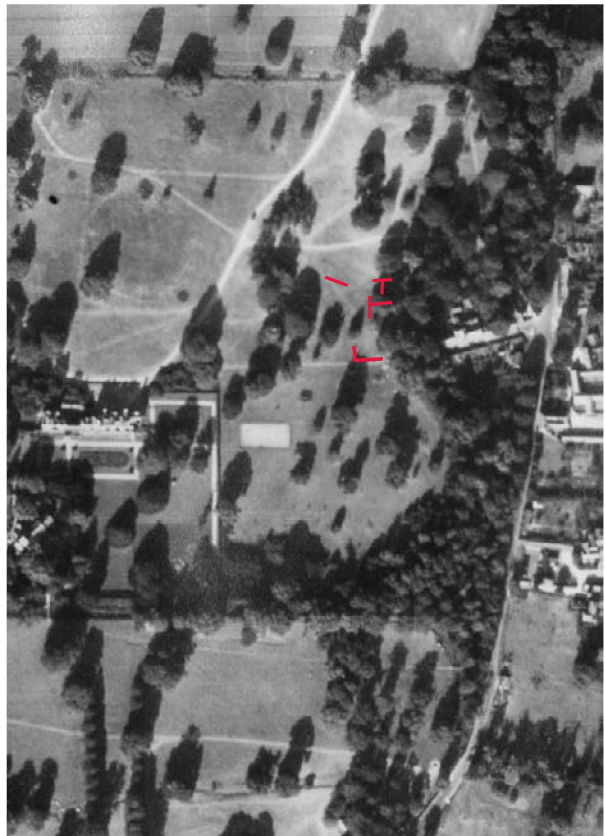


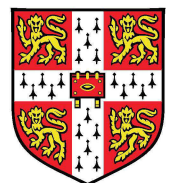
Babraham Research Campus Proposed Building B270

An Archaeological Evaluation



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Between 12th-14th August 2009 the Cambridge Archaeological Unit carried out a small archaeological evaluation (90m of trenching) within the Babraham Research Campus prior to the construction of a new building (B270) some 200m to the north of the river and to the east of the Hall. Within most of this area the top of the chalk outcrop and overlying gravels lay close to the surface, though the absence of archaeology here does not appear to be due to any significant truncation of deposits. Several small postmedieval features were encountered at the eastern end of the site, including a couple of shallow gullies (possibly associated with hedge planting), some possible planting pits, and a shallow well, perhaps associated with the cultivation of former gardens. A thicker development of soil was noted at the west end of the site (Trench 1) beneath the area now occupied by a tree-lined verge for a car park. The compacted surface of a north-south post-medieval chalk-metalled road or path was encountered at the north-west end of this trench, beneath which lay a couple of circular pits, including one lined with probable 17th-18th century brick. These may have been drains or soakaways connected with the construction of the road, or else could have been part of some still earlier structures. A pronounced undulation in the natural surface of the gravels associated with a compacted and denuded palaeosoil was interpreted here as being the remains of a series of at least four eroded-out and subsequently silt-filled hollow ways. These parallel tracks appeared to be heading down towards the river in a north-east to south-west direction; further evidence for this feature being provided by a 1953 air photograph that shows a similarly aligned hollow in the field to the north. No artefacts or dating material was recovered from this feature, though a tentative Late Prehistoric to Medieval date is suggested.

Introduction

The archaeological evaluation was carried out as a condition of planning consent in advance of the construction of two buildings (Building B270) within the area of the Babraham Research Campus. These were to have a combined floorplan measuring 1,951 square metres; the PDA for this lying some 200m to the north of the river and east of Babraham Hall, and 100m due north of the Minerva Building (site centred on NGR 551245 / 250463) (Figure 1). The area being evaluated (see Figure 2) was a combination of both active and former tarmaced car parks (the latter being the site of the proposed larger building of the two), and before this, the site of a levelled 1950s research building (Building 202)). The archaeological work was undertaken by the CAU between 12th-14th August 2009 on behalf of Babraham Bioscience Technologies in accordance with a project design approved and monitored by the Archaeological Officer at Cambridgeshire Archaeology Planning Countryside Advice (CAPCA).

The site lies just above the edge of the floodplain edge close to the 25m OD contour. Geologically this corresponds with the junction of the lower part of the Middle Chalk (Holywell Nodular Chalk Formation) and the overlying First and Second Terrace gravels of the River Granta (BGS 2002). This junction was variously encountered within the trenched area, the thin gravel cover here concealing small areas of patterned ground and thin lenses of soliflucted chalk and angular flint (periglacial deposits), and above this, marly gravels represented calcareous (tufa) spring lines. The basal Melbourn Rock may lie a short distance below the surface here.

Archaeological background

Since 1994 the CAU has carried out a significant amount of archaeological work within the grounds of Babraham Research Institute (see Figure 5: Butler 1994; Robinson 1995; Regan 1995; Wills 2004; Swaysland 2005; Armour 2006, 2007; Timberlake & Armour 2006; Timberlake *et al.* 2007; Armour *et al.* 2007; and Collins 2007). Prior to the main phase of archaeological excavation (i.e. the period 2003 – 2007) the archaeological background to this site was covered by a CAU desktop assessment (Hall 2003). However, a much more thorough account of the archaeology of can be found in the forthcoming East Anglian Archaeology monograph *Babraham – A Roman Cemetery and its Associated Settlement* (Timberlake *et al.* forthcoming).

Prehistoric archaeology within the vicinity of the Hall is limited to evidence for the *ad hoc*. Neolithic – Early Bronze Age exploitation of flint on the gravel terraces located close to the edge of the former palaeo-channels of the river (Timberlake and Armour *ibid.*). Alongside this may be a more concerted (and largely Neolithic) extraction of flint associated with a number of flint-filled periglacial features such as have been found along the Access Road (Armour 2006) and during excavations carried out prior to the construction of the ARES Building (Armour *et al.* *ibid.*), the latter located some 200m to the north of the Hall. The recent find of a Late Neolithic oblique flint arrowhead (identified E. Beadsmoore) within woodland near the Sewage Works and some 150m+ to the south-east of the current PDA suggests that prehistoric activity (flintworking) may well have extended eastwards across this site.

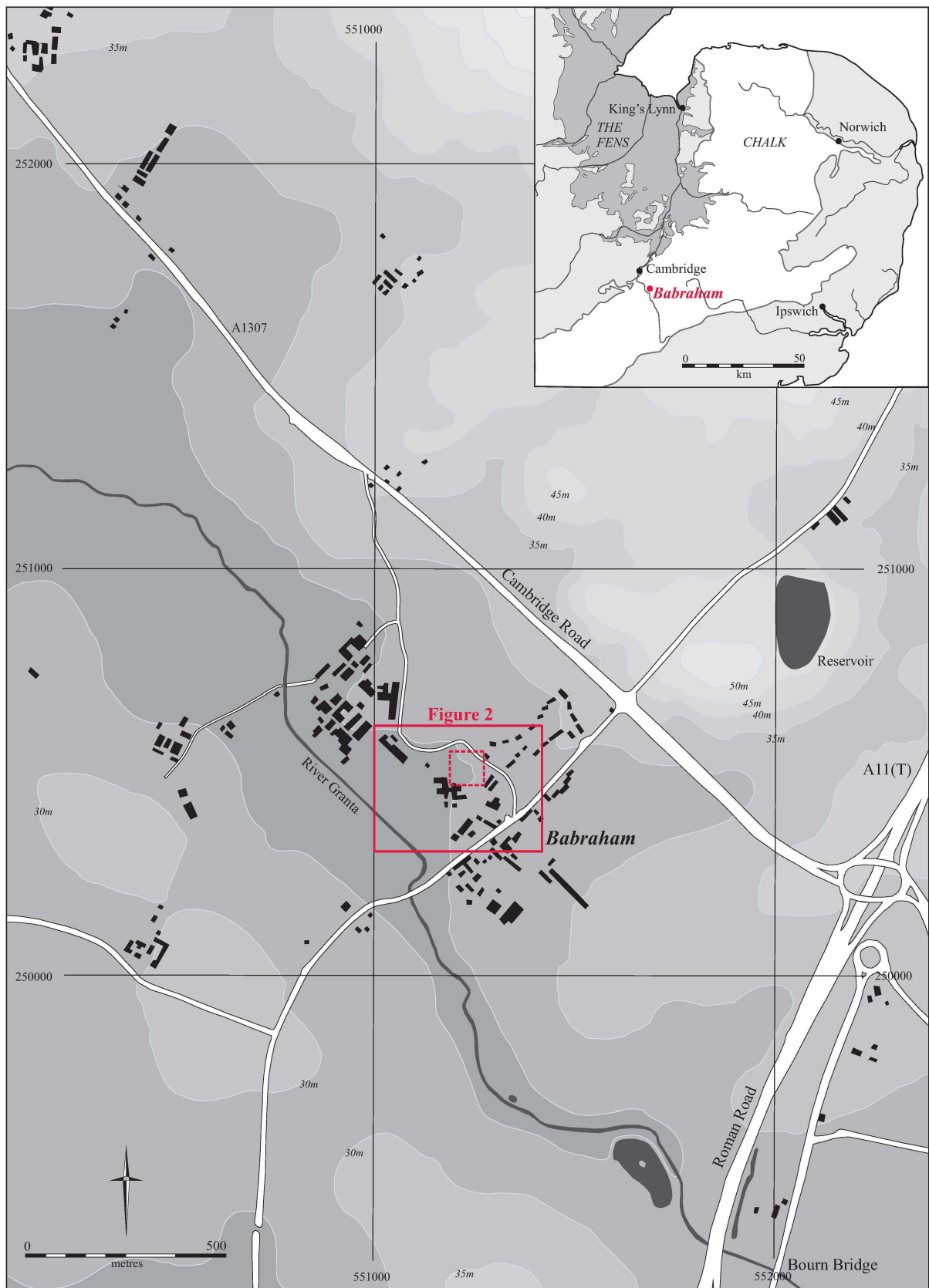


Figure 1. Location map

It has been suggested within the forthcoming Babraham publication (see above) that a Late Iron Age – Roman (or Romano-British) settlement, perhaps one associated with a small villa or major farm, lay some 300m to the north-east of the current evaluation area. Associated with this was a small Roman (2nd-4th century AD) cemetery which was found beneath and just to the west of the present campus road (Timberlake et al. *ibid*). Meanwhile, the northern fringes of the subsequent Early Medieval settlement lay just to the south of this and to the west of Babraham Hall (Armour 2007). In fact the westernmost edge of the Medieval settlement appears to coincide with the line of the Roman-Medieval road which probably crosses the river just to the west of St. Peter's Church (founded in the 12th century AD but possibly also the site of an earlier Saxon example), whilst the eastern half of this fronts the river, the latter well to the south of the current evaluation area. A small part of this same riverside area (consisting of up to 225m of trenching) was excavated in advance of the construction of the Minerva (Biosciences) Building in 2004 (Wills 2004). This excavation revealed a somewhat confusing complex of Early-Late Saxon, Medieval and Post-medieval pits and ditches which appeared to increase in density towards the river's edge; amongst other things this included a single Early Saxon building (*grubenhaus*) from which a gilded brooch was recovered. Significant however was the fall-off in archaeology northwards.

At the north end of the Minerva Building site (some 100m to the south of the current Trenches 6 and 7) Trenches A, B and C were found to contain only a handful of features, most of these being Post-medieval (and probably 19th century) in date, and perhaps relating to the construction/planting of the Hall gardens (Wills *ibid*). Nevertheless, a couple of probable Medieval (12th /13th century) ditch/gullies were also encountered (see Trench B F.5 and F.20); the (NE-SW) alignment of which raises the possibility of some sort of continuation of these into the present area. However, archaeological evaluation of the area immediately to the east of the Hall (thus approximately 100m to the south-west of the current PDA) in 1994 revealed a similar paucity of Medieval or earlier features. Instead, evidence was found for a brick paved yard surface associated with the demolition of an 18th century building alongside other 19th century roadway and possible garden features (Butler *ibid*).

Although originally established in 1580, the third (and present) Babraham Hall was not built until 1837, at which time there was also considerable expansion and re-landscaping of the gardens; both those of the formal lawns and beds located immediately behind and in front of the Hall, but also of the parkland and drives which lay a little further distant. Hidden by trees a short distance to the east of the current PDA lies the old Babraham school and Almshouses originally constructed in 1730.

The Institute of Animal Physiology was founded in 1948, following which new single story laboratory buildings and workshops were constructed on site, including Buildings 201 and 210 plus water tower (built circa. 1953). The latter buildings are still standing today and lie some 20-30m to the south of the current evaluation area, though the former site of Building 202 (Figure 5) lies just within the area of current trenching. This was demolished within the last 10 – 15 years, since which time this eastern half of the PDA has been used as a temporary car park

Methodology

The PDA was evaluated with seven trenches totalling 90m in length, providing almost a 10% sample of the building areas (Figure 2). Each trench site was CAT-scanned for services then excavated by tracked 360° machine using a 2.0m wide toothless ditching bucket, with topsoil and underlying deposits being removed under archaeological supervision. The exposed archaeological features and spoil were subsequently metal detected, planned and sample excavated. A bucket-sampling exercise was also carried out on some of the removed spoil (sub-soil) in order to determine the extent of any background activity within the PDA.

Excavation of archaeological features was carried out using hand tools. The recording followed a CAU modified MoLAS system (Spence 1990), whereby feature numbers, F., were assigned to stratigraphic events, and numbers (fill), or [cut] to individual contexts. Trench plans were drawn at scale 1:50 (where these included archaeological features) and trench and feature sections at 1:10. Trench descriptions (trench logs) were completed in all cases as a record of depth of deposit and changes in geology. A small digital photographic archive was compiled. All work was carried out in strict accordance with statutory Health and Safety legislation and with the recommendations of SCAUM (Allen & Holt 2002). The CAU site code was RCB 09.

Results

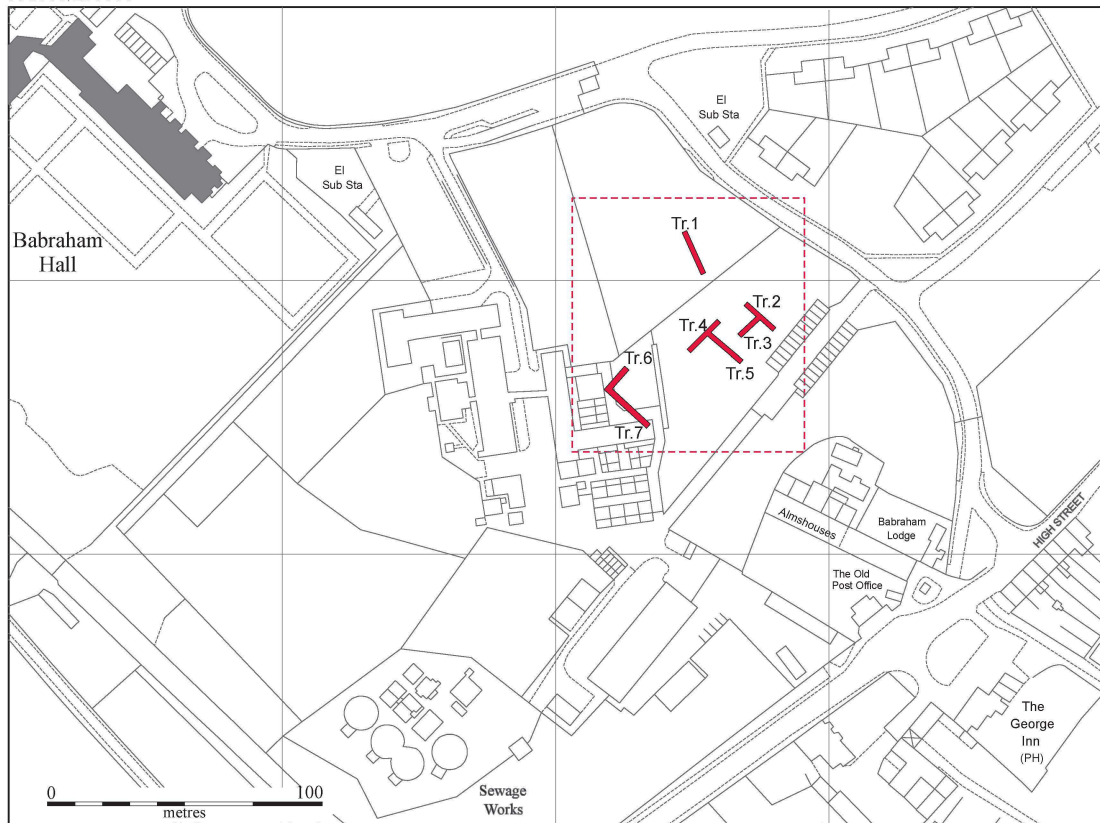
Of the seven trenches, only three contained archaeological features (see bottom of Figure 2). These were all located within the northern part of the evaluation area, yet were spread between the western (Trench 1) and eastern (Trenches 4 and 5) halves of the footprint for the largest of the two buildings.

Trench 1

Trench 1 was 17m in length and was excavated on NNW-SSE alignment across a grass lawn/verge parallel to the northern edge of a still active car park. The depth of this varied from 1.08m at the east end to 0.65m at the west end, with an undulating top to the natural which here consisted of sandy gravel with patches of yellow to orange silty sand and lenses of more angular broken flint and marly silt with the top of the weathered chalk outcropping some 8m from the eastern end. There appeared to be little or no evidence for the truncation of the sub-soil, though this was thinner (0.15m deep) at the western end. The well-cultivated topsoil (probably garden soil) contained a mixture of occasional 19th century pottery and more modern CBM – the depth of this being rather more consistent – ranging from 0.35m to 0.48m.

F.4 This consisted of flat, levelled compacted surface of a crushed chalk metallised trackway or path or linear floor (022), up to 4.2m wide and 0.15m deep, and clean of finds. This lay at a depth of only 0.5m below ground surface. All of the compacted chalk fragments which formed this horizon were <100mm in diameter, most being <50mm. The surface of this ‘road’ showed no evidence of wheel

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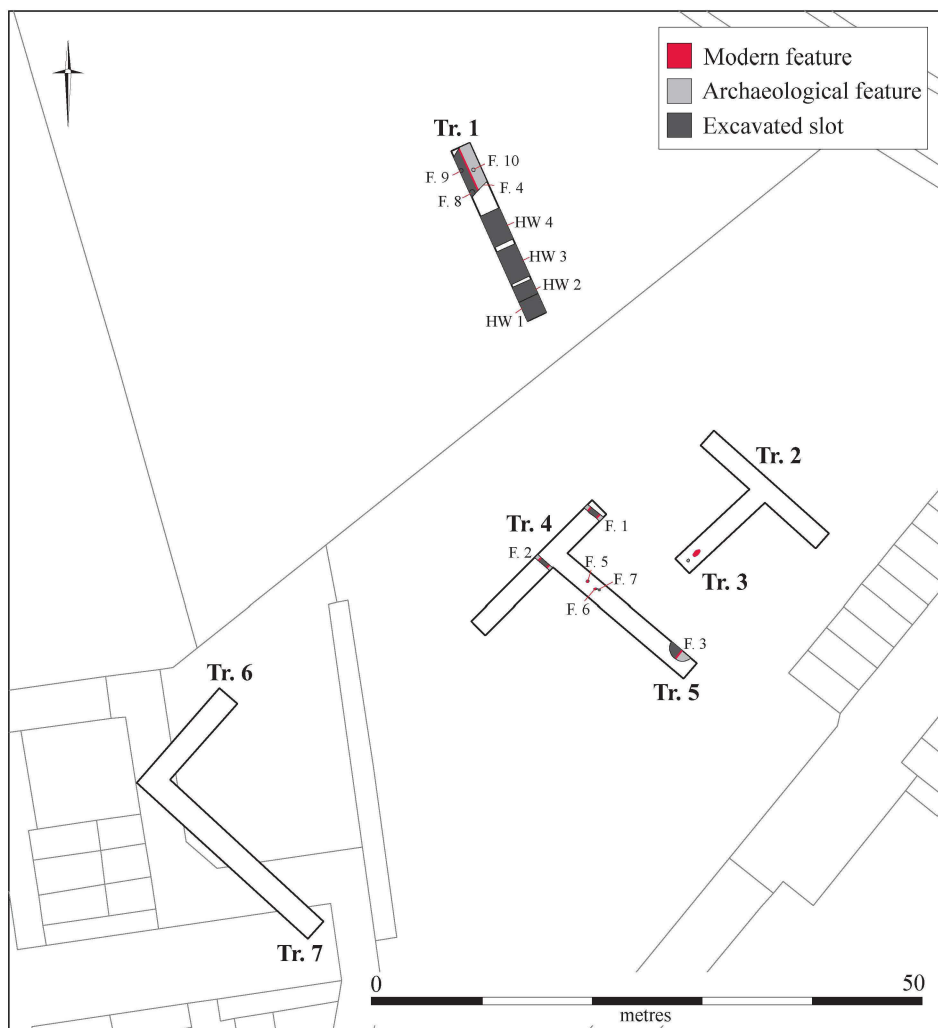


Figure 2. Trench location and trench plan

rutting etc. This was overlain by a short depth of sub-soil and topsoil plus a layer of modern crushed limestone 'make-up' associated with the foundation cut for the adjacent tarmaced car park. Beneath the crushed chalk lay a foundation deposit (023) for the earlier road; this consisted of a soft sandy marl mixed with a light yellowish-brown silty sand and containing rare medium rounded stones (c. 150-200mm diameter), occasional flint gravel clasts (c. 50-100mm diameter) and rare fragments of red brick. This foundation overlay the gravel and chalk natural but also sealed several possibly related pit features and structures such as the small circular structure F.9 ringed with red brick. The orientation of F.4, if indeed a trackway, appears to be almost due north-south. Post-medieval.

F.8 A 0.4m wide and 0.3m deep circular pit with steep near vertical sides and a flat bottom ([025]), the whole of this sealed by the eastern edge of the chalk metalled 'road' (F.4). The pit contained a moderately dark, firm and possibly humic-rich silt (024) likened to a 'sunken top-soil' which contained occasional angular stones (10-200 mm diam). Possibly a bedding (planting) hole filled with garden soil and shortly afterwards sealed by the edge of the chalk road. Post-medieval.

F.9 A 0.27m wide and 0.45m deep circular pit with vertical sides and a lip or ledge around the top (0.5m wide and 0.15m deep) ([029]). The latter held a moderately well laid but un-mortared ring of red unfrogged bricks which formed a loosely packed circular lining or structure to the feature (027). Some of the latter bricks had collapsed into the centre of this. The upper fill (026) consisted of a soft, dark grey/brown silty soil with occasional small rounded stones, although much of the top of the feature was completely void of any sediment fill to a depth of about 0.2m. The bottom half of this cut beneath the level of the bricks contained a soft and loose yellowish-brown sand with frequent small angular stones and occasional medium sub-angular stones. Several examples of the hand-made bricks from the brick-lined top of this were examined in more detail. It was suggested that these date from the 17th-18th century, most likely the latter (A.Hall *pers.com*). The feature may have been a drain or soakaway, and as such this could relate to the construction of the road (though pre-dating it), or else may have been part of an earlier and subsequently demolished structure. Post-medieval.

F.10 Not excavated. Represented by a small collapse through the metalled chalk surface (022) of the 'road' (F.4). This may have been another void-filled brick-lined pit or drain sealed by the construction of this feature, or alternatively just part of a collapsed animal burrow.

F.11 A series of wide parallel linear hollows (HW (Hollow Ways) 1 to 4) cut into the surface of the natural (gravel) over a distance of about 9-10m and subsequently buried beneath a thick deposit of hillwash silts and silty gravels. Three main hollows are evident which form this undulating buried land surface (Figure 4), although the easternmost and deepest cut of the three is actually made up of two 'cuts' with a barely perceptible ridge in between (HW 1 and 2). Apart from the much greater level of compaction present within the sand and gravel towards the top of this buried land surface within the region of the hollows, it was also possible to detect the presence in places of a thin and largely denuded palaeosoil (032). In general the latter consisted of a friable dark orange silty sand with fossil rootlets and mottled humic patches. Mostly this formed a compacted and concreted (calcreted) horizon containing some angular flint, and on occasions some slightly burnt, reddened flint. The deepest point of this soil was not detected, though in places this very irregular horizon was found to a depth of at least 100mm (such as in HW 2 – from the base of which a bulk environmental sample (<1>) was removed). The sequence of 'cuts' formed by compaction, as well as by the wear and erosion of the land surface along this series of ancient footpath/ drove route hollow ways seem to represent the migration of use of this way eastwards away from the abutting and somewhat harder top to the chalk which outcrops beneath the gravels. This progression can perhaps be seen in section in the sequence of natural fills accumulated within these pre-existing shallow hollows (see Figure 3C); this suggests a younging and perhaps also deepening of the hollows eastwards. However, the 'cuts' of the hollows (all of unknown length) seem to become broader and also much less well defined westwards. These linears (all part of F.11) are referred to as follows: HW1 [033] 0.5m wide; HW2 [034] c.1m wide; HW3 [036] c.2m wide; and HW4 [037] 2.5 m wide. Though difficult to judge exactly, the amount of 'downcut' of each hollow appears to be in the order of 100-200mm. The silt infills of these hollow ways (below the ubiquitous and more 'modern' subsoil) form a series of interdigitating lenses. From the base upwards these consist of the following horizons: (035) a friable orange silty gravel (redeposited natural from close by); (031) a buff to light brown coloured silty sand containing angular flint, some of it slightly reddened; (030) a very soft and friable light yellowish-brown silt with occasional charcoal flecks; and (038) a mid-dark coloured silty loam. Another bulk environmental sample (<2>) was removed from the base of context (031). None of the hollows showed any evidence of dark earth accumulation, or of

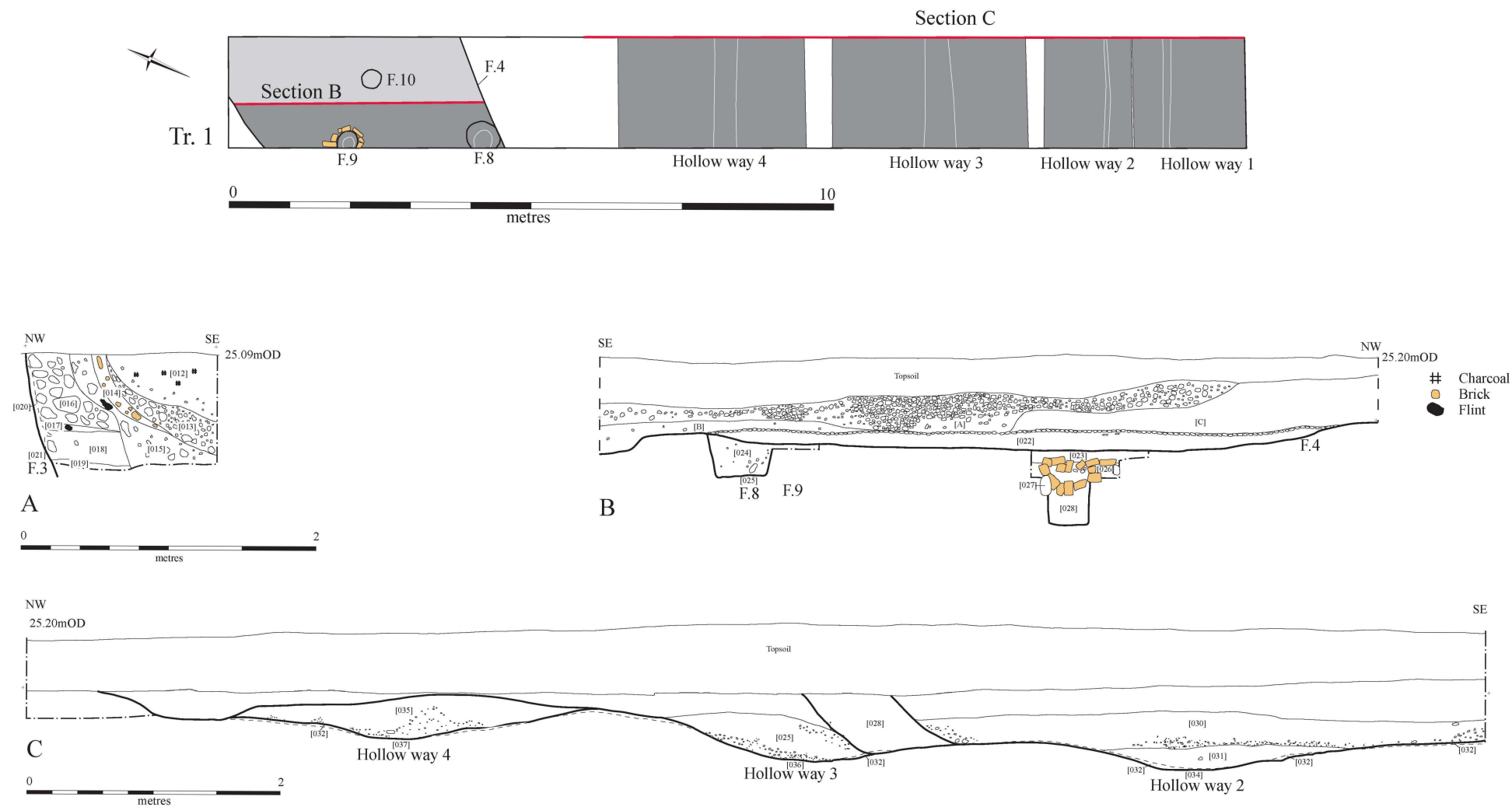


Figure 3. Plan of Trench 1 and Sections: South West facing section of Well F.3 in Trench 5 (A), North East facing section of the Road F.4 in Trench 1 (B), and South West facing section of the hollow way in Trench 1 (C).



Figure 4. Series of hollow ways within Trench 1, view looking South

the rutting or pitting associated with hoof (stock) or water erosion, yet all of them seemed to be worn and eroded features. The base of the hollows slope at a very gentle angle (1-2°) to the west, whilst the perceived orientation of these linears (in relation to their intersection with the trench) appears to be east-west, or perhaps northeast – southwest. Their exact orientation was difficult to establish with any certainty on account of the method of excavation, and subtlety of the features. In a similar way, the profile of each holloway on the floor of the trench ended up just as an approximation, given that each had to be traced and also cleaned out (though carefully) using the edge of the ditching bucket of a 360°. No finds were recovered from any of these hollows, the (infilling) deposits appearing to be quite sterile. As such no date could be ascertained for the series of hollow ways, though a Prehistoric to Early Medieval date seems the most likely.

Trench 2

Trench 2 was 14.0m in length and was excavated on a northwest-southeast alignment. The depth of this ranged from 0.36m at the west end to 0.32m at the east, the underlying natural consisting of yellow silty sands and gravels at the west end butting up against a southwest-northeast trending ridge of marly (calcreted) angular flint (possibly a periglacial feature) in the middle, the latter resting against a sub-crop of chalk lying just beneath the surface in the eastern half of the trench. Between 0.08m and 0.16m of loose tarmac associated with the car park covered a depth of approx. 0.1 – 0.13m topsoil (cultivated garden soil) over a similar depth of sub-soil, the texture and composition of the latter influenced by the underlying geology. No archaeological features were encountered, though the patterning of irregular patches of slightly humic gravel in the west half of the trench would seem to represent the former boles of shrubs or small trees. The latter were moderately dense in this area, the edges of the rooting holes also being defined by the presence of washed in pea-grit sized gravel. There was little evidence here for any truncation of deposits, the shallowness of the underlying chalk being a real indication of the closeness of this outcrop to surface.

Trench 3

Trench 3 was 9m long and was excavated at right angles to Trench 2, forming a T-shape, the depth of this ranging from 0.31m at the north end to 0.35m at the south. The shallow sub-crop of the chalk beneath the sub-soil formed a very low northeast-southwest ridge barely 2m wide, perhaps representing the strike of these dipping beds at surface. Abutting the south side of this was a lens of marly (calcreted) gravel consisting of angular broken flint, and beyond this a marly river gravel followed by a sandy gravel. No archaeological features were encountered cutting the natural, though there was one modern cut backfilled with some of the overlying topsoil. Up to 0.1m of loose tarmac overlay a partly truncated topsoil (between 0.05m and 0.2m deep), and in places a truncated sub-soil (between 0.05m and 0.22m deep). The topsoil layer contained much modern material, thus appears here to be a disturbed garden soil.

Trench 4

Trench 4 was 15.5m long and oriented northeast-southwest, parallel to Trench 3, the depth to natural ranging from 0.4m at the north end to 0.6m in the south, the geology of this all being of gravel and sand; marly at the north end becoming sandy and silty in the middle, and then more sandy at the southern end – the much finer sediment suggesting perhaps some minor channelling and channel fill. The depth of tarmac varied (0.1 to 0.18m), suggesting infill of an uneven topsoil layer, perhaps partly

truncated in places (depth 0.05m – 0.24m). The sub-soil appeared to be a siltier version of the natural, between 0.17m and 0.28m thick, with little evidence for truncation, either of this or of the underlying natural. A tree-throw was encountered at the north end of the trench (and was rapidly sampled) alongside two post-medieval to modern features which were sectioned.

F.1 A small shallow linear (ditch or gully) running in a northwest-southeast direction, with another similar linear running parallel to it (F.2). The shallow cut (up to 0.45m wide ([002])) was characterised by sloping (40°) sides and a rounded base, the single fill (001) consisting of a mid brown, loose silty sand with few gravel inclusions and no finds. This was abundantly bioturbated at the base suggesting rooting action associated with shrubbery. The two parallel rows could have been planted hedgerows, and thus may have been relatively modern.

F.2 A similar aligned gully. Where sectioned the cut ([005]) of this proved to be a little wider (0.5m) and deeper (0.35m) with moderately steep sides and a flat base. This contained two fills: the upper fill (003) consisting of a compact dark brown grey sandy clayey silt with significant inclusions of angular to rounded flint gravel (<10mm-100mm diam) throughout. This possessed a clear boundary with the lowest fill (004) consisting of a mid yellow-brown compact sand with moderate amounts of gravel inclusions (<30mm) plus pea-grit sized gravel along the base. Possesses a clear boundary with the dug natural. This appears to be a relatively modern feature similar to F.1. Within the base of this trench a sandy fill looks to have been washed or tipped in from the south-west side. The topsoil fill within the top of the gully may be partly a cultivation horizon, or else could have been silted in, either at the time of its digging, or at the time of the construction of the (20th century) car park. It is possible that this was dug for shrub/hedgerow planting, then not planted.

Trench 5

A northwest-southeast aligned trench some 15.5m long joining at right angles with Trench 4. The depth of this varied between 0.35m (middle of trench) to 0.65m (east end), the natural here all consisting of a yellow sandy gravel. Up to 0.15m of loose tarmac overlay a partly truncated topsoil (between 0.1m and 0.25m deep), the interface between these two layers over the whole area being defined and separated by a geotex membrane. The sub-soil layer within the middle of the trench also appeared to be quite truncated (0.08m) compared to the depths at either end (0.25m and 0.3m deep). A single shrub hole or small tree-throw was encountered within the middle of the trench, whilst another group of three small planting features (or well defined natural rooting holes) were sampled at the west end, and a much larger well feature (F.3) sectioned against the south-facing section at the east end.

F.3 One half of a 2m wide circular feature was encountered within the south-facing section close to the east end of this trench. The feature was quarter sectioned and excavated to a depth of 0.4m (approx) below the base of the trench (top of the natural) at this point. The sides of this had been cut steep, almost vertically, down into the underlying chalk; in total the cut ([021]) for this was > 0.8m deep, its upper BOS with the natural being quite sharp, the base of it not having been reached. The top of the feature seems to have been cut from the sub-soil layer, such that a layer of topsoil, in this case mixed with fragments of hand made brick, animal bone and charcoal (012), appears to have settled in the top centre depression within the part-backfilled cut (see section; Figure 3A). Beneath lay a broad lens (c. 1.5m diam and 0.2m thick) of compact chalk blocks within a matrix of yellow-brown silty sand and marl (013), perhaps a layer of smallish chalk material either washed or slumped in from the surrounds (former walling?) of the well, and beneath this a thin (0.1m thick) discontinuous layer of silty sand or loam containing loose bone, brick and tile fragments, the latter either slumped or else shovelled in (backfilled) from the surrounds. Between the well sides and the edges of these slumped and washed-in sediments lay a substantial layer of chalk collapse (015) similar to context 013, but with larger chalk blocks and additional inclusions of flint (c.80mm in diameter). Amongst this was found a fragment of mortar, confirming the similar association of this with the brick and other building debris.

This layer was interpreted as being that of a possible collapsed chalk wall surround; this representing one of the earliest fills of the feature. Another horizon of chalk collapse around the top of the well (here consisting of pieces c. 20-100mm diam) formed a clear outer ring (016) some 0.3m wide (thick) within the unexcavated plan view of this feature. This context contained voids as well as a small amount of yellow-brown silty sand; here interpreted as being a possible lining of chalk blocks, now partially collapsed. Below this were several washed-in lenses of silt; (017) a soft yellow sandy silt with rare flint, and (018) a laminated fill of soft mid-dark brown silty loam and soft mid-yellowish brown silty sand and marl with occasional chalk lumps, presumably material washed into the still open feature. Another layer (019) beneath this probably represents a continuation of the same washed-in silt. Then feature would appear to be post-medieval, and probably quite late in date (19th century?), the brick debris probably being 18th or early 19th century (thus perhaps contemporary with the construction of the Hall), and the feature a small well, possibly dug for the purposes of garden irrigation rather than for domestic use.

F.5 A possible planting hole or alternatively a rooting hole associated with a shrub or tree throw. The 0.3m wide and deep cut ([007]) for this appeared to be steep sided with a concave base and was filled with (006) a mid grey-brown compact sandy clay silt with inclusions of gravel (<30mm diam) and smaller pea-grit size gravel in the base. The fill (above) may be garden soil backfill. Post-medieval.

F.6 Similar to F.5 (above). Oval in shape and a slightly more irregular hole ([009]) some 0.3m by 0.34m in diameter and 0.16m deep with a similar soil fill (008) and gravel interface. Possible planting hole?

F.7 Similar to F.6. Round hole (0.26m diam) with steep sides and a concave base ([011]) and similar fill (010)

Trench 6

Trench 9m long and between 0.75m (north end) and 0.8m (south end) deep, orientated northeast-southwest, and meets Trench 7 at right angles to its southern tip. The underlying geology consists of a thin layer of gravely sand overlying the top of a weathered and fissured chalk. This sometimes reticular patterning of the ground evident in the fissured chalk and gravel fill appears to be a periglacial feature. There appears to have been a truncation of the original topsoil and sub-soil here, this having been removed over the relatively un-truncated natural and replaced with a compacted brown sandy soil (mixed sub-soil?) that was variably full of broken brick (modern 20th century frogged types), with smaller amounts of wood, metal and plastic waste (a layer of made-up ground). A thin skim of brown sub-soil survives above the surface of the natural, indicating that this was the level truncated to for the purposes of foundations. The compacted sub-soil suggests that this was placed for the purposes of foundations; most probably this being the site of the now demolished 1950s building. No archaeology was found.

Trench 7

Trench c.17m long (extended slightly) and oriented southeast-northwest; 0.7m deep at its south end and 0.8m deep to the north. This slope of the line of truncation was evident at the south end where an orange sandy sub-soil was encountered at c. 0.6m depth overlying a preserved (0.1m thick) palaeo-soil (a calcreted light brown soil containing angular patinated flint inclusions and traces of dessication cracks upon its upper surface). The 'natural' geology beneath this consisted of a thin layer of sand and roundish gravel pebbles with patches of more marly 'gravel' including some angular broken flint (periglacial scree) which abutts a narrow east-west sub-crop of

chalk forming a very low ridge in the floor of the trench (at 7m from the south end). Overlying the natural here is the thick horizon of fairly compacted made-up ground with brick and other debris in it, including the fragments of a broken plastic drain. As with Trench 6, the topsoil and sub-soil in this immediate area seems to have been removed to a depth of between 0.75 and 0.8m for the purposes of compacting the sub-soil as a former building foundation. No archaeology was found.

Discussion

It appears that there is no evidence for any continuation this far north of the features found during the excavations carried out in 2003 on the site of the Minerva Building. In particular we find no evidence for the continuation of medieval settlement in this direction, the complete absence of finds within the topsoil and sub-soil layers (apart from the redeposited or re-used late post-medieval brick and tile associated with garden features and dumps) only serves to re-affirm the late occupation of this area. Surprising therefore is the archaeological evidence which has turned up for garden or Hall-related features, given that the map evidence, taken from both the 1901 and 1837 Old Series Ordnance Surveys and from Taylor's plan of the seventeenth-century gardens (Taylor 2004), shows this area to be well outside of the formal and informal gardens, though still within the area of landscaped parkland of the estate.

No analogy at Babraham has been found for the rather rudimentary, yet probably quite late (nineteenth-century?) well in Trench 5, here referred to as a 'garden well', located in an area seemingly devoid of cultivation beds. A deep well for the drawing of domestic water was not so long ago uncovered beneath the Hall itself, though the occurrence of shallow wells on or adjacent to the chalk outcrop (which here lies very close to the surface) may be an altogether much commoner phenomenon than previously realised. The location of these wells may relate to the proximity of the Melbourn Rock which as a reliable aquifer in the chalk (Worssam et al 1969), the presence of which could have been a factor in the siting of the Roman settlement. It is interesting to note, for instance, that the western boundary of the Babraham Roman settlement is defined by this particularly outcrop and its spring-line (see Timberlake *et al.* forthcoming).

The presence or absence of planting pits for shrubs or small trees here would not be entirely unexpected in a parkland setting. Similar features were found close to the Hall (Butler 1994) and, in the form of planting trenches, at the northern end of the Minerva site (Wills 2004). Even more interesting was the discovery of a compacted chalk 'trackway' in Trench 1 similar to the paths found some 100m to the south of here in 2003 in Trench A (Features 12 and 13) and described in Wills (*ibid.*). The latter were laid directly onto the nineteenth-century ground surface, and were claimed to belong to the same period of formal garden creation as the planting trenches (i.e. the period following the construction of the third Hall in 1833-7). The north-south orientation of the Trench 1 trackway (F.4) would appear to approximate that of the latter path (i.e. northwest – southeast), yet in this location it would have been located well outside the area of 'formal garden creation' with which this type of path has been linked. (Wills *ibid.*; 7). The dating of this, as with all the features excavated, remains slightly problematic, yet an early nineteenth-century date might accord well with the evidence for the re-use of late eighteenth-century or even early nineteenth

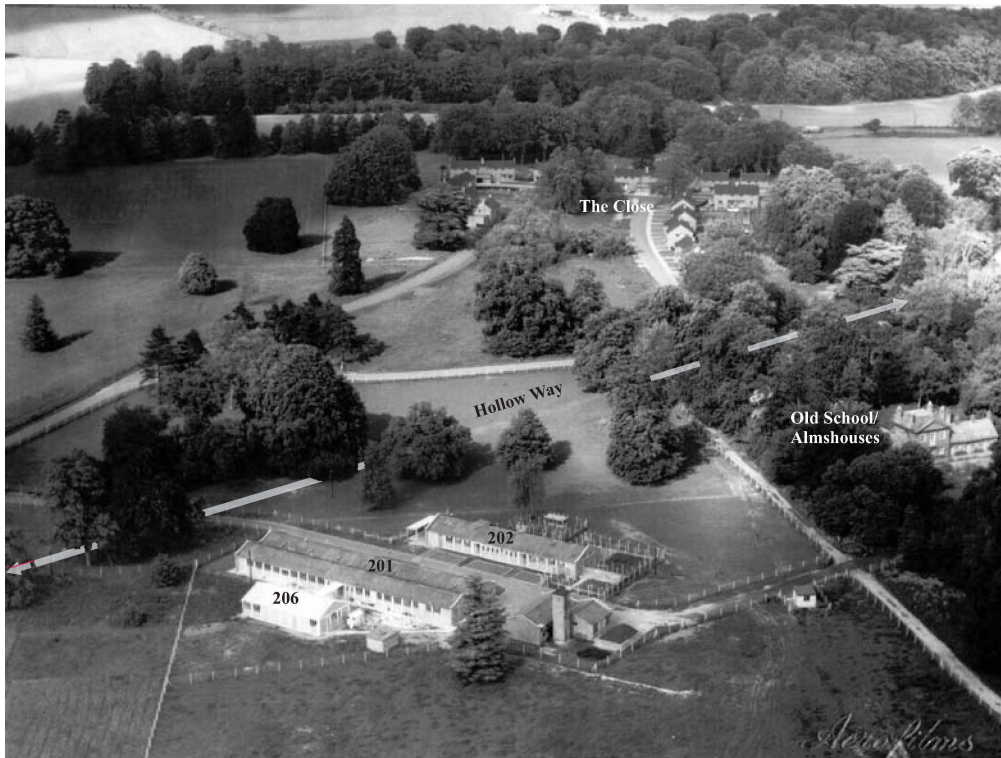


Figure 5. 1953 Aerial photo showing Building 201 and 202 (now demolished), and in the field behind, the outline of a hollow way



Figure 6. Area of current evaluation with previous archaeological investigations indicated

century bricks within the structure of drains or soakaways built beneath or to the edge of these tracks.

Undoubtedly the most interesting feature found during the course of this excavation (but perhaps the most ambiguous) was a series of eroded-out parallel linear hollows cutting through the top of the gravel (natural) at the eastern end of Trench 1. Although now largely worn away and buried beneath sterile silts, the presence here of a compacted surface and denuded remnant soil horizon on the base and ridges between the four hollows seems quite reminiscent of the sorts of shallow hollow way expected within this sort of landscape. In fact the strongest indication that what we were dealing with here was a hollow way came from the study of a 1953 Aerofilms oblique air photograph (Figure 5). This shows the recently constructed Buildings 201 and 202, and behind it in the distance the first phase of housing on The Close, the latter built to house the staff of the recently opened Babraham Institute. Seen crossing the intervening fields and open woodland (part of the landscape of the former Babraham Estate), from left to right, is the faint outline of a linear hollow in grassland. This feature cannot however be traced into the area of the Estate, suggesting that even then, minor landscaping of the area had begun to conceal its presence. Interestingly, the route of this putative hollow way, heading off in a NNE-SSW to NE-SW direction towards the eastern slopes of the Gog Magog Hills, can also be projected back (southwards) to an area of trees just to the north-west of the Institute road and Building 201, the site of the current Trench 1 (Figures 5 & 6). The indications of chalk close to the surface, both here and just to the east of the visible hollow, concurs with what we now know of the near-surface chalk outcrop in Trench 1, and also the area immediately to the north and west of this. On balance, therefore, it would seem that we are probably looking at the same feature. Today there is little or no evidence for this hollow way on the greens and verges of this estate, the much larger area of which now abuts the Car Park (Trench 1), separated only by a hedge boundary. Nevertheless, the projected route of this hollow across the estate was followed on foot, and the area of woodland beyond this fieldwalked. Faint evidence of a hollow may be detectable beneath the boundary hedge, but otherwise this whole area seems to have been landscaped and all trace of this feature lost. A northeast-southwest aligned hollow discovered within dense woodland some 150m north of Trench 1 is apparently part of a drain which is then culverted beneath the northern end of the High Street.

The formation of braiding in hollow ways is a well known phenomenon (Timberlake & Prag 2005); one which relates both to the eccentricity of stock movement and also the bogging down and gradual disintegration (through absence of metalling) of well worn routes, in particular where these traverse soft ground and/or approach river crossings. However, as shown in the present instance, it is often possible to tell, even through field survey work, the sequence of use of these parallel or diverging routes. At Babraham the discovery or else the prediction of other east-west hollow way routes has previously been noted by Hall (2003), Armour (2007) and then further discussed in Timberlake *et al.* (forthcoming); one example being the route of the Roman – Post-medieval road which passes through the eastern edge of the Roman settlement. Towards the southern end of this where it crosses the edge of the chalk down onto the gravel flood plain this appears to follow a hollow way route in its approach to the river, an antecedent perhaps to the straightened version of the Roman Road, and an indication also this may once have formed one of the branches of the

Icknield Way (Southern Route) crossing the Granta at its most fordable point. Moreover, the possibility that there are many such routes (now largely disappeared) converging on this stretch of the river is suggested by another double or triple-tracked hollow way which skirts the western side of 1st-4th century Romano-British settlement, one which seems to have been still in use in Late Roman times, if not later during the Medieval period (Timberlake et al. *ibid.*). Where this was sectioned at its northern end these tracks contained little in the way of infill or cultural deposits, yet at its southern end this contained a significant depth of 'dark earth' from which finds (including metalwork) was recovered. The latter serves to demonstrate the very variable preservation of these features. Indeed, it seems not uncommon for sections of these ways to be almost completely eroded and weathered out, and thus not only devoid of finds, but also quite difficult to identify and date. This seems to be the case with these four hollows (and any further ones which may exist beyond the east end of the trench). We can only presume therefore that these pre-date the 16th century construction of Babraham Hall and the landscaping of the estate and that a Prehistoric – Medieval origin for this route seems likely. Indeed, it is quite possible that this converges, as with the other suggested routes extant during the occupation of the Romano-British settlement, on the same crossing point of the Granta (see Figure). The importance of this would be in trying to establish its contemporaneity, or otherwise, with the continued use of the Icknield Way.

Conclusion

No archaeological features were located within the footprint of the proposed southern building, whilst those dateable features found during trenching within the footprint of the proposed northern building were mostly Post-medieval (late 18th to 19th century) and garden-related. The one feature of potential interest to the understanding the earlier Prehistoric- Medieval? archaeology is the eroded-out remnant of a close-knit series of hollow way tracks. This northeast-southwest aligned feature passes through the western half of this building footprint beneath the current car park.

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OASIS ID: cambridg3-109049

Project details

Project name	Babraham Research Campus B270 Archaeological evaluation
Short description of the project	<p>Between 12th-14th August 2009 the Cambridge Archaeological Unit carried out a small archaeological evaluation (90m of trenching) within the Babraham Research Campus prior to the construction of a new building (B270) some 200m to the north of the river and to the east of the Hall. Within most of this area the top of the chalk outcrop and overlying gravels lay close to the surface, though the absence of archaeology here does not appear to be due to any significant truncation of deposits. Several small postmedieval features were encountered at the eastern end of the site, including a couple of shallow gullies (possibly associated with hedge planting), some possible planting pits, and a shallow well, perhaps associated with the cultivation of former gardens. A thicker development of soil was noted at the west end of the site (Trench 1) beneath the area now occupied by a tree-lined verge for a car park. The compacted surface of a north-south post-medieval chalk-metalled road or path was encountered at the north-west end of this trench, beneath which lay a couple of circular pits, including one lined with probable 17th-18th century brick. These may have been drains or soakaways connected with the construction of the road, or else could been part of some still earlier structures. A pronounced undulation in the natural surface of the gravels associated with a compacted and denuded palaeosoil was interpreted here as being the remains of a series of at least four eroded-out and subsequently silt-filled hollow ways. These parallel tracks appeared to be heading down towards the river in a north-east to south-west direction; further evidence for this feature being provided by a 1953 air photograph that shows a similarly aligned hollow in the field to the north. No artefacts or dating material was recovered from this feature, though a tentative Late Prehistoric to Medieval date is suggested.</p>
Project dates	Start: 12-08-2009 End: 14-08-2009
Previous/future work	No / No
Any associated project reference codes	RCB09 - Sitecode

Any associated project reference codes	ECB3245 - HER event no.
Type of project	Field evaluation
Site status	None
Current Land use	Industry and Commerce 2 - Offices
Monument type	ROAD Post Medieval
Monument type	HOLLOW WAY Late Prehistoric
Monument type	WELL Post Medieval
Monument type	DITCHES Post Medieval
Significant Finds	BRICKS Post Medieval
Methods & techniques	'Sample Trenches'
Development type	Rural commercial
Prompt	Direction from Local Planning Authority - PPG16
Position in the planning process	After full determination (eg. As a condition)

Project location

Country	England
Site location	CAMBRIDGESHIRE SOUTH CAMBRIDGESHIRE BABRAHAM Babraham Research Campus B270
Postcode	CB223AT
Study area	1951.00 Square metres
Site coordinates	TL 55121 25020 51.9016666667 0.2550 51 54 06 N 000 15 18 E Point
Height OD / Depth	Min: 24.00m Max: 26.00m

Project creators

Name of Organisation	Cambridge Archaeological Unit
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	Robin Standring
Project director/manager	Robin Standring
Project supervisor	Simon Timberlake
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Babraham Bioscience Technologies

Project archives

Physical Archive Exists?	No
Physical Archive recipient	Cambridge Archaeological Unit

Physical Archive ID	RCB09
Digital Archive recipient	Cambridge Archaeological Unit
Digital Archive ID	RCB09
Digital Contents	'Stratigraphic','Survey'
Digital Media available	'GIS','Images raster / digital photography','Survey','Text'
Paper Archive recipient	Cambridge Archaeological Unit
Paper Archive ID	RCB09
Paper Contents	'Stratigraphic','Survey'
Paper Media available	'Aerial Photograph','Context sheet','Map','Notebook - Excavation',' Research',' General Notes','Photograph','Plan','Report','Section','Survey '

Project bibliography

1

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