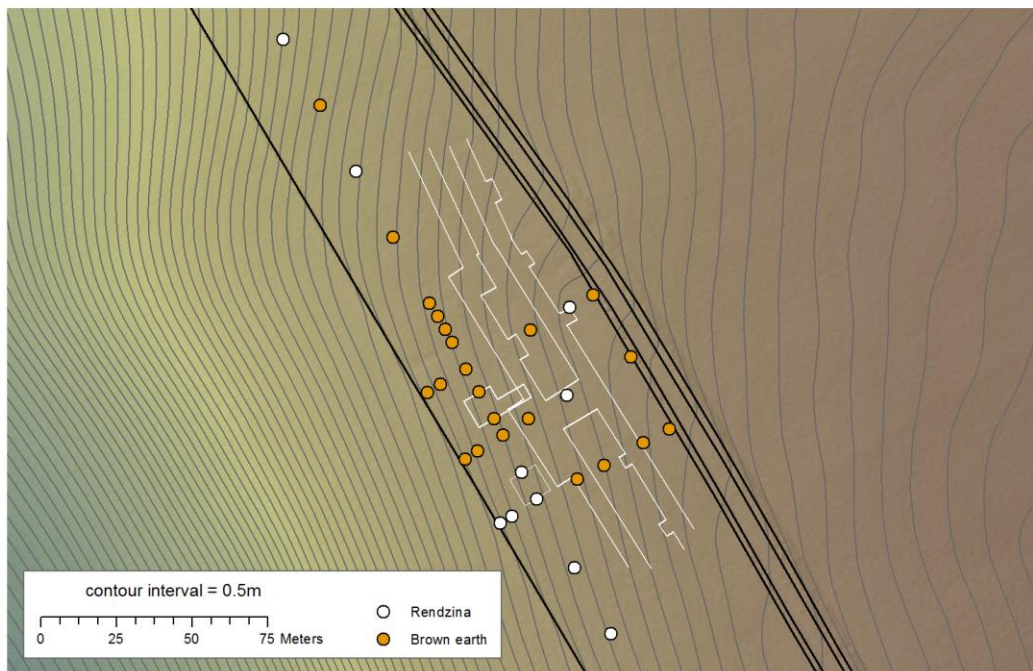


Figure 14 – Auger survey results (black dots are stones). Survey by M. Gillings, soil mapping M. Allen

Three main soils are present: as the Avenue rises up the slope to the north of the excavations, the soils are mapped as grey rendzinas. These are thin (typically 0.3m thick) long-term pasture soils with a calcareous lower A horizon comprising a yellowish brown silt loam with many chalk pieces common on the long-term pasture downland. Most of the area seems to contain a well-developed relatively thick (about 0.4 to 0.45m thick) brown rendzina with a very deep worm-worked stone-free horizon and a basal, or near-basal, stony horizon. More locally are colluvial brown earths or brown earths. The northern most of these is a highly localised zone corresponding to a small dry valley or undulation in the slope. A small strip to the east lies on the opposite valley bottom edge, while the most extensive colluvial brown earth, brown earth or very deep brown rendzinas lie on the flat land to the west of the Avenue, exposed in trench 2 and encompassing the area of the proposed excavation Trench 1.

In summary, Trench 3 revealed a well-developed deep rendzina and incipient brown earth with a well-defined, deep worm-worked A horizon, well-developed structure and a basal or near basal stony layer. Trench 2 was a colluvial brown earth (a more developed form of the profile in Trench 3) again with a worm-worked stone-horizon near the base. The area of Trench 1 was a colluvial brown earth, possibly more chalky but otherwise as Trench 2.

Implications

As intimated in the introduction, all the soils have very well developed stone-free or nearly stone-free horizons suggesting long-term grassland and pasture, and some of the deeper profiles may question whether these have ever been tilled.

The relatively thick grey rendzinas survived on the south facing slope, and brown rendzinas were more concentrated in the local valley floor. The presence and location of the deeper colluvial brown earths is of particular interest. The deeper colluvial soils in the shallow undulation to the north are readily explained by local colluviation. Those on either side of the

Avenue are, however, more interesting and potentially more significant. To the east, the limited zone is represented in three auger holes located near the road's edge, which lies above the valley floor. That to the west, is much larger and more significant. Topographically these are on a slight level 'plateau' and the nature of the soils here may, in part, reflect that subtle topography. They may however, reflect a concentration of anthropogenic activity and middening, etc., with their location protecting the profiles from subsequent tillage, denudation and erosion, making them a rare survival in the chalklands of southern England.

Discussion and potential

Land-use history

The presence of well-developed thick ancient rendzinas on the chalkland of southern England is almost unprecedented. They have the potential to provide important information about how the local and regional soil developed, and consequently of the land-use history. We have already tentatively suggested that the land-use history for the Avebury area does not follow the normal wide-spread prehistoric land-use history (Allen & Gardiner 2009) and the discovery of these deposits has the potential to further refine and finesses this suggestion. The soils indicate the presence of well-developed rendzinas and shallow incident brown earths, with a little colluvial input, weathering into the chalk. This indicates long-term stable grassland soils and at present little evidence of a former climatic optimum woodland cover.

Implications for the origin/nature of the artefact distributions

These are unploughed soils and the artefacts are not derived from archaeological features as is commonly seen from ploughzone assemblages on most archaeological sites (cf. Schofield 1991). These are essentially *in situ* contemporaneous prehistoric surface distributions of artefacts that have been worm-worked into the stony horizon. They are, therefore, non-feature artefact distributions relating to settlement/occupation activity. Well-preserved distributions such as this are exceptionally rare.

Why is the soil so thick here?

The soil thickness is in part due the lack of soil disruption (ploughing etc.), and the lack of erosion from this location leading to long-term soil development. The thickness and nature of the soil may also be influenced by anthropogenic activity (occupation, ?increased organic input (artefactual and faecal, etc.)), which may have had some role in the soil formation history.

Why is there variation in the soil distribution?

The variation as mapped is a result of a combination of topographic, pedogenic and anthropogenic factors. The local subtle topography has led to minor colluvial deposition in undulations in the slope, and as ploughwash in the footslope lynchet (not examined or mapped). Topography may also play a part in the occurrence of the brown earths and colluvial brown earths on the eastern side of the mapped area. Conversely, the presence of the thicker brown earths, colluvial brown earths, and thicker rendzinas mapped over the area of the excavations is presumed to be not topographical, but potentially anthropogenic.

What is the soil history? ... and what can this tell us about past human activity?

One of the research aims is to define the soil history via soil micromorphological analysis and further examination and discussion of the data reported here will take place alongside that obtained from the 2014 season. As a result, any attempt to provide a definitive answer to this

question is premature. What is clear is that the soil development history will provide information the local vegetation status (any former woodland soils / duration of grassland conditions) which itself is of direct relevance to the activity not just at the Avenue, but at Avebury itself (cf. Allen & Gardiner 2009).

B2, 25-33cm	8.05	7.1	2.78	140	1.44	16	3.22	1950	1120	25	41	90
B3, 34-46cm	8.05	29.1	2.75	140	1.37	18	3.16	1870	1160	25	39	91
B4, 48-5	8.1	17.6	2.5	130	2.95	17	3.15	1750	1230	21	60	84

Table 2 – pH and selected multi-element analysis results

Soil micromorphology results

Both profiles were similar in their characteristics, but with several soil features better developed and over a greater depth present in Profile B, Trench 2, with particularly well expressed fabric features present in the basal sample (B4).

Profile A in Trench 3 revealed a well structured but bioturbated, reddish brown fine sandy clay loam with strong staining with amorphous sesquioxides throughout (Figure 15i). Towards the base of the *c.*26cm thick soil profile, the intensity of sesquioxide impregnation lessened considerably and there is a more intense presence of dusty clay throughout the groundmass at *c.*19-25cm down-profile (Figure 15ii), just above the weathered chalk rubble of the B/C horizon.

Profile B in Trench 2 is essentially a thicker and better developed version of Profile A, with an overall thickness of *c.*53cm, but which tells the same story. Beneath the modern turf line is a sub-angular blocky to aggregated reddish brown fine sandy loam with strong staining with amorphous sesquioxides throughout. This staining lessens considerably in the lower *c.*13cm of the profile, and there is abundant dusty clay formation in the groundmass and coating sand grains and lining voids in the basal *c.*5cm of the profile, just above the weathered chalk rubble forming the B/C horizon (Figures 15iii & 15iv).

Both these profiles are representative of the edge of trench profiles exposed in these excavations. They are typical of a modern turfed rendzina soil developed over a variably preserved and developed buried B horizon, all developed on a weathered chalk substrate. This latter B horizon, in which most of the archaeological features define, is clearly a weathered B or cambic B horizon of a brown earth (Bridges 1978; Limbrey 1975). The presence of this soil type is quite unusual in the otherwise generally plough-damaged and very eroded chalk downlands of this part of southern England (French *et al.* 2007, 2012). But, this may be a coincidence of its location at the base of the adjacent slope and in association with the West Kennet Avenue. The presence of this brown earth soil type prior to rendzina soil formation mirrors evidence obtained at both Durrington Walls and its vicinity (French *et al.* 2012) and in the upper Allen Valley of Cranborne Chase (French *et al.* 2007). The implication of this finding is that these brown earth soils were once much more common and had a much more extensive presence of brown earths in the later Neolithic on the chalk downlands of southern England, even though these soils had had probably already undergone much transformation, disturbance, erosion and thinning.

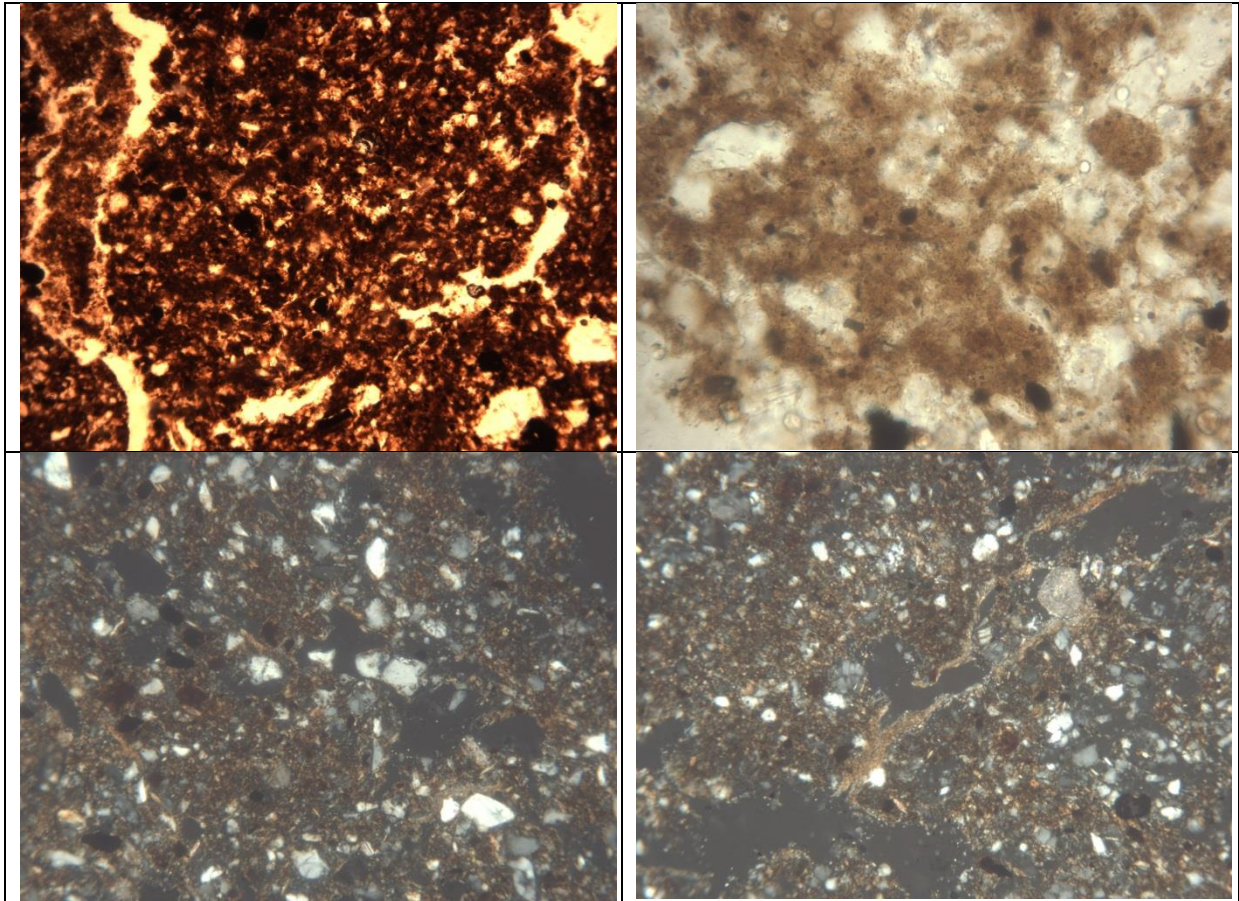


Figure 15 – Soil photomicrographs: i. (top left) of the amorphous sesquioxide reddened fine sandy clay loam A1 horizon fabric, sample A1 (frame width = 4.5mm; plane polarized light); ii. (top right) of the dusty clay dominated groundmass, sample A2/2 (frame width = 2.25mm; plane polarized light); iii. (bottom left) of the weakly reticulate striated dusty clay Bw fabric towards the base of Profile B, sample B4 (frame width = 2.25mm; cross polarized light); iv. (bottom right) of dusty clay and micritic channel linings towards the base of Profile B, sample B4 (frame width = 2.25mm; cross polarized light)

General Discussion

It was only possible to investigate two of the proposed five trenches during 2013, and only one of these (Trench 3) was completed; this is entirely due to the unexpected depth of the soil and a desire not to compromise investigation of the rich surface archaeology. Work simply took more time than anticipated. Excavation will resume during summer 2014, and will see the completion of the proposed programme of investigation.

The site is clearly exceptional in comprising an area of Neolithic settlement within the heart of the Avebury landscape where surface deposits survive *in situ*. Granted there has been post-depositional transformation – the acidic/decalcified soils and biological activity have removed any bone that may have been present, material has been moved vertically through the soil profile through worm action, and much of the organic component that may have existed within the surface deposits has gone – but to have such a large area of preserved occupation deposit surviving without covering material and within a heavily arable landscape is simply remarkable. Comparison might be drawn with the late Neolithic settlement archaeology at Durrington Walls, here preserved through being sealed by the bank of the later henge (Parker Pearson 2007).

As Allen notes (above), the presence of unploughed, well-developed thick ancient rendzinas containing *in situ* Neolithic artefact scatters on the chalkland of southern England is almost unprecedented. Their survival may be due to a combination of factors relating to both the nature of the Neolithic settlement and subsequent land-use. On the one hand, the thickness and nature of the soil as mapped by both auger and geophysical survey may be influenced by anthropogenic activity, notably occupation resulting in increased organic and artefactual input – perhaps middening; while the later creation and survival of a section of the megalithic West Kennet Avenue undoubtedly limited the possibilities for Roman, Medieval and later ploughing. A limited episode of ploughing may have taken place close to the stones during the late 19th-early 20th century (as indicated by the ‘manure’ spread of CBM and post-medieval ceramics in the very top of the soil profile), but this was very superficial.

Work in 2013 by no means defined the limits of the site, which is perhaps best mapped by the extent of the colluvial brown earth deposit, geophysical survey results and the distribution of artefacts mapped by Keiller’s work. Using these measures, it might be conservatively estimated to occupy an area of c.180 x 80 m, extending along the foot of the slope provided by Waden Hill.

Within Trench 3 the artefact scatter was closely related (as evidenced by complementary distributions) to a series of sub-surface features, including tree-throw pits, dug pits and a possible stake-hole structure. That the tree-throws contained Neolithic material within their upper fills only confirms their origin earlier in the Holocene, although they still survived as hollows in the period of Neolithic occupation, the resulting undulations perhaps making this part of the site more suitable for refuse deposition than direct occupation. Largely kept clean of sizeable refuse, with a projected diameter of c.5m it is tempting to see the curved stake-hole arrangement in the western corner of the trench as representing a house structure analogous to those at Upper Ninepence and Trelystan, Powys (Gibson 1996), or Durrington Walls (Parker Pearson 2007). The linear cut F.12, to the north-east, may also be structural, providing a bedding trench for earth-fast posts. Only further excavation can confirm if one or both are indeed parts of contemporary houses.

The artefactual assemblage from the soil in Trench 3 matches closely that recovered by Keiller and reported upon by Smith (1965, 233-43). The lithics include numerous and often finely worked scrapers, microdenticulates, a range of lightly retouched/utilised straight-edged flakes and several chisel arrowheads. Several implements and pieces of debitage exhibit faceted platforms, and discoidal cores are also well represented. Although defined at the time as a model of a Late Neolithic assemblage (with Smith's metric analysis of the debitage providing a morphological benchmark for the assemblages from Durrington Walls, Mount Pleasant and elsewhere: Wainwright 1979, Wainwright & Longworth 1971), it is now recognised that these elements and the Peterborough ceramics with which they are here associated belong to a distinct Middle Neolithic horizon (c.3400-2900 BC). This dates the occupation within the area of Trench 3, which is notable for the absence of diagnostically later material. A small component of the assemblage is, however, of Mesolithic and early Neolithic date, though the possibility of these pieces being curated/collected cannot be ruled out. We are in the process of obtaining radiocarbon dates from short-lived charcoal/plant material contained within the pits.

The balance of the Trench 3 lithic assemblage is notable, with few cores, an 'under-representation' of primary/preparation flakes, and a high incidence of implements and utilised pieces – a profile very much in keeping with a settlement role for this part of the site. All the flint is incredibly fresh, and there are several instances where flakes from single squares look as though they may refit, or were at least struck from the same core. Future analysis will include a programme of refitting in order to investigate processes of working and discard on the site. It is striking that some of the individual square assemblages have the compositional character of those regularly found in contemporary (Peterborough and Grooved Ware-related) pits, offering a tantalising hint of being able at last to assess just how 'selected' those feature-based collections are (Anderson-Whymark & Thomas 2011).

Cursory examination suggests significant differences in the character of the finds assemblages from Trench 2 and 3, despite their being separated by only 20m. Aside from a few possible Mesolithic pieces, the lithic assemblage from Trench 3 is very homogenous and looks to relate to a single period of activity that sits within last centuries of the 4th millennium BC. That from Trench 2 includes implements belonging to the earlier and later Neolithic (including leaf-shaped, chisel and oblique arrowheads) and early Bronze Age (a large barb-and-tanged arrowhead and semi-invasively retouched scrapers). It has a much broader span and gives the sense of a more persistent place. Some at least of this material was generated/deposited at the time of the Avenue's construction and in the immediate centuries after. In this instance, it may not be settlement related and its true character should become apparent following the completion of excavation in 2014.

PART II: Foot of Avebury Down, surface collection 2013

Surface collection during the 1920s by H.G.O. Kendall and W.E.V. Young identified a discrete but dense scatter of Neolithic flintwork (Holgate 1988, table 4) on the mid slope of Avebury Down/Big Penning c.1.2km to the east of Avebury (SU 114703). Both early and middle-late Neolithic flintwork is reported from the scatter, including 250 scrapers, 37 piercers, 24 rods/fabricators, 11 leaf-shaped and 21 transverse arrowheads, and a relatively large number of ground and flaked axe fragments (31 and 25 respectively). Telling of collection policies of the time, debitage is under-represented among the 818 pieces recorded by Holgate in museum collections (Holgate 1988, table 4). Overlooking the henge and southern slopes of Windmill Hill, the site occupies a commanding and significant landscape location. It is this, along with its distinctive lithic component, that leads us to believe it occupies an important place in the history of Neolithic settlement in the region. The scatter was not investigated as part of the Holgate and Thomas 1983 survey (Holgate 1987), nor has it been subject to any other form of systematic investigation. It is also unlikely to have suffered the same degree of depletion through casual collection as other major lithic scatters such as that on the southern slope of Windmill Hill (Whittle *et al.* 2000).

The scatter's position was relocated in 2006 by Jim Gunter, Ros Cleal, Nick Snashall and Joshua Pollard; a grab sample collection being made at the time. 181 pieces of worked flint were collected over a two-hour period. Details are given in Table 3. A number of implements/retouched pieces were recovered (accounting for 9.9% of the assemblage), including eight notched flakes, a piercer and two bifacially worked pieces, one of which might be the broken handle of a sickle, elaborate knife or fabricator. The cores are predominantly irregular, multi-platform forms from which flakes had been removed; and the flake debitage is likewise dominated by hard-hammer struck flakes without systematic platform preparation.

Unit	Flake	Primary Flk.	Rejuv. Flk.	Chip	Core	Misc. debitage	Implement	Retouched	Burnt (wkd / unwkd)	Total
Nos.	107	20	7	2	15	12	11	7	-/1	181
%	59.1	11.0	3.9	1.1	8.3	6.6	6.0	3.9		

Table 3 – Foot of Avebury Down: 2006 flint 'grab sample'

Topography and geology

The scatter sits on a slight bench against the eastern edge of the field. The solid geology here is Holywell Nodular Chalk Formation and the New Pit Chalk Formation, with the junction to the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation just up-slop to the east. At other points along this interface (e.g. Overton Hill and Knoll Down) nodular flint outcrops, and the potential accessibility of workable stone might provide one reason for the scatter's location and the number of flaked axes previously recovered, if these were being produced here.

Method and results

The fieldwork was undertaken over two days in late October–early November 2013 by a team of experienced archaeologists familiar with surface collection methodologies and worked

flint recognition. Thirty-four 10 x 10m squares/collection units were walked across an area that extended for 210 x 90m in maximum extent within the north-eastern corner of the field where the 2007 reconnaissance had identified the core of the scatter to lie. All visible archaeological material was collected from the surface of the field within the collection units. Weather conditions were generally good, mostly dry with ‘flat’ light. There was some crop cover (both new growth and flattened old crop) which in places reduced visibility down to c.30% or so, but the well weathered surface of the field off-set to some degree the reduction in visibility this caused.

Initially collection unit squares were laid out on a 40m grid, starting in the northern corner of the field and offering a 6.25% coverage of the area. A strategy of more intensive coverage was then adopted for the northern 130m of the area, with the grid interval being reduced to 20m, offering 25% coverage across this zone (Figure 16). Each collection unit was given a unique alpha-numeric identifier, beginning in the northern corner of the field and running westerly from 1-9 and southerly from A-U, and its location was recorded using survey-grade DGPS. The site code was FAD-13.



Figure 16 – Lithic densities from surface collection, Foot of Avebury Down

In total, 573 pieces of unburnt worked flint were recovered (there were an additional 12 pieces of burnt worked flint and 182 fragments of unworked burnt). Densities per collection unit ranged from 2 to 68 pieces of unburnt worked flint (Table 4). The average per collection unit was 16.9. The greatest concentration of worked flint occurred against the eastern edge of the field where densities in squares I1 and G1 reached 55 and 68 pieces per collection unit respectively (Figure 16). The distribution could be seen to tail-off down-slope to the west, suggesting the limits of the scatter were close to being reached here. There was also a corresponding fall-off in densities to the south; this being confirmed by a rapid visual scan of the surface outside the collection area. Given the high densities against the eastern edge of the field, it is clear that the scatter continues into the area of higher ground pasture immediately to the east.

Unit	Flake	Primary Flk.	Rejuv. Flk.	Chip	Core	Misc. debitage	Implement	Misc. Ret.	Burnt (wkd / unwkd)	Total
Total	376	56	33	38	26	18	9	17	(12/182)	573 (585)
%	65.6	9.8	5.8	6.6	4.5	3.1	1.6	3.0		

Table 4. Foot of Avebury Down: worked flint from the 2013 gridded surface collection. Chips are defined as worked pieces under 10mm in maximum dimension. Miscellaneous debitage comprises shatter fragments and flaked pieces that cannot be classed as cores due to the limited extent of working. Implements categories: Sc = scraper; Kn = knife; Ah = arrowhead [AhL = leaf, AhC = chisel, AhO = oblique, AHBT = barbed-and-tanged]; P = piercer/awl; F = fabricator; Ax = axe. Totals exclude burnt unworked flint. The value in parenthesis includes burnt worked pieces.

In all 95.4% of the worked flint comprises debitage (flakes, chips, cores and miscellaneous flaked pieces and irregular waste). As with the sample recovered in 2006, flakes are predominately hard-hammer struck, displaying little evidence for careful core preparation or maintenance, and with a relatively high incidence of hinge fracture. Cores likewise show evidence of expedient flake rather than blade production. There is, nonetheless, some variability in working, in part due to the presence of components of different age. A relatively crude Levallois-style core was recovered from G9, and a more systematically worked narrow flake core from U5, most probably of earlier Neolithic date. A small number of blades/narrow flakes are also present (e.g. from A1), along with core tablets from E5 and G7. Of especial note given Kendall and Young's recovery of flaked axe fragments is a large axe thinning flake from I9.

Nine recognisable implements and 17 miscellaneous retouched and utilised pieces were recovered. The former include six scrapers, two notched pieces and a possible knife. The scrapers display competent working, with those from C3 and E3 (two examples), being formed through fine invasive/semi-invasive retouch. That from I5 is a double end-scraper. From E3 is a small triangular flake with regular continuous retouch along one side to form a point, possibly a very basic oblique arrowhead. The regular tool forms present a distinct distribution, being limited to a zone that is peripheral to the main concentration around squares G1 and I1. Contrast can be made with the distribution of cores, which is largely restricted to a NE-SW zone defined by squares G3, I1, I3, K5 and M5; that is largely within the area ringed by implements.

The flint utilised is of variable quality, with a thin, weathered cortex, and with internal flaws resulting in occasional flake breakages and other irregularities in fracture. All but one of the pieces of worked flint is heavily patinated.

Discussion

The 2006 and 2013 work has been successful in relocating the scatter first identified by Kendall and Young, and in providing additional detail on its structure and composition. The detailed gridded collection suggests the core (i.e. greater than average density) of the scatter occupies an area >150 x >50m, with the highest concentrations of material occurring against the eastern edge of the cultivated area. There is a marked and apparently genuine drop-off in material (and so a sense of an ‘edge’ to the scatter) to the west, south and perhaps north. It is clear that the scatter must extend, even if for a short distance, up-slope into the zone of pasture to the east, where it is soon met by the edge of a later prehistoric fieldsystem (Fowler 2004). Preservation conditions here may be very good, perhaps with intact buried soils, not least because historic ploughing is not recorded in this area; future work will seek to test this through augering and targeted excavation.

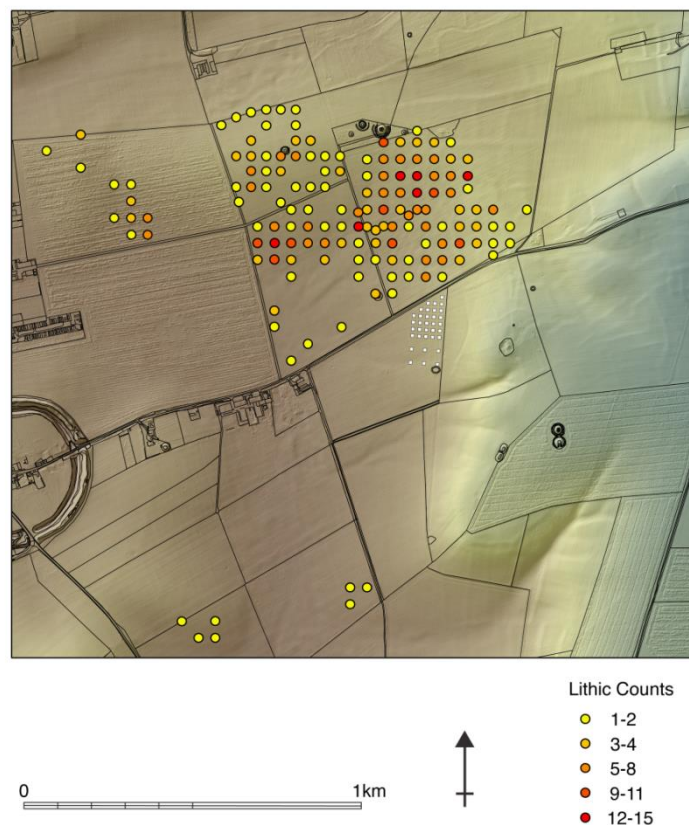


Figure 17 – Foot of Avebury Down scatter in relation to surface collection results from Holgate and Thomas 1983 survey

The surviving scatter has been transformed through the earlier collecting activities of Kendall and Young, which we know through the composition of collections from the site in the Alexander Keiller Museum was biased towards the recovery of implements. This has undoubtedly skewed to some degree the balance of the assemblages recovered in 2006 and

2013. Nonetheless, gridded collection has shown the potential to recover significant spatial detail. Beyond basic variations in density, there are hints of patterning in the distribution of different categories of material, notably implements and cores. These may mark out distinct zones of activity within what we now know (from the range material present) to have been a significant area of Neolithic settlement that began its life before the Avebury henge was constructed.

It may prove that the Foot of Avebury Down site is just the southern extent of a series of interconnected scatters running along the edge of Avebury Down, as mapped by the Holgate and Thomas fieldwalking (cf. Holgate 1987). These are quite difficult to 'disentangle', since they merge into each other, but they do include localised concentrations that might be seen as distinct areas of more intensive settlement activity, the Foot of Avebury Down being one such locale (Figure 17).

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Bibliography

- Allen, M.J. 2013. Between the monuments 2013 geoarchaeology field report 1; West Kennet (stone) avenue excavation. Unpublished project report dated 27/7/13
- Allen, M.J. & Gardiner, J. 2009. If you go down to the woods toady; a re-evaluation of the chalkland postglacial woodland; implications for prehistoric communities. In Allen, M.J., Sharples, N. & O'Connor, T.P. (eds), *Land and People; papers in memory of John G. Evans*, 49-66. Oxford: Oxbow/Prehistoric Society Research Paper 2
- Allen, M. & Snashall, N. 2009. New features at Avebury from hand coring: geoarchaeology in action! *PAST* 63, 12-13
- Anderson-Whymark, H. & Thomas, J. (eds) 2011. *Regional Perspectives on Neolithic Pit Deposition: beyond the mundane*. Oxford: Oxbow Books
- Avery, B.W. & Bascomb, C.L. 1974. *Soil Survey Laboratory Methods*. Soil Survey Technical Monograph No. 6. Harpenden: Soil Survey of England and Wales
- Bridges, E.M. 1978. *World Soils* (2nd edition). Cambridge: Cambridge University Press
- Bullock, P., Fedoroff, N., Jongerius, A., Stoops, G. & Tursina, T. 1985. *Handbook for Soil Thin Section Description*. Wolverhampton: Waine Research
- Courty, M-A., Goldberg, P. & Macphail, R.I. 1989. *Soils and Micromorphology in Archaeology*. Cambridge: Cambridge University Press
- Cresser, M., Kilham, K. & Edwards, T. 1998. *Soil Chemistry and its Applications*. Cambridge: Cambridge University Press
- Fowler, P. 2004. East of Avebury: ancient fields in a local context. In R. Cleal & J. Pollard (eds), *Monuments and Material Culture. Papers in honour of an Avebury archaeologist: Isobel Smith*, 130-8. East Knoyle: Hobnob Press

- French, C., Lewis, H., Allen, M., Green, M., Scaife, R. & Gardiner, J. 2007. *Prehistoric landscape development and human impact in the upper Allen valley, Cranborne Chase, Dorset*. Cambridge: McDonald Institute for Archaeological Research
- French, C., Scaife, R. & Allen, M.J., with Parker Pearson, M., Pollard, J., Richards, C., Thomas, J. and Welham, K. 2012. Durrington Walls to West Amesbury by way of Stonehenge: a major transformation of the Holocene landscape. *Antiquaries Journal* 92, 1-36
- Gibson, A. 1996. The later Neolithic structures at Trelystan, Powys, Wales: ten years on. In T. Darvill & J. Thomas (eds), *Neolithic Houses in Northwest Europe and Beyond*, 133-41. Oxford: Oxbow Books
- Gillings, M. & Pollard, J. 2004. *Avebury*. London: Duckworth
- Holgate, R. 1987. Neolithic settlement patterns at Avebury, Wiltshire. *Antiquity* 62, 349-53
- Holgate, R. 1988. *Neolithic Settlement of the Thames Basin*. Oxford: British Archaeological Reports
- Limbrey, S. 1975. *Soil Science and Archaeology*. London: Academic Press
- Murphy, C.P. 1986. *Thin Section Preparation of Soils and Sediments*. Berkhamstead: A.B. Academic.
- Oonk, S., Slomp, C.P. & Huisman, D.J. 2009. Geochemistry as an aid to archaeological prospection and site interpretation: Current issues and research directions. *Archaeological Prospection* 16, 35-51
- Parker Pearson, M. 2007. The Stonehenge Riverside project: excavations at the east entrance of Durrington Walls. In M. Larsson & M. Parker Pearson (eds), *From Stonehenge to the Baltic: living with cultural diversity in the third millennium BC*, 125-144. Oxford: British Archaeological Reports
- Pollard, J. 2005. Memory, monuments and middens in the Neolithic landscape. In G. Brown, D. Field, & D. McOmish (eds), *The Avebury Landscape: aspects of the field archaeology of the Marlborough Downs*, 103-114. Oxford: Oxbow Books
- Pollard, J., Allen, M., Cleal, R., Gillings, M., Snashall, N., McFadyen, L., French, C. & Gardiner, J. 2012a Between the Monuments: *Investigating landscapes of residence between the 4th and 2nd millennia BC in the Avebury region, Wiltshire*. Unpublished project design
- Pollard, J., Allen, M., Cleal, R. Snashall, N., Gunter, J., Roberts, V. & Robinson, D. 2012b. East of Avebury: tracing prehistoric activity and environmental change in the environs of Avebury henge. *Wiltshire Archaeological & Natural History Magazine* 105, 1-20
- Pollard, J. and Cleal, R. 2004. Dating Avebury. In R. Cleal & J. Pollard (eds.), *Monuments and Material Culture*, 120-9. East Knoyle: the Hobnob Press
- Schofield, A.J. (ed.), 1991. *Interpreting Artefact Scatters: contributions to ploughzone archaeology*. Oxford: Oxbow Books
- Smith, I.F. 1965. *Windmill Hill and Avebury: excavations by Alexander Keiller, 1925-1939*. Oxford: Clarendon Press
- Stoops, G. 2003. *Guidelines for Analysis and Description of Soil and Regolith Thin Sections*. Madison, Wisconsin: Soil Science Society of America, Inc
- Stoops, G., Marcelino, V. & Mees, F. (eds.) 2010. *Interpretation of Micromorphological features of Soils and Regoliths*. Amsterdam: Elsevier
- Whittle, A., Bayliss, A. & Healy, F. 2011. The North Wiltshire Downs. In A. Whittle, F. Healy & A. Bayliss, *Gathering Time: dating the Early Neolithic enclosures of southern Britain and Ireland*, 60-110. Oxford: Oxbow Books
- Whittle, A., Davies, J., Dennis, I., Fairbairn, A. & Hamilton, M. 2000. Neolithic activity and occupation outside Windmill Hill causewayed enclosure, Wiltshire: survey and excavation 1992-93. *Wiltshire Archaeological & Natural History Magazine* 93, 131-80
- Wilson, C.A., Davidson, D.A., Malcolm, S. & Cresser, M. 2008. Multi-element soil analysis: an assessment of its potential as an aid to archaeological interpretation. *Journal of Archaeological Science* 35, 412-24

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