Worthing Archaeological Society Journal

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11.—PARHAM *circa* 1770, BY S. H. GRIMM

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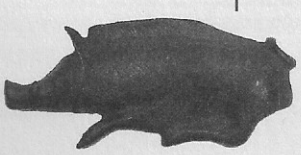


Editor

Welcome to this re launch edition of our Journal, it has been a long time coming to you, but I hope the wait is worth while.

You will see that the Journal has a new layout and a much fresher approach, your comments would be most welcome, as will articles from you to include in our next edition, and deadline for this will be the 30th September 2009.

It is with sadness that I have to let you know of the deaths of two members of the society; Max Saunders, who died in his early nineties, and Joe Barrow, who has died in his early seventy's, both will be sadly missed.

There will be a full obituary in our next edition.

The field unit has been heavily involved in various works over the past year, and in this edition of the journal there are field reports on our work at Blacksmiths corner, and at Parham, together with an interesting report of the Dove cote at Parham Park.

Please do look at the websites for up to date information, the web sites have a wealth of information, from site reports, to interesting articles for you to read on line or download.

Information about walks, visits, photos, opportunities to take part in field work, its all there: **http://worthingpast.blogspot.com**
follow links to various other sites run by the Society, a new major web site is being launched very soon.

Rodney Gunner - Editor

Deadline for articles for next issue is 30th September 2009, please supply in .pdf format if possible and photos as separate .jpegs.

Articles from members own research are most welcome.

Peter Brannlund

The Roman Villa at Blacksmith's Corner, Walberton, West Sussex -

An interim report on the 2008 excavations

Figure 1. Excavation in process, August 2008

SUMMARY

In 2006, at the invitation of Mr Luke Wishart, the Worthing Archaeological Society undertook excavations in a field at Blacksmith's corner, Walberton to investigate finds of pottery. Three seasons of excavation and field survey have revealed a previously unrecorded Roman villa. The 2008 fieldwork involved excavation investigating the construction of the villa, the possible bath house and an area outside the main building.

The villa consisted of five main rooms (and two possible narrow corridors), with corridors/verandas to the east, west and south. Pottery and coins ranged in date from the mid first Century to the forth century.

The excavation investigated the relationship of a number of internal walls between rooms 1 & 2 and 2 & 3, in particular examining whether the internal 'corridor' walls were all built at the same time as the main villa walls. In addition, the trenches investigating the construction of the walls were dug to the base of the surviving wall foundations to investigate the survival or otherwise of any floor levels.

A possible pit, which cut one into the main west wall of the villa building, was also investigated, to determine its relationship to the villa. Based on the contents of the pit, it appeared to be directly related to the demolition of the villa.

A trench was also located at the apsidal wall found in 2007 to investigate whether this feature related to a possible bath house.

Finally, an evaluation trench was located to the north of the villa building to investigate the landscape outside the villa. This trench uncovered a ditch rich in Roman refuse.

This year's excavation has recovered quantities of ceramics, animal bone, oyster shell and small finds. Finds of note include coins, a broach, stamped samian pottery and a chariot terret ring.

PREVIOUS WORK

2008 was the third season of excavation on the site of the villa at Walberton, West Sussex. The previous two years had focused on uncovering the location and the layout of the villa to determine the shape and size of the main villa building.

In 2006, a series of test pits were located based on the verbal evidence of the landowner that a large quantity of pottery and ceramic building material (CBM). One of these test pits located the junction of the walls of the main villa,and a geophysical survey (Fig. 2) was undertaken which showed the layout of the rooms of the villa.

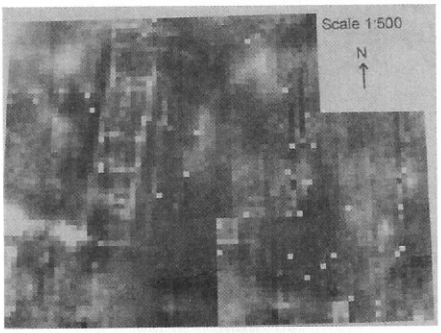


Figure 2. 2006 Geophysical survey results

In 2007, a 30m x 30m trench was opened to reveal the majority of the floor plan of the villa (Fig. 3). A sondage was dug in areas to determine the extent of the walls, which extended to a depth of 0.83m below the top of the remaining wall.

In addition, in 2007 an apsidal wall was uncovered. It was not immediately obvious whether this wall related to an apse ended corridor, or whether this was part of a possible bath house structure.

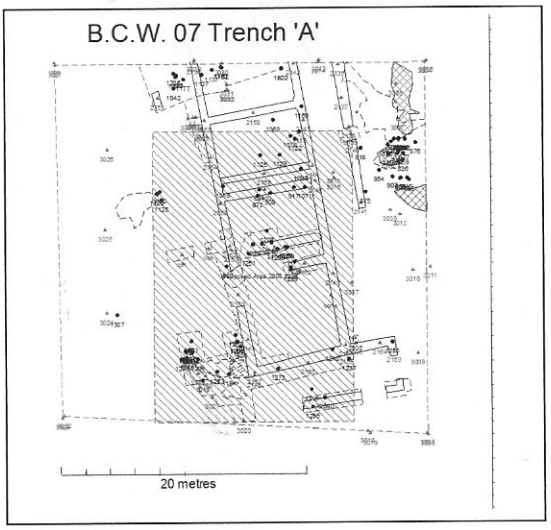


Figure 3. 2007 Trench Plan (with 2008 trench highlighted in the blue hashed area)

AIMS AND OBJECTIVES

The aims and objectives of the 2008 excavation can be split into general aims relevant to the understanding of the construction of the villa, and more specific objectives related to features already exposed in the villa building. The archaeological aims were:

1. To open up areas to ascertain if the 2007 excavation exposed the floor level of the villa building or whether there were any surviving floor(s) at greater depth.
2. To determine if the internal walls were of the same construction method and date as the main external villa walls.
3. To investigate the apsidal wall to determine if this relates to an apse ended corridor or a possible bath house.
4. To investigate the "pit" area uncovered in rooms 1 & 2.

RESULTS

Trench B1

Trench B1 was located inside room 1 against the centre of the east wall (Fig.4). The trench was dug to explore the depth of the walls, and to see if there were any traces of surviving floor levels below the level exposed in the 2007 excavations.

Figure 4. Trench B1 partially excavated (facing east)

The walls continued to a depth of almost 0.7m and were constructed of packed flint. No evidence of a foundation trench could be seen, so it is assumed that the builders dug the trench the width of the required foundations.

The soil the whole depth of the trench was clean brick earth, and there was no evidence of any surviving floor layers. At the base of the trench, an area of flints was uncovered, although this is thought to be a natural geological deposit.

Trenches B2a & B2b

These trenches were dug parallel to one another in the corridor south of room 1. Trench B2a was against the outside of the south wall of room 1, and trench B2b was located on the inside of the corridor wall.

Trench B2a (Fig. 5), similar to trench B1, showed the main wall of the villa to be surviving to a depth of approximately 0.7m.

Trench B2b showed that the external corridor wall only extended to 0.1m deep.

Both trenches again consisted of clean brick earth with virtually no finds of any description. The limited number of finds made in the trenches is thought to have been deposited through bioturbation (the physical rearrangement of the soil profile by plants and animals).

Figure 5. Trench B2a under excavation

Trench B3

Trench B3 was located to the south of the apsidal wall uncovered in 2007. The trench showed clear layers of mortar between each course of flints. Under a relatively shallow layer of brick earth, the soil contained a very high percentage of flint gravel (Fig. 6).

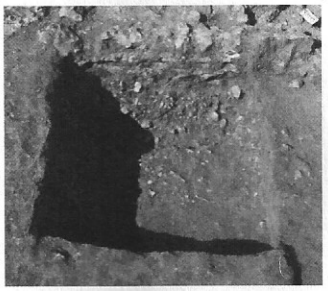


Figure 6. Trench B3 (facing north)

Trench B4

Trench B4 was located against the western bulk of the main trench area. The trench did uncover a layer of flints, but time constraints meant that this trench was not explored further.

Trench B5

Trench B5 was opened at the south west of the main villa building. Trench 5 was located to investigate an area of burning that had first been discovered in 2007 (Fig. 7).

Figure 7. Trench B5 area of burning (facing north)

The trench revealed a deep area of burning to the south of a slightly curving wall. Directly north of the area of burning and adjacent to the wall was a patch of clay that had been partially fired by heat.

Trench 5 was extended to incorporate trenches B3, B8 and B11 (see below).

Trench B6

Trench B6 was located at the western end of the southern corridor wall that had had investigated in trench B2b. The wall seemed to stop suddenly, and so trench B6 was dug to see if the wall continued at a deeper level. There was no sign of the wall, but it could not be determined whether the wall deliberately finished or if the foundations beyond this point simply had not survived.

Trench B7

This trench was located between the internal corridor walls between rooms 2 and 3. The southern corridor wall was bonded into the main eastern wall of the villa building. Both the eastern wall and the southern corridor wall extended to a depth of 0.8m, although the corridor wall did have a band approximately 0.1m in depth of brick earth running the full length of the trench (1.8m) (Fig. 8)

Figure 8. Trench B7 Southern corridor wall between rooms 2 & 3 (facing south)

The northern corridor wall was only one course of flints deep, and was not bonded into the eastern wall. In fact, it appeared to have the corners of the wall missing. It has been put forward that this wall may have been built with wooden posts in each corner, although there is no surviving evidence of any such posts.

Two pieces of Iron Age pottery were found in this trench, but as with Trenches 1 and 2, it is thought they were deposited through bioturbation.

Trench B8

Trench B8 was located on a pit feature that had first been uncovered in the original 2006 (Fig. 9). The pit cut into the main western wall of the villa building, and the trench was located to investigate the extent and nature of the feature.

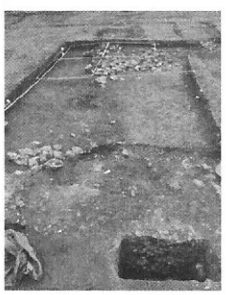


Figure 9. Trench B8 (facing east)

Directly to the east of the trench was a possible corridor wall similar to that exposed in the northern section of trench B7 and the southern section of trench B9. The trench was extended to the east towards the corridor wall where the spread of flints increased (Fig. 10).

Figure 10. Trench B8 (facing west)

In the north of trench B8 the cut in the pit was clearly visible, with the clean brick earth to the north, and the pit area with a very high percentage of mortar and chalk inclusions to the south. The pit feature seems to be related to the demolition of the villa and was full of large flints, tile, brick fragments, box flue tile fragments, partial dressed greensand blocks, and painted wall plaster fragments.

To the east of the trench, under the rubble spread, was a partial articulated chicken skeleton (figs. 11 & 12).

Figure 11. Chicken Skeleton (facing west)

Figure 12. Chicken Skeleton uncovered (facing west)

The pit feature seems to extend for a diameter of approximately 4m and seems to have been deliberately dug in the North West corner of room 1.

The pits area appears to have been created at the time of the demolition of the villa. The large amount of demolition type rubble and the overall small amount of tegula and imbrex seems to show that at the end of its life, the villa was dismantled, and any reusable material was taken away. The final destination of this material is not known, but there is an amount of roman tile visible in the walls in the church at Walberton.

Trench B9

This 1.5m x 1.5m trench was located at the south western corner of room 3, against the west wall of the villa and the northern side of the north corridor wall exposed in trench B7 (Fig. 13).

Figure 13. Trench B9 (facing west)

The corridor wall was shown to only be one course of flints deep, and was not bonded into the western wall. The corner of the corridor wall was once again missing, tying in with the evidence from trench B7.

The western wall itself continued to a depth of 0.8m, and appeared to have been better constructed than the eastern or southern walls of the main villa building. Two clear beds of mortar were visible at the top of the wall exposed, and the whole wall appeared to be constructed in clear layers of flint.

Trench B10

This 1m x 1m trench was located in the north western corner of room 2, against the west wall of the villa and the southern side of the south corridor wall exposed in trench B7 (Fig. 14).

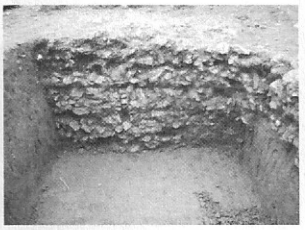


Figure 14. Trench B10 (facing west)

The soil was clean brick earth with very few finds. The western wall of the villa made up of well defined layers of flints, as with trench B9. The southern corridor wall visible in the north section should have been the same as the south section in trench B7. However, whereas the wall in B7 extended the whole depth of the trench (excluding the 0.1m gap described in B7 above) the corridor wall in trench B10 only extended down 0.3m and was not visible below this point. Due to time constraints, we were unable to extend either trench B7 or B10 to try to determine at what point the lower section of the wall ceases to continue.

It now appears that what were thought of as internal corridor walls now appear to be evidence of a rebuild at some stage in the lifetime of the villa. The south walls of each 'corridor' are built into the main north-south walls, and are at least 0.3m deep. In contrast, the north walls of each corridor are only butted up to the main wall and are only 1 or 2 courses of flint deep.

Trenches B1, B2a, B7, B9 and B10 have also all independently confirmed that there are no surviving floor levels remaining below the level of the 2007 excavations inside the main villa building. It may even be that the original roman floor level was at or even above the current ground level. Thousands of tesserae have been found during the three seasons of excavations, both in the trenches and across the field, but none have been found in situ.

Trench B11

Trench B11 was located on and to the north of the apsidal wall (Fig. 15).

Figure 15. Trench B11 Apse Wall (facing north)

The flint rubble filling the apse was removed, and the area within the apse was taken down approximately 0.1m. When the area of the apse was cleared, the beginnings of a second apse were revealed (Fig. 16).

Figure 16. Trench B11 - Double Apse (facing south)

Trenches B3, B5, B8 and B11 were joined together to investigate the relationship of the various features. At the intersection of B5 and B8, a small area of opus signinum flooring was found together with a number of pilae tiles, including one with mortar adhering to both the top and bottom, giving evidence of a possible hypocaust (Ernest Black, 2008, pers comms).

The apsidal wall now does appear to be a bath house. The area of burning to the south of the apse (Fig. 17) appears to be related to a slightly curved wall feature leading towards the south of the apse. It is thought that this area would have held a cauldron or pan of water that would have been heated by the fire to provide the hot water for the bath house.

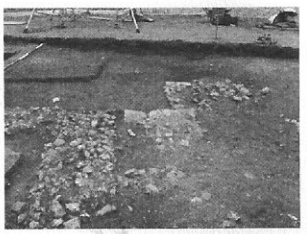


Figure 17. Possible stoke hole area (facing south)

Trench C

Trench C was dug to the north of the main trench B. The trench exposed the northern end of the villa, with a possible ditch running parallel on an east-west alignment.

The ditch was found to be rich in finds, including a large quantity of oyster shells and animal bones, fine roman glass fragments, pottery, and a copper alloy chariot terret ring.

Included in the pottery finds was a stamped Samian base and footring sherd marked with the name "ALBVCIANI" (Fig. 18). This potter was working in Lezoux in central Gaul between 140 and 190 AD.

Figure 18. Stamped Samian base sherd found in trench C

The trench also contained large portions of the remains of the base of a Rowland's Castle ware storage jar.

The ditch feature itself appeared to be lined with flints, but no immediate reason for this lining could be ascertained.

Trench D

Trench D was a continuation along the line of trench C. A large spread of flints was revealed, but time constraints meant that the feature could not be further investigated this season.

ARTEFACTS AND CHRONOLOGY

The last three years of excavation have resulted in the recovery of a number of important artefacts which provide a relatively accurate chronology for the villa.

The coin evidence has been very limited given the large size of the villa, but the coins we do have span the date range from the 1st century through to the 4th century.

The date range of the pottery, both fine ware and coarse ware, correlates very closely with the coin dates, although it is noticeable that the fine wares tend to be more prolific in the earlier life of the villa.

A number of personal finds, including the copper alloy bracelet found in 2006 (Fig. 19), the remains of two rings, one from 2006 (Fig. 20) and one from 2008, the probable toilet set implement (Fig. 21) from 2007, the bone pin from 2007 (Fig. 22) and the various brooches and pins do give us a tantalising glimpse into the lives of those who would have lived and worked in the villa in its heyday.

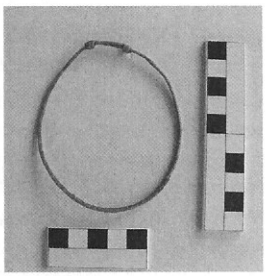


Figure 19. Copper alloy bracelet found in 2006

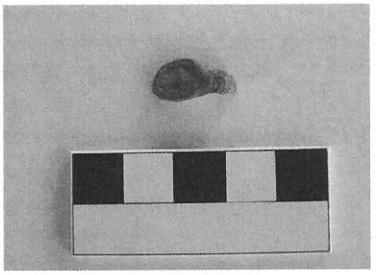


Figure 20. Ring fragment found in 2006

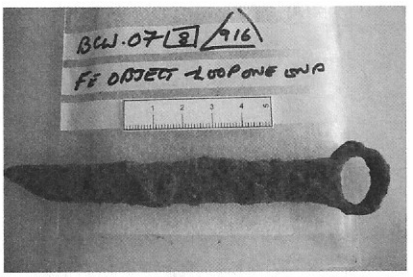


Figure 21. Toilet set implement(?) found in 2007

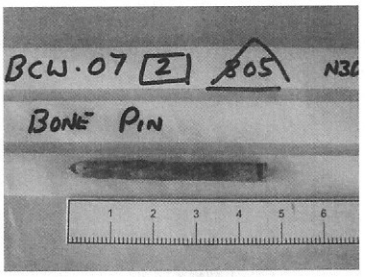


Figure 22. Bone pin found in 2007

CONCLUSION

The year's excavations were successful. The weather was relatively good, with only a couple of days work lost due to rain and the labour force willing and capable. A considerable amount of soil was shifted, and the results are exciting and informative. Some specific goals were set for the season and it is sensible to conclude this report with an assessment of how successful we have been in meeting our targets.

The objectives were:

1. To open up areas to ascertain if the 2007 excavation exposed the floor level of the villa building or whether there were any surviving floor(s) at greater depth.
2. To determine if the internal walls were of the same construction method and date as the main external villa walls.
3. To investigate the apsidal wall to determine if this relates to an apse ended corridor or a possible bath house.
4. To investigate the "pit" area uncovered in rooms 1 & 2.

These objectives were all achieved, and we were also able to identify new areas for future excavation.

Our general aims were also advanced considerably by this year's work.

A number of environmental samples have been recovered and it is hoped these will be processed later this year. This should give us a detailed understanding of the agricultural practices occurring around the villa in the roman period.

The assemblages of animal bones, pottery and other artefact types are large enough to begin meaningful analysis to sharpen the chronology of the site. Unfortunately, anecdotal verbal evidence that the site has been very heavily metal detected over the years appears to be backed up by the very low number of coins recovered during the past three seasons.

However, based on initial analysis of the pottery, it does appear that the site was in constant use from the mid 1st century all the way through to the late 4th century, and the limited coin evidence we do have ties into these dates very nicely.

As with any excavation, we have finished the season with a new set of questions to be answered. Although the main layout of the villa has been determined, the bath house area, and the area immediately to the west of the main building still warrant further investigation.

The pit area in trench B8 appears to be related to the demolition of the villa, and further work here may help provide a date of this final event in the life of the building.

Additionally, the landscape surrounding the villa needs further investigation, in particular the search for boundary ditches, track ways, and out buildings. A very small amount of Iron Age pottery has been found over the three seasons, and so work to understand the longer term development of the site is also needed.

ACKNOWLEDGEMENTS

The excavations would not have been possible without the kind permission of Mr Luke Wishart, and we would like to express our gratitude for his continued interest in our work.

We would also like to thank May Gurney for their generous sponsorship by providing the digger and operator that greatly speeded the removal of the top soil.

Gordon Hayden and Malcolm Lyne provided much appreciated on site support with the identification and dating of the pottery finds, and Martyn Allen for his help identifying the range of animal bones.

We would also like to express our thanks to John Mills (County Archaeologist) and James Kenny (District Archaeologist) for their interest and guidance in the excavations.

Worthing Archaeological Society

September 2008

BIBLIOGRAPHY

Black, E, 2008, Pers Comms

Oswald, F./Pryce, T.D., *'An Introduction to the Study of Terra Sigillata'*, London, 1920

Tyers, P., *'Roman Pottery in Britain'*, Routeledge, London, 1999

http://w-a-s-excavation-diary.blogspot.com

Parham - Report 2

Peter Brannlund

Investigations into a Lost Medieval Village, Parham, Storrington, Nr Pulborough, West Sussex -

An interim report on the May 2009 excavations

Figure 1. Members of WAS excavating Trench L

SUMMARY

In 2006, at the invitation of the Parham Estate, the Worthing Archaeological Society (WAS) undertook excavations to try to establish the position of the medieval village of Parham. The excavations were located based on a resistivity survey and report conducted by Southampton University (October 2006). These excavations found no archaeological features of note, certainly no evidence of a medieval village. A WAS resistivity survey of the area south of the main house revealed further anomalies which were investigated in 2008 (Fig. 2). Again these revealed little in the way of archaeology other than a collection of largely residual artefacts. It became apparent that the subsurface geology (Upper Greensand with ferruginous layers) was affecting the resistivity results.

Desk based research produced a tracing made in 1898 of a map of the estate drawn in 1848 (see Fig. 3). This showed the presence of a parcel of glebe land to the east of the church. Further research showed that there had been a parsonage to the east of the church, separated from it by an orchard. Further documentary research produced an inventory of the rooms of the parsonage (see Appendix) and gave a date for it's demolition in the period 1720-1750. A re-evaluation and analysis of the resistivity results indicated the presence of an anomaly in approximately the same area as the glebe land. It also showed a curvilinear anomaly leading from the graveyard to current roadway through the estate (see Figure 2).

AIMS AND OBJECTIVES

The objectives of the excavations in May 2009 were: -

To confirm the presence of an earlier track way leading to the graveyard;

To investigate the mound area;

To try to locate the position of the parsonage.

Figure 2. WAS Geophysics Results 2008

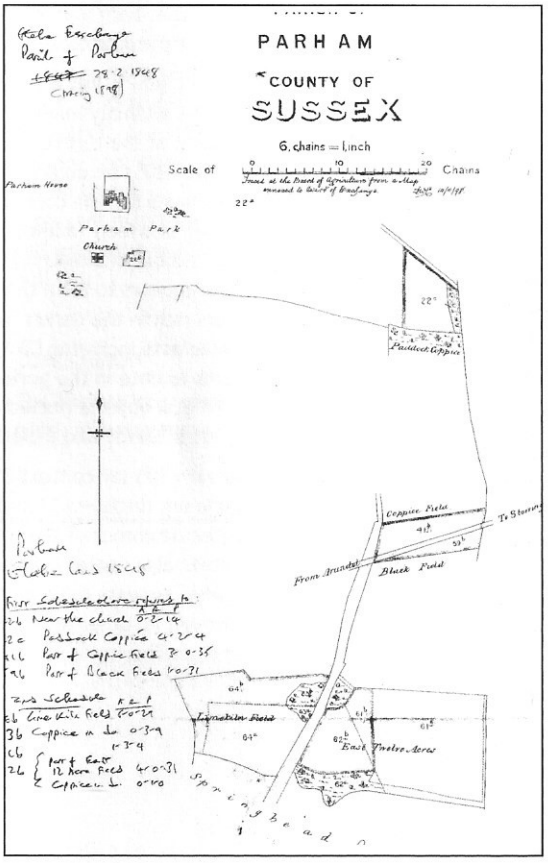


Figure 3. Tracing made in 1898 of a map (1848?) showing the glebe land to the east of the Church

METHODOLOGY

Between Saturday 23rd and Monday 25th May, 2009, 32 members of WAS were involved in the excavation of 3 trenches and 8 test pits. All were deturfed by hand, and then excavated by trowel or mattock.

In addition WAS ran 6 tours of the site for the general public. These included displays of the archaeology of Parham Estate as well as visits and talks on the dovecote and church. There was also the opportunity for members of the public to participate in various aspects of the excavation including finds washing and towelling in the test pits.

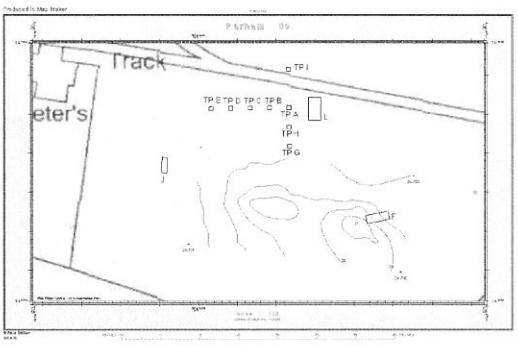


Figure 4. Plan of the trenches and test pits excavated May 2008, with results of the contour survey over the mound area

Objective 1 The Track way

A re-evaluation of the resistivity results obtained revealed a curvi-linear anomaly leading from the eastern gate in the graveyard to the south of the church to the modern track way (see Figure 2). Two trenches were located to cut this feature.

Trench J (4m x 1.5m, see Figure 4) was located 15m from the current eastern boundary of the graveyard (see Figure 3). Immediately below the topsoil was a gravel spread 220cm wide and extending roughly east-west across the trench (context 202, see Figure 5). The gravel consisted primarily of yellow-brown stained, water worn flints (size range 0.5 to 13cm), with small amounts rounded ironstone and a few fragments of CBM. This spread formed a layer c.8cm thick and lay above a layer from large blocks (largest seen was 26 x 23 x 7 cm) of sandstone (context 215, see Figures 5 & 6). This sandstone is very similar to that seen in the quarry to the east of the main house. The blocks fit together and therefore appear to have been laid rather than dumped.

Trench F (6m x 2m), located 42m further east, showed a spread of crushed and packed ironstone fragments in the north east corner. Time constraints prevented further investigation of what lay beneath this spread.

Interpretation

The anomaly seen in the resistivity results represents a well made track way. Time and effort was put into its construction using the age-old technique of large blocks of material forming a stable base beneath a graded, finer surface. Given the sandy nature of the soil and underlying geology, it does not appear that drainage ditches either side of the track way were necessary. Unfortunately, no dating evidence was recovered; however, it is most likely that the track way

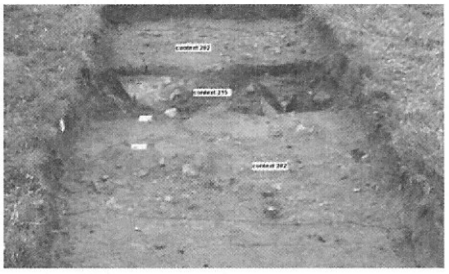


Figure 5. Photograph of the northern end of Trench

was in use during the period that the Parsonage was occupied. It is also likely that the track way formed the southern boundary of the area occupied by the Parsonage.

Figure 6. Photograph showing detail of context 215

Objective 2 The Mound

Since WAS started working on the Parham Estate there has been a lot of speculation over the origin of the mounds east of the church. In 2008, trench F was opened to investigate this area, but bad weather prevented all but deturfing. Trench F was therefore reopened and extended in order to investigate both the path and the mounds. A contour survey was carried out to establish the exact size and shape of the mound (see Figure 4)

Trench F was located on the northeast corner of the mound area. Immediately below the topsoil was an unstratified layer (context 206) that thinned from 44cm in the western extreme of the trench, to nothing 2.1m from its eastern extreme. The context contained a wide range of finds, including a fragment of glazed medieval floor tile, large pieces of worked sandstone (max dimensions needed), sundry CBM and pottery sherds and a shotgun cartridge. Below context 206 at the western end of the trench was context 214, a mottled yellow brown sand/clay mix. At the eastern end of the trench context 206 butted over context 219, interpreted as the track way surface. The relationship between contexts 214 and 219 was not seen.

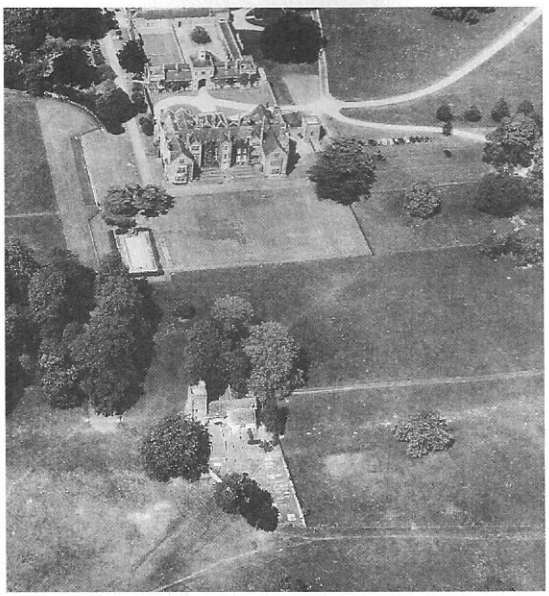


Figure 7 Aerial photograph taken prior to 1958 showing the track way as a parch mark.

Interpretation

A pre 1958 aerial photograph (see Figure 7) shows the track way as a parch mark. Context 206 extends over the context representing the track way (219). This means that the mound could not have been present in 1958. Its unstratified nature and 'jumble' of artefacts from different periods suggests it is a 'dump' deposit. It is therefore likely that the mound was formed by the material excavated in the construction of the ha-ha in (1972). This is further reinforced by the nature of the artefacts which bear a strong resemblance to those in the Parham collection (from the excavations of Ainsworth et al in the 1970s) and those recovered from the WAS excavation of the wall in 2008.

Objective 3 The Parsonage

Documentary sources indicate the presence of a parsonage east of the church. The parsonage consisted of a house, barn and stables. Re-evaluation of the resistivity indicates a marked anomaly in this area.

Trench L (6m x 3m) was positioned to test the theory that the anomaly marked the position of the Parsonage. Removal of the turf revealed a chalk rubble surface (context 205) extending across the whole of the trench (see Figure 8). The context extended to a depth ranging between 180mm and 400mm and consisted of chalk rubble in a matrix of a dark, fine sand/clay. The chalk appears to form thin layers interspersed with thin layers rich in the darker matrix. The context was rich in artefacts including CBM, pottery (nearly all of which seems to date in the period 1600 to 1750), glass, bone, and metal objects (including a pair of scissors, possibly candle scissors, and a clothing stud).

Beneath 205 lay context 213, a layer of packed chalk, maximum thickness 210mm, which thinned towards the southeast corner of the trench (see Figure 9). The context also contained one large flint and a large block of what appears to be glass making slag (see Figure 9), however, no other artefacts were recovered from this context. This context was underlain by a mottled yellow, sandy layer (context 216), which was interpreted as disturbed natural. A few pieces of pottery and CBM were recovered from the interface of 213 and 216.

Figure 8 Trench L looking south showing the spread of context 205 across its surface

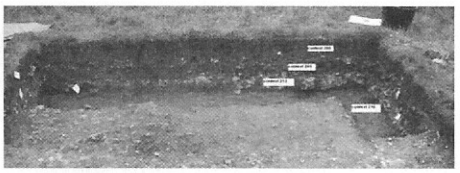


Figure 9. Trench L. Showing the stratigraphy in the southern face of the trench

Interpretation

This feature appears to be a yard. It was originally constructed by putting down a thick layer of packed chalk. As time passed there was wear in some areas, whilst debris accumulated in others. More, thinner chalk layers were then added to maintain levels and keep it clean. Until a more detailed study of the pottery may allow more precise dating, but the excavators have provisionally dated the feature to 1600-1750.

In order to help ascertain the size of the footprint left by the parsonage, test pits A to I were excavated. Test pits A, B, G and H all revealed evidence of a built area. Test pits C, D and E all contained artefacts, mainly pottery consistent with that found in context 200 within trench L. It is thought that these may well represent manuring of the orchard. A small copper alloy bell was recovered in test pit E, possibly a hawking bell.

CONCLUSION

The excavations were successful. The weather was good, allowing three full days of excavation. All of our objectives were achieved, and the test pits (which were not part of the original project design) will allow us to target further excavations more precisely.

ACKNOWLEDGEMENTS

The excavations would not have been possible without the kind permission of Parham Estate, and we would like to express our gratitude for their support of our work.

We would also like to thank the residents and staff of the House for their interest in the excavations. Special thanks to Lady Emma and Mr Barnard, Richard Pailthorpe and Sue Martin.

We also take this opportunity to thank Reverend David Farrant for allowing access to the church throughout the duration of the excavation.

Worthing Archaeological Society

May 2009

APPENDIX

Parsonage Inventory 21 April 1666

Parsonage Inventory 2 December 1708

Excavations at Parham House, Storrington, Nr Pulborough, West Sussex:

An interim report on the May 2009 excavations

Parham - Report 1

Peter Brannlund

Investigations into a Lost Medieval Village, Parham, Storrington, Nr Pulborough, West Sussex -

An interim report on the 2008 excavation

Figure 1. Parham House, south aspect

SUMMARY

In 2008, at the invitation of the Parham Estate, the Worthing Archaeological Society undertook excavations in the grounds of Parham House to investigate the possible location of a deserted medieval village.

The SMR records record the site of a deserted settlement immediately south east of the church, is stated that there were buildings there as late as 1778-9, and earthworks were present in 1873.

A geophysical survey undertaken in 1969 identified possible structures, a pit was dug, and thirteenth century pottery/fourteenth was excavated.

The excavation investigated the possible location of the village, between the House and the Church. A series of small trenches were excavated exploring the area, but unfortunately little evidence of any the village was found, with no building remains located.

Finally, two evaluation trenches ware located in the Ha-Ha to the south of the house. One of these located the remains of a stone built wall and a quantity of pottery.

This year's excavation has recovered quantities of ceramics, building material, and small finds.

PREVIOUS WORK

In the 1970's the Ha-Ha to the south of Parham House was dug (or possibly re-dug, the records are a little sketchy). A variety of pottery was found of various dates including roman and medieval. However, the depth of the deposits was not recorded.

2008 was the first season of excavation on the site of a possible deserted medieval village at the Parham estate, West Sussex.

A geophysical survey (Fig.2) of the area to the south of Parham House was undertaken prior to the initial weekend of excavation.

Figure 2. Geophysical survey results

AIMS AND OBJECTIVES

The aims and objectives of the 2008 excavation can be split into general aims relevant to locating the medieval village. The archaeological aims were:

To locate evidence of the location of the medieval village.

To determine the depth of any archaeological deposits.

RESULTS

24 - 26 June 2008

Over the first weekend of excavations between 24th and 26th June 2008, five trenches were opened based on the geophysics results.

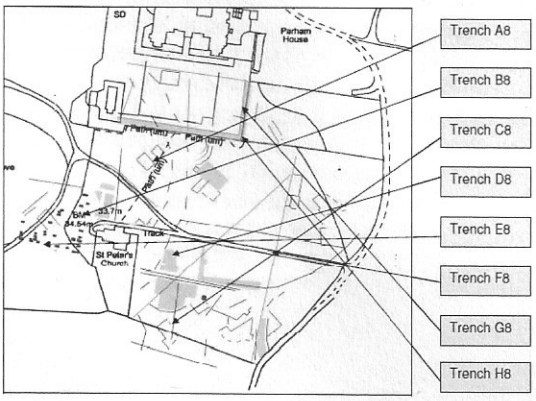


Figure 3. Trench Locations

Trench A8

The first trench was located part way along the footpath between the House and the church (Fig. 4 & 5).

Figure 4. Opening Trench A8

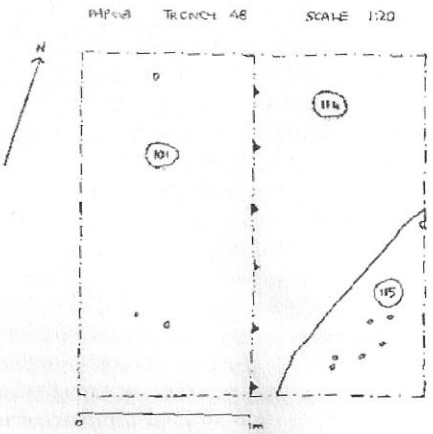


Figure 5. Trench A8 Plan

The trench exposed what became the familiar clean sandy soil. A possible feature was noted in the south-east corner of the trench, but investigation led us to believe that this was a natural feature, possibly caused by the way the sub soil drains.

Trench B8

Trench B8 (Figs. 6 & 7) was located just to the west of the entrance to the church. Initially the trench was located one what was thought to be a possible post hole. However, only changes in the natural sand were detected, with no sign of man made features.

The trench was located close to a gateway in a fence, and it was noted that there was a small patch of stone visible in the grass in the gateway. Therefore, an extension to the trench was made to expose the stone fully.

The extension revealed a 15th Century table tomb lid, and another slab of stone with three holes chiselled into it (Fig. 8). The slab is thought to be part of the original floor of the church, and the holes are fittings for the rood screen that could have been in place prior to the reformation during the 16th Century (R. Hutchinson, Pers Comms).

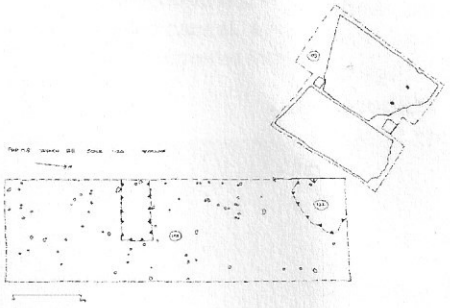


Figure 6. Trench B8 Plan

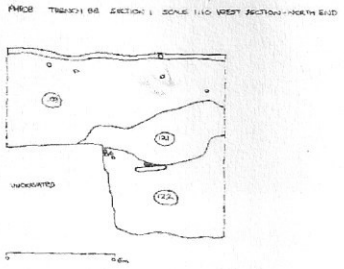


Figure 7. Trench B8 Section

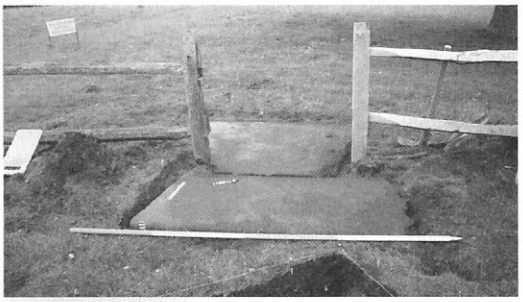


Figure 8. Table Tomb Top in Trench B8 Extension

Trench C8

Trench C8 (Fig. 9) was located on a possible pit identified from the geophysics. However, the trench revealed no man made features.

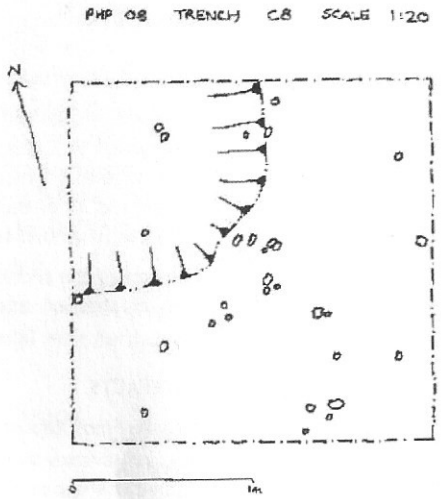


Figure 9. Trench C8 Plan

Trench D8

Trench D8 (Fig. 10) was located to the east of the church, on a geophysics response that was interpreted as a possible location for the village parsonage.

Unfortunately, the trench contained no man made features, and consisted of sterile sand.

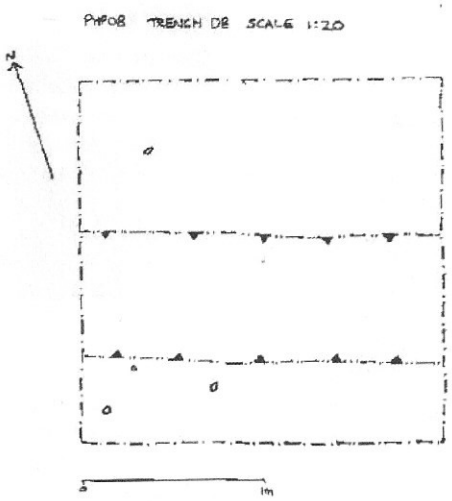


Figure 10. Trench D8

Trench E8

Trench E8 (Fig. 11) was located west of the church, on one of a series of small responses that were thought to be pits of possible graves.

The trench did contain a number of different contexts including context 120 which was an area of a relatively clean clay area and context 121 which had a high proportion of flints with some chalk blocks.

Due to time constraints (and a day of excavation lost due to heavy rain) we were unable to fully explore the nature of the features. It is hoped we can investigate this area further in future excavations.

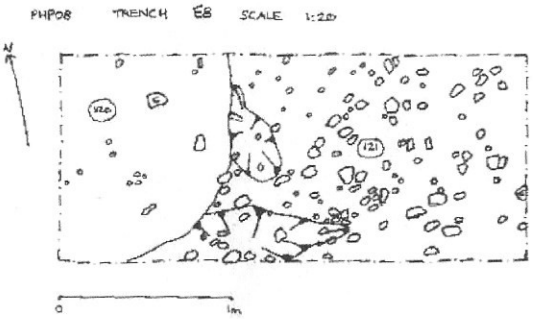


Figure 11. Trench E8 Plan

Trench F8

Trench F8 was started shortly before a heavy downpour that ended work a day early. The trench was located on the slope of a large mound that is visible on the south side of the road leading to the church.

Although the trench had only been de-turfed before work had to stop, there did appear to be a clear layer of compacted crushed iron-stone.

Further investigation will be needed to fully understand the nature of the mound.

12 - 13 July 2008

We returned to Parham over the weekend of 12/13 July. As there had been rich finds of pottery when the Ha-Ha (Fig. 12) was dug in the 1970s, in was decided to investigate the Ha-Ha in more detail to see if we could determine the depth of any archaeological layers.

Figure 12. Ha-Ha Looking North

It was also decided to investigate a wall feature within the Ha-Ha. The wall can be seen in the east side of the Ha-Ha running east-west. The visible construction of the wall appears the same as the Ha-Ha, but it was

decided to locate a trench alongside the wall to investigate further.

Trench G8

Trench G8 (Fig. 13) was located in the east face of the Ha-Ha to investigate the wall feature. The wall can be seen in the east side of the Ha-Ha running east-west. The visible construction of the wall appears the same as the Ha-Ha, but it was decided to locate a trench alongside the wall to investigate further.

The trench was dug alongside the visible exposed wall, and clearly showed that the wall that is visible was built at the time of the Ha-Ha directly on top of a substantial stone that was already in place.

The finds from the trench do not help us with clear dating (as pottery ranging from the roman period to the medieval period was found). However, the wall is the first indication we have uncovered of in situ archaeology remaining under the current grounds.

The foundation cut of the wall was clearly visible in the section exposed, and the trench has reignited our hopes that all traces of the village have not been lost, and there is still the opportunity of locating some substantial archaeological remains.

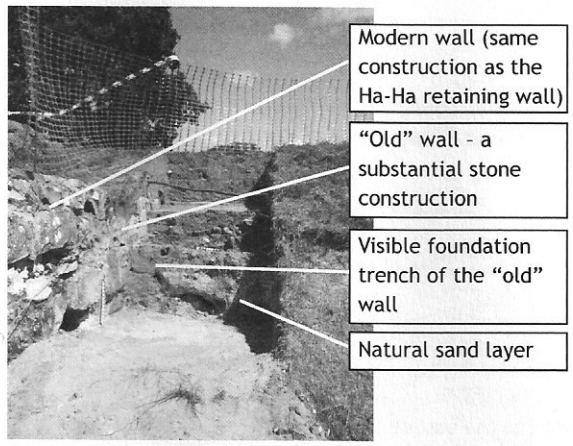


Figure 13. Trench G8 Facing East

Trench H8

Trench H8 (Fig. 14) was located in the south slope of the Ha-Ha. The trench was dug the length of the Ha-Ha. A stepped section was created for safety (as the soil on the whole site comprises of loose sand).

Figure 14. Trench under construction

The top step of the section clearly shows the visible remains of what is interpreted as a furrow caused by ridge and furrow ploughing (Fig. 15, the furrow is

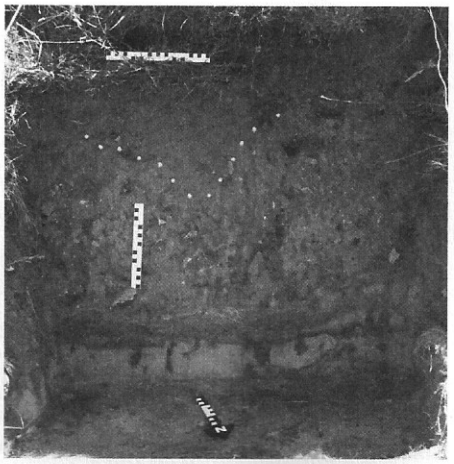


Figure 15. Trench H8 Section (Furrow marked)

marked by yellow pins). It results from a method of cultivation that was used throughout the medieval (1066-1540) period and later.

Further trenches will be needed to confirm that assumption that this is a furrow, but if it is, this gives us an excellent indication that any archaeological features south of the house will be relatively close to the modern ground surface.

The rest of the section merely showed changes in the natural layers of sand that make up the sub-soil.

ARTEFACTS

Interim Finds Report

Trench A

Metal finds recovered include 2 coins a George III Half-penny c. 1770 and a Victoria Half-penny dated 1861, an iron Belt or Shoe Buckle of unknown date and nails. Other finds include worked flint Mesolithic retouched blade and a Mesolithic/Neolithic flake, burnt flint, pottery sherds of Romano-British coarseware, a 3rd/4th C. New Forest flask neck, 13th/14th C. Medieval and West Sussex Ware from the Binsted kilns. Fragments of 18th/19th C. clay tobacco pipes, Medieval peg tile, ironstone and a piece of 20th C. garden hose were also recovered

Trench B

A few iron nails were recovered. Other finds include a worked flint ?Neolithic flake, burnt flint and a fragment of worked stone from the Table Top Tomb dated to c.15th C. that was found outside the trench by the stile. Pottery includes a few sherds of Romano-British coarseware as well as Medieval and Post-Medieval. Building material includes Medieval and Post-Medieval tile and slate and a small amount of iron slag was also found.

Trench C

A mid/late 18th C. lead Pistol ball and other lead objects were found together with a fragment of clay tobacco pipe stem from the 18th/19th C. A small assemblage of Mesolithic and Neolithic flint work of debitage and tools including a scraper was recovered. Pottery includes early Medieval and a West Sussex ware jug handle and base and a sherd of 18th C. stoneware. The building material comprises Medieval peg tile and

brick with mortar that may be Post-Medieval. Also a few degraded unidentifiable animal bone fragments were found.

Trench D

The finds include a nail, a worked flint Mesolithic blade, burnt flint and two Post-Medieval sherds from a brown glazed pot and a flower pot. Building material includes a fragment of a Medieval floor tile as well as Medieval and Post-Medieval brick and tile.

Trench E

As well as nails a lead Holster Pistol Ball c. 18th/19th C. were found together with Medieval peg tile.

Trench F

The finds comprise a modern iron spring from probably agriculture machinery and fragments of unidentifiable ceramic building material.

Trench G

Mesolithic flint work was recovered including a core rejuvenation flake and a piercer. Also found were an 18th/19th C. clay tobacco pipe fragment, animal bone including a sheep's tooth, early Medieval pottery, ceramic building material of unknown date and mortar from the probable Medieval wall.

Trench H

Only 3 fragments of unidentifiable ceramic building material were recovered.

CONCLUSION

The 2008 excavations are the first tentative steps in what we hope will be numerous seasons of work.

Although the first weekends digging was initially disappointing due to the lack of signs of any structures, the discovery of the stone wall in trench G8 has given us fresh hope for future years.

The finds made so far appear to be clustered around the roman and medieval periods, although there is evidence of human activity ranging from the Mesolithic period onwards.

One thing the excavation did show us is that the soil in the area does not produce reliable geophysics results, and so other methods of investigation will be needed.

The next steps will therefore be to undertake a large scale landscape survey of the grounds, as well as further investigations into the mound in trench F8 and the wall in trench G8. With each season of work, we hope to be able to add details to the already rich history of the Parham Estate.

Details of future work dates will be posted on the Worthing Archaeological Society web-site at http://worthingpast.blogspot.com/.

ACKNOWLEDGEMENTS

The excavations would not have been possible without the kind permission of Parham Estate, and we would like to express our gratitude for their support of our work.

We would also like to thank the residents and staff of the House for their interest in the excavations.

Worthing Archaeological Society

September 2008

BIBLIOGRAPHY

http://parhamresearchgroup.blogspot.com

Hutchinson, R, 2008, Pers Comms

The Dovecote

Cheryl Hutchin

PARHAM HOUSE
Nat Grid Ref:
TQ 061 144

Parham House Dovecote

There is evidence of a dovecote at Parham being included in the sale of the estate in 1601, and there must have been one during the medieval period when Parham was a grange belonging to Westminster Abbey.

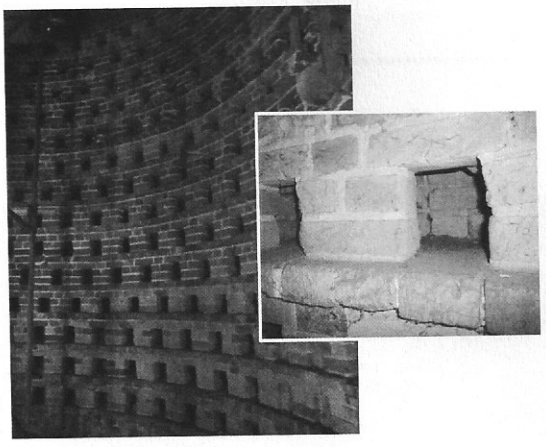
(1) The present one dates stylistically from the mid/late eighteenth century when the house was transformed from a Tudor manor into a mansion. The bricks were locally made, probably in the brick-kiln for which rent was received in the 1750/60s. Greensand and ironstone are also found locally. It was built to embellish the landscaped park as an ornamental feature which is suggested by the door being aesthetically in proportion to the building. Dovecotes usually had small doors to reduce the amount of disturbance to birds when entering.

Having a supply of easily obtainable meat available would have been beneficial to the running of an estate. Birds were taken during the spring and summer when the young birds (squabs) were taken for the pot at

about 4 weeks before their flight muscles developed. A pair of pigeons mate for life and produce 2 chicks about 6 times annually for about 7 years. The feathers and down were used for bedding, the dung used as fertiliser, in the tanning industry and, in the sixteenth century, as a source of saltpetre for making gunpowder. Pigeon products were also used medicinally including mixing dung and watercress in an ointment for the cure of baldness and gout. (2)

The Parham dovecote is circular and its walls are 1 metre thick. There is a regular pattern of ironstone encircling the outer upper greensand walls, which is probably where the putlog holes (scaffolding) were when the building was constructed, and then later filled. Four bulls-eye brick-trimmed openings allow light into the dovecote and three of these have horizontal iron grilles while the fourth one is blocked with bricks. These would also have been necessary to prevent birds of prey from entering. The arched doorway is 90 cm wide and is also brick-trimmed. The clay-tiled roof is conical, and the decorative cupola known as a glover or lantern allows the birds access while protecting the interior from rain. A weathervane tops the lantern.

The interior wall is approx 5.15 m high and is lined with brick-built nesting boxes. There are 14 rows with 50 boxes to a row, interrupted by the door and windows, making 682 boxes. Some of the rows are slightly staggered, suggesting that the builders may have had difficulty in constructing the curved interior. The lower rows show faint signs of being formerly whitewashed, the usual practice, and start at 48 cm above the modern concrete floor. An individual box measures 36 cm deep into the wall, approx. 16-17 cm high with a width of approx. 38 cm including a 14-15 cm entrance. The boxes are L-shaped, to the left, which provides a dark place for sitting. Each box had to be large enough to accommodate at least 1 parent and 2 chicks, and it is probable that each pair occupied more than one nesting box.



Nesting boxes inside the dovecote

Beneath the boxes in each row is a projecting perch built of bricks laid end on; these are in many cases scratched from the birds' claws. A central pivoted pole with arms to which a ladder was attached and which revolved, known as a potence, would have aided the collection of birds and eggs. The present squared-off post is a later substitute.

The dovecote does not appear on the Tithe Apportionment map of 1839 but the above 1816 map shows the dovecote marked 'Z', and it can be seen that it fulfils ideal siting requirements such as being close to the garden-door for dung to be used as fertiliser on the vegetables, and within sight of the main house so that whoever went in and out could be observed. It is also near a water supply for drinking and bathing, but although the pond against the garden wall is very faintly shown on this map, it is present on an estate map of 1823.

The stucture is damaged; many of the nesting boxes are collapsing and are supported by temporary wooden blocks and one window is bricked up. Externally cracks appear to have been filled. English Hertitage Monuments Protection Programme Step 1 Report (1995) suggestes that post-medieval dovecotes which retain at least some of their original character, structure, external andor internal features should be protected. the one at Parham, unusually for Sussex where flint and timber are more common, is built of stone. The lantern appears to be original as do the iron grilles over the openings, and these therefore need protection.

(1) Kirk, Jayne, 2008, Parham and Elizabethan house and its restoration, Phillmore & Co. Ltd.

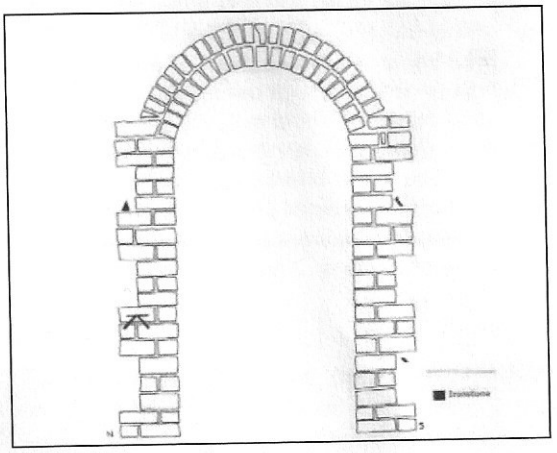
(2) Hansell, Peter & Jean, 2001, dovecotes, Shire Publications Ltd.

(3) English Heritage Monuments Protection Programme Step 1 Report, 1995, Oxford Archaeological Unit

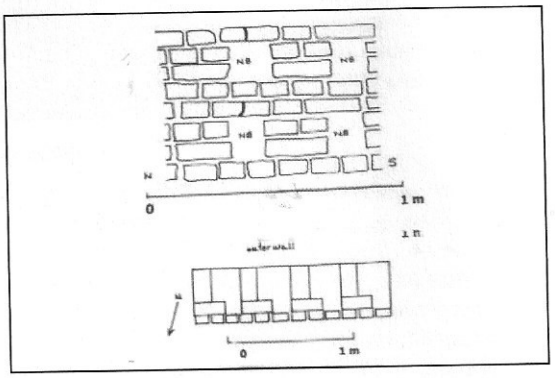
1815 Parham Estate Map

1832 Parham Estate Map (Add MSS 45635(A1)

1839 Tithe Apportionment Map



Plan of doorway



Plan of nestboxes

Temple of Diana

Rodney Gunner

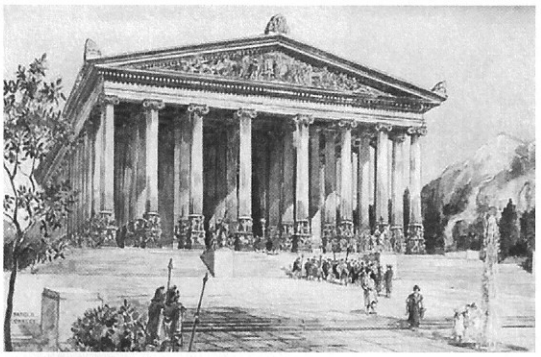
Worthing archaeologist - John Turtle Wood

John Turtle Wood 1820/1890. He died on 25th March 1890, at his home at 66 Marine Parade, Worthing Sussex BN11 3QB, and was buried at Christ Church, Grafton Road, Worthing, BN11 1QT. His gravestone is in poor condition, and as the church is under the threat of closure within a year or so is of concern. The grave is on the north side of the churchyard next to the path about halfway along the nave. The headstone is badly eroded - it's possible to make out his name but there is a biblical quotation at the bottom of the stone which is indecipherable.

John Turtle Wood (1821-1890) was a British architect, engineer and archaeologist. He was born at Hackney, the son of John Wood of Shropshire and his wife Elizabeth Wood, nee Turtle. He was educated at Rossall School, Fleetwood, and later studied architecture, under private tutors, at Cambridge and Venice. He practised architecture in London from 1853 to 1858. In 1853, he married his cousin, Henrietta Elizabeth Wood.

In 1858, Wood received a commission to design railway stations for the Smyrna and Aidin Railway in Turkey. Here he became interested in the remains of the temple of Artemis, or Diana, at Ephesus, which had completely disappeared from view about 500 years previously. The Temple was important on account of its mention in the New Testament, when St Paul was shouted down by the mob, chanting "Great is Diana of the Ephesians". (Acts 19:34)

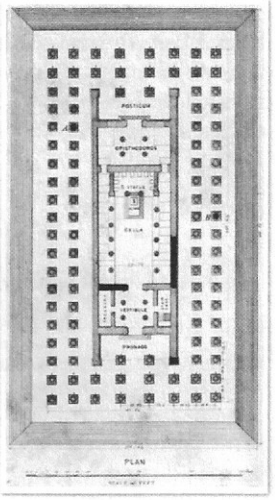
Temple of Diana at Ephesus measured 300 by 150 feet, with columns 60 feet high. This great temple dedicated to the goddess Diana was begun about 555 B.C. by Croesus, king of Lydia. Avandal burned down the original temple in 356 B.C., but it was rebuilt by Alexander the Great.



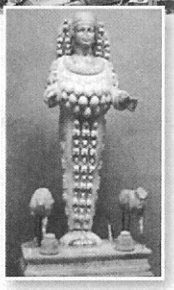
This painting shows the Grandeur of the vast temple

In 1863, he relinquished his commission and began the search. The British Museum granted him a permit and a small allowance for expenses in return for the property rights in any antiquities he might discover in Ephesus.

In 1867, while excavating in the theatre of Ephesus, Wood found a Greek inscription, which mentioned various gold and silver statuettes, which, on festive occasions, were carried from the temple, through the Magnesian gate, to the theatre. He reasoned that at the Magnesian gate, there would be found a paved road leading to the temple. In 1867, he found the road and, following its track, discovered the wall of the temple. He proceeded to excavate the site and, on 31 December 1869, discovered the temple buried beneath 20 feet of sand.



Plan of the Artemis temple of Ephesus by J T Wood, 1877



Sadly, the temple was no more than wreckage, but Wood managed to recover a quantity of shattered sculptures and architectural items to be sent to the British Museum. In 1874, his health was as devastated as the debris of the temple site. He had endured fever, bandits, earthquakes, and injuries and endured summer heat and cold winters. He returned to London and spent his remaining years giving occasional lectures to the Royal Institution and publishing *Discoveries at Ephesus*. In his spare time he painted in oils and occasionally exhibited at the Royal Academy.

Wood was treated as a celebrity as the discoverer of Ephesus. In 1874, he was elected a fellow of the Royal Institute of British Architects and in 1875 as a fellow of the Society of Antiquaries. The British government awarded him a pension of £200 per annum in recognition of his discoveries, at the time this was a really good remuneration.

The descriptions' here are only very brief, the site is vast, and its history covers a long period of time, from its founding in 8th century BC, to its final destruction in 401AD when it was torn down by St John Chrysostom.

Refs

There were three entrances to Ephesus; **The Magnesian Gate** (on the road the house of Mother Mary), **the Koressos Gate** (at the back of the stadium) and **the harbor.**

Engineer and architect J.T Wood discovered the Magnesian gate around 1869 during his search for the Temple of Artemis. The original building was possibly erected in the Doric order with a passageway 3.70m wide and an almost square courtyard on the city side.

Rossall school was founded in 1844 in the former Rossall Hall as an Anglican boarding school.. It was founded "with the object of giving to the sons of clergymen and others an education similar to that of the great public schools, but without the great cost of Eton or Harrow, and embracing also a more general course of instruction in modern literature and science." Admission was by nomination and annual payment.

Saint John Chrysostom (c. 347-407), Archbishop of Constantinople, was an important Early Church Father. He is known for his eloquence in preaching and public speaking, his denunciation of abuse of authority by both ecclesiastical and political leaders, the *Divine Liturgy of St. John Chrysostom*, and his ascetic sensibilities. After his death (or, according to some sources, during his life) he was given the Greek surname chrysostomos, meaning "golden mouthed", rendered in English as Chrysostom.

The Byzantine Emperor Nicephorus III receives a book of sermons from John Chrysostom, the Archangel Michael stands on his left (11th cent. illuminated manuscript).

ACKNOWLEDGEMENTS

1.Sources include.
http://www.unmuseum.org/ephesus.htm

http://ce.eng.usf.edu/pharos/wonders/artemis.html

http://www.sd83.bc.ca/stu/9711/jlk2w3.htm

2.John Turtle Wood

Discoveries at Ephesus

Including the Site and Remains of the Great Temple of Diana: London 1877. Reprint: Hildesheim 1975.

Churchyard Archaeology

Iain Soden

A typical English churchyard? - (Almost the last resting place)

The excavation of the late 18th and early 19th century cemetery in Coventry

While many would agree with the assertion that the Church of England possesses the oldest building stock in the country, arguably a major problem in itself, few ever consider the fact that the church also contains some of the country's oldest residents - in its churchyards. Locked beneath the visible gravestones, themselves so often the last survivors of more recent churchyard "tidying", lie the remains of thousands of unmarked, unnamed individuals whose resting-place is often the only undeveloped piece of land in a parish.

Recently public interest in churchyards has been fuelled by a crop of archaeological television programmes, and parishes are increasingly aware of archaeologically-led DAC interest where graves have to be exhumed, due to the requirement for a faculty under the provisions of the 1991 Ecclesiastical Jurisdiction Measure.

The information contained in the graves of any period is immense and takes many fascinating forms: osteological, demographic, liturgical and superstitious. To maximise its relevance to all parties, some selectivity must be employed, asking the right questions of the right material. Recently such questions have accompanied a massive redevelopment in the centre of the city of Coventry.

The Phoenix Initiative is redeveloping a swathe of Coventry city centre, opening it up to public access for the first time in generations. Funded by the Millennium Commission, the European Regional Development Fund and Coventry City Council, the project has always been tied closely with the archaeology on the site, the presence of which was always known to Coventry Museum's Archaeology Unit.

The main archaeological contract was awarded to Northamptonshire Archaeology, whose task was to uncover record and analyse for public display the remains of the city's first cathedral, a medieval church that predated the one burnt out in the blitz of 1940. St Mary's Church was vast, 425 feet long, dating from the 12th century. It was demolished by Henry VIII in 1539, not only because it had a Benedictine Priory attached, but also because the double See of Coventry and Lichfield had two seats for one bishop; one of them had to go and St Mary's was declared surplus to requirements. The church and monastery were razed within a few decades, but their rubble-strewn plot remained a planning blight on the city for two centuries.

In 1776 the area of the former nave and aisles of the ruined cathedral was re-consecrated as an overspill graveyard for the adjacent Holy Trinity Church, ironically once the parish church of the Benedictine Prior of St Mary's. The two had only ever been separated by a narrow lane and, when both were standing, had contributed to a skyline dominated by seven stately spires. Traditionally Coventry is known as the city of three spires, testament to how dramatic the dissolution of the monasteries had been in the urban psyche, that four had been utterly forgotten.

For the next eighty years this new cemetery accepted little short of half the city's dead, those who were resident in the parish of Holy Trinity. At a time when Coventry grasped the ideas of the industrial revolution with a will, its inhabitants were predominantly involved in silk ribbon weaving and watch making. On these technologies and the new skills of its workforce were built the foundations on which the British car industry would later stand.

Taking full precautions to dismantle a vault

RAISING THE DEAD

The creation of the cemetery smothered the former cathedral ruins under an 8-foot blanket of imported soil, and before Northamptonshire Archaeology could excavate the cathedral, the problems this posed had to be addressed. This soil overburden amounted to 3,500 tons which were removed by machine under archaeological supervision to reveal a carpet of burials. Details of each articulated skeleton and associated coffin fittings were entered onto a GIS (geographically coordinated) database originally designed by Northamptonshire Archaeology staff for use by the United Nations Commission on war crimes in the former Yugoslavia (Bosnia). Following considerable adjustment for local conditions, this enabled the excavation team to work quickly and methodically to clear the graveyard while still retrieving the archaeological information which graveyard clearances so often lose.

An illustration of the extremes of stacking observed due to limited space

The total number of burials recorded and excavated was 1,706. While some were orderly burials, others were massively intercut and stacked, leaving stray heads, arms or legs as the only articulated remains. Thirty-seven brick burial vaults were also located, of which eight had to be fully dismantled, recorded and excavated. A comprehensive health and safety risk assessment addressed unsavoury issues such as the potential for exposure to diseased human tissue, matters on which considerable medical opinion was sought. Any body with tissue surviving was reburied at a new site on the same day as its exhumation. Some burials from the vaults were even lifted with intact 150-year old coffins that had funeral wreaths still lying on top. Most remains, however, were entirely skeletal, the bones generally well preserved, unlike the coffin fittings, which were often in poor shape.

THE LIGHT OF DAY

Final resting places are often not final at all and while it was the wish of the Church and Coventry City Council that the bones should be eventually re-interred with all due sensitivity (and in pursuance of the relevant legislation), the 100 or so best-preserved skeletons, including a considerable number with accompanying coffin plates (containing valuable biographical data) warranted further research. These were sent by Northamptonshire Archaeology to the Department of Pre-Clinical Sciences at Leicester University's Faculty of Medicine and Biological Sciences, under an arrangement with the University. There Dr Jenny Wakely and a team of post-graduate researchers have begun a two-year programme of archaeological research on the bones, which will not only unlock their secrets but also provide the current medical staff and students with a temporary teaching collection of inestimable value. While this process is ongoing, a great deal can already be said from observations and records made on site.

OSTEOLOGY

A typical day at the office: not everyone's idea of a group photo

A skeleton contains in its bones part of the history of that person. All those events and processes which affected that person's bone may be preserved, such as deficiencies in their diet, childhood illness, congenital abnormalities and injuries. Where any or all of these are evident the question also arises of how did past societies deal with them? What physical evidence do we have of the medical response of the day? As a cemetery covering the period 1776-c1850, Holy Trinity's straddles the rise of modern medicine and the last of more ancient surgical procedures. Thus the same sample produced an example of an unsuccessful leg amputation, the patient having died with no evidence of healing on the remaining femur, together with four instances of early autopsies. These indicate that the more rudimentary massive interventions which had been largely

unchanged for hundreds of years continued in use while the medical profession searched diligently for knowledge which today our society tends to take for granted.

DEMOGRAPHY

Those burials which were accompanied by surviving coffin plates provide biographical details of the individual, the date of death and their age at death. These details are of immense value since they can be used to check standard techniques of ageing skeletal material, notoriously difficult once a person reaches adulthood. Previous studies have shown the old techniques to be embarrassingly inaccurate in a significant number of high-profile cases. Biographical data from 1841 onwards can be matched with the first national censuses to extract information on where a person lived, their family, their occupation, their place of birth. In addition, at about the same time the law began to require physicians to issue death certificates, another indicator of the state of medical knowledge. It is of great value to know that a significant proportion of the individuals in the study sample both died after 1841 and were accompanied by legible coffin plates. Such a body of data will have information to yield going well beyond the ordinary.

The design and inscriptions on memorials and gravestones usually provide a fascinating source of information but, at Holy Trinity, previous clearance and building work since the 1960s had removed all but six gravestones. Many more remained on site being stacked in buried piles or lined up against walls , but as no graveyard plan had survived the gravestones could no longer be related to their graves.They showed that an architect, a solicitor, even a surgeon were all buried there, as was at least one murder victim of 1844 whose end was documented in the contemporary press. In the last instance identification was not possible as the person's grave could not be associated with a particular body.

SURPRISES

One grave in particular caused a stir. The individual, probably buried in the 1840s, lay supine but with his or her arms grotesquely flexed in a position of great distress, unable to struggle beyond the confines of the coffin. It is possible that the person may have been comatose when interred. Victorian documents do record a contemporary fear of being buried alive, an unconscious awareness preventing communication in any recognisable form, so-called catalepsy. Elaborate remedies of the day included bells and pulleys rigged up to be rung at any time up to the funeral. This unfortunate individual may have been awoken briefly by a drop in temperature or the exhaustion of the air supply. Along with many of the pathologies observed on site, such as tuberculosis and rickets, it left the excavators with a healthy respect for modern medicine.

Buried alive?

While the report and processing of the project has many months yet to run, it serves to illustrate just what a variety of information can be produced by an excavation, of value to more than just archaeologists and certainly of interest (although occasionally macabre) to a wide section of society.

CHALLENGES

Balancing the costs of excavation against the value of information potentially lost is always difficult but this excavation of a city centre site illustrates one compromise which has far surpassed expectations. To mitigate the loss of information by excavation is generally accepted as an option in secular planning, and this approach is now being adopted more widely where churches are concerned due to the provisions of the 1991 Ecclesiastical Jurisdiction Measure - most churches being exempt from usual listed building requirements. While the structures of the church must continue to reflect the sense of mission of its parishioners, can the churchyard do the same, relating only to our past, particularly those churchyards which are closed?

The challenge facing anyone interested in the alteration or investigation of churchyards in this new century is to walk a tightrope between respecting the secular world which continues to look upon them as picture-postcards of immense historic importance, and respecting the Mission of the Church which targets the living.

It might be asked whether the partial or total loss of a graveyard detracts from the historical setting of a church. If the church is no longer in use then the whole may indeed be considered a museum-piece; moreover our many picturesque churches would look very different surrounded by anything other than a churchyard. More and more we are seeing moves to make use of churchyards for more than just the disposal of the dead, a responsibility passed more widely to local authorities as both attitudes to the Church and the need for more burial space have changed. Good stewardship of our churches is becoming a minefield. As more and more congregations rediscover their evangelical roots we can expect to see more and more searching questions regarding our relationship with our built Christian heritage and Christian attitudes to the past when faced with its relevance to the Great Commission.

This particular church, Holy Trinity, will be open to wider public view for the first time in many decades. The project has provided a new Church Centre, while an interpretation centre will bring many more visitors into its sphere; with that will come greater opportunities for Christian witness. For the city at large there will now be greater public access to what was previously a concrete morass of car park, old boundary walls and enclosed yards but is becoming a tourist-centred boulevard and garden in the midst of the medieval city core. The price is the church's physical loss of the historic link with an area of its churchyard, part of its archaeology and its dead parishioners.

The History of Archaeology

Keith Fitzpatrick-Matthews

It has been said that the history of science is the history of its rejected ideas. This is just as true of Good Archaeology, but it is surprising just how many ideas of Old Archaeology crop up in Bad Archaeology as if they are new.

There have always been people with slightly eccentric beliefs about the past. Right at the birth of scientific archaeology, at the end of the eighteenth century, there were people in the newly-formed United States of America who believed that some (if not all) Native Americans were descendants of the so-called "Ten Lost Tribes of Israel". The Mormon religion is founded on this very premise, while the first ever stratigraphic excavation that we know about was conducted by Thomas Jefferson on a burial mound to test the hypothesis. In fact, no evidence relevant to the hypothesis has ever been found, but there are still groups in addition to the Mormons, mostly in the United States, who continue to hold such beliefs.

Others cling on to traditional beliefs about the past. Literal readings of the Bible and early medieval speculative literature about the peopling of Europe have been (and in some instances continue to be) treated as authoritative accounts of the distant past. Until the nineteenth century, the written record was the only source of information about the past, but nobody had any means of assessing which - if any - version of variant accounts was the most likely to be accurate. It soon became apparent that archaeological evidence does not match any of these accounts terribly well and most historians came to accept that the writers of these ancient texts were repeating folk traditions, indulging in amateur etymologising and speculating to fill in the gaps.

Those who were unwilling - primarily for religious reasons - to abandon their familiar texts began to shoehorn the archaeological data into the text-based framework, often with confusing results. A good example is Joshua's supposed conquest of Canaan in the second millennium BCE: take any century in that millennium to be the time of the conquest and there will always be a Canaanite city whose sack is described in the Book of Judges that turns out not to have been occupied at that time. Choose a different century and other cities will be found to have been deserted. This shoehorning is a desperate attempt to force the evidence into a preconceived structure, the reverse of how real archaeology works and much more like the behaviour of Cinderella's ugly sisters when confronted with a glass slipper that was patently not theirs.

Ideas that Good Archaeology gave up along the way...

The progress of archaeology and its gradual adoption of a specifically material culture based means of examining and understanding the past is one of constantly changing methods of explanation, of finding new links and discarding old ones and of finding new ways of looking at old data.

It is always instructive to read old excavation reports to see how some very basic ideas proved to be completely wrong. The pits commonly found on British Iron Age sites, for instance, were once interpreted as underground dwellings, as excavations appeared to reveal hearths within them; they were accepted as dwellings as no other features were recognised on many of these sites in which the occupants might have lived. Following a number of important excavations in the 1930s and 1940s - especially Gerhard Bersu's (1889-1964) work in 1938-9 at Little Woodbury - it became clear that Iron Age dwellings were mostly circular, timber-framed buildings that had simply not been recognised by earlier excavators; the ubiquitous pits were used for storage and rubbish disposal. The 'pit dwelling' was thus relegated to the realm of discarded hypotheses, although it is salutary to recall that I was still being taught about them in all seriousness as a schoolboy in 1970, showing how persistent outmoded ideas can be and how they can continue to form part of a general education.

The ancient world

Archaeology is a fairly new discipline, little more than two hundred years old, even though its roots go back much further. Historians have divided its development into four separate phases: a period of speculation before 1800, a classificatory-descriptive period from 1800 to 1920, a classificatory-historical period from 1920 to 1960 and an explanatory period since 1960. Although the speculative phase is long, it is scarcely what we would now call 'archaeology' and is usually referred to as 'antiquarianism', an interest in old things, often more for their aesthetic properties than what they can tell us about the past. A good example of early speculation is found in the work of the Greek poet Hesiod (c 700 BCE), whose *Works and Days* ('Εργα και 'Ημεραι) contains a well-known exposition of the five phases through which humanity has passed since creation. Beginning with an Age of Gold, humanity's history is one of degeneration, through an Age of Silver, an Age of Bronze and an Heroic Age to reach our present Age of Iron. He is often mentioned in histories of archaeology as prefiguring a brilliant solution to the problem of dating the prehistoric past, but this was not his intention and he did not base his analysis on any physical evidence remaining from more ancient times. Instead, his purpose was a moral one, tracing the degeneration of humanity from its original 'Golden Age'.

Slightly later, the Babylonian king Nabû-nā'id (known to Classical authors as Nabonidus, King 555-539 BCE) is known to have excavated the foundations of an old temple he was restoring to locate its dedication slab. It was a common practice for Assyrian and Babylonian kings to have their names and titles stamped onto the mud bricks used in the construction of an important public building work (a tradition, incidentally, revived by the Iraqi dictator Saddām Hussein 'Abd al-Majid al-

Tikriti' (1937-2006) in rebuilding the walls of Babylon in the later twentieth century CE!); Nabû-nā'id wanted to credit the original builder of the temple while at the same time adding his name as its restorer. This is one of the earliest known uses of excavation as a method to find out something about the past when written texts and traditions do not contain the answer.

Later still, collecting antiquities was a popular pastime among Rome's educated and wealthy élite. Their attitude to Classical Greece was somewhat ambivalent: they admired Greek culture, including poetry, philosophy, painting, sculpture and medicine, but they regarded the Greeks as an effete and degenerate people who had lost their former pre-eminence and were better off under Roman rule. Their estimation of Greek sculpture as superior to Roman products led to the wholesale plundering of statues from Greece to decorate their homes in Italy. It also led to the copying of Greek styles in Roman sculpture, not always very successfully. In one of his letters, Cicero tells his friend Atticus about a statue he has recently acquired.

As the Mediterranean became *Mare Nostrum* ('Our Sea') with the growth of the Roman Empire, so it became easier for people with enough wealth to travel around to see the wonders that previously had only been known through other people's writings. The fascination with Greece led many wealthy Romans to Athens, Delphi, Corinth and elsewhere. Others travelled farther afield, most famously the Emperor Hadrian (76-135 CE, Emperor 117-135), whose progress through Egypt to see the wonders of Pharaonic civilisation has been imitated so many times since. As Christianity became the dominant religion of the Empire during the fourth century CE, growing numbers of pilgrims wanted to visit the holy places they read about in their Bibles. So the empress Helena (c 248-329 CE) undertook a visit to Jerusalem, where she organised searches for holy relics, unearthing what were proudly proclaimed to be pieces from the cross on which Jesus had been crucified. Later that century, a woman named Egeria (fl. 381-4) travelled from her home in Gaul to visit the sites of Palestine and Egypt and left an account of her travels that was widely read throughout Europe in the following centuries, as travel became increasingly difficult with the collapse of the Western Roman Empire and the economic problems that stripped the old élites of their wealth.

The dominion of the Bible

Beginning in Late Antiquity, European understanding of the past was dominated by biblical interpretation. The authority of religious dogma left Christians in no doubt that their scriptures were the very word of god, containing a literal account of the world since creation. The world was created only about six thousand years ago (many early medieval writers used a dating system known as *Anno Mundi* - Year of the World - in which each year since creation was counted, calculated by Bede in *Cronica maiora* as 15 March 3952 BCE). The history of humanity was the story of the descendants of Adam, who became distinct 'peoples', biologically descended from a patriarch, as a result of the confusion of languages that followed the destruction of the Tower of Babel. Down to the time of Jesus of Nazareth, the Bible was the history of humanity, although nobody seems to have puzzled about why the early history of Greece and Rome known through the Classical writers was not included, especially in view of the attitude that anything not included in the Bible was not worth knowing.

The creation of Eve from Adam's rib

c 5509, 3952 or 3761 BCE

Medieval writers developed ingenious ways of linking the history of their peoples - most of whom seemed to be unknown to the supposedly divinely-inspired authors of the Old Testament - with the descendants of Noah. Europeans, as everyone 'knew', were descended from Japheth, so it was a matter of providing the genealogies. The Britons thus found themselves descended from a Brutus (who had lent his name to the island of Britain), who was a descendant of Aeneas - providing a convenient link with the Classical world - whose ancestry could be traced back to Japheth. Similarly, the Franks were descended from Francus and so on. How far people believed these concocted genealogies to be literally true father-to-son descents and how far they understood them in allegorical terms is not known. They remain popular with religious fundamentalists despite their non-biblical origins.

If the world was created only a few thousand years ago, it was theoretically possible to write a chronicle of World History from beginning to present (Bede's *Cronica Maiora* end with an exposition of what will happen in the End Times, making his World Chronicle complete). The Roman church was not the only organisation to try to calculate the date of creation. In the Orthodox Church, 'Αιτος Κοσμου ('Era of the Cosmos') was 1 September 5509 BCE; after years of rival dates, the Hebrew calendar was codified by Maimonides in 1178 CE and set creation at 3761 BCE.

Keith Fitzpatrick-Matthews

Who is Keith Fitzpatrick-Matthews and what right does he have to criticise others?

Apart from being the author of this page, I am a professional archaeologist, living in Hitchin, UK. I work for North Hertfordshire Museums as the local council's archaeologist. I was previously Lecturer in Archaeology at the University of Chester and Senior Archaeologist with Chester City Council's Archaeological Service.

My interest in 'fringe' archaeology stretches back to childhood. I was fascinated by Ancient Egypt and, gradually, by all things archaeological. Another interest in astronomy led me into the UFO field and, via this, to Erich von Däniken's *Chariots of the Gods?*, which I remember being serialised in a Sunday newspaper in 1968. After my initial enthusiasm for space aliens as the builders of just about everything in the ancient world wore off, I continued to read similar books. Partly, there was a hope that they might contain the odd insight that would escape mainstream writers, but as my knowledge of real archaeology increased, I soon came to realise that these books contain almost nothing of value.

These days, I read these books as entertainment, much as other people read cheap novels. With the rapid expansion of the World Wide Web since the mid-1990s, there has been an explosion in web sites dedicated to 'fringe' matters. Television has also shown numerous

programmes (both documentary and fictional) that are favourable to these ideas.

As someone who believes passionately in communicating ideas about the past and informing people, I feel that as a professional archaeologist, I have a duty to explain why the 'fringe' is wrong. The past is much more interesting than writers like von Däniken or Graham Hancock would have us believe. Human beings are infinitely inventive, our cultures diverse, our past too important to be trivialised to make money from the ignorant.

Coinage

Matt Coumbe

Coinage of Constantine

Constantine and his sons issued a few different types of commemoratives from 330-346. These were issued to mark the foundation of Constantinople and to also re-affirm Rome as the traditional center of the Empire. Thirteen mints produced these types: Trier, Lugdunum (Lyons), Arelate (Arles), Aquileia, Rome, Siscia, Thessalonica, Heraclea, Constantinople, Nicomedia, Cyzicus, Antioch and Alexandria. The two most common are the CONSTANTINOPOLIS (Victory on a prow) and VRBS ROMA (wolf and twins) types

The victory on a prow type alludes to the naval victory of Crispus and his subsequent capture of Byzantium (soon to be re-named Constantinople). Zosimus said that Constantine's fleet had 200 ships and Licinius had 350 ships. Zosimus might have exaggerated, but all sources agreed that Constantine's fleet was greatly outnumbered. What accounted for the surprise victory of Constantine's forces? Could it have been that Constantine had better trained sailors...maybe divine providence? A papyrus letter from circa A.D. 323, gives an answer. The letter is from a procurator who said that the government of Egypt had an urgent requirement of box and acanthus wood for repair of the men-at-war vessels in the arsenals of Memphis and Babylon. Egypt sent a total of 130 ships to serve in the navy of Licinius, but it seems that they were all old tubs!

A.D. 332

17x16mm 2.4 g

Obv. CONSTAN-TINOPOLIS laureate, helmeted, wearing imperial mantle, holding scepter.

Rev. Victory stg. on prow, holding long scepter in r. hand, and resting l. hand on shield. in exergue- dot in crescent PLG

RIC VII Lugdunum 256 r1

Lugdunum - (Lyons) mint. This is based on the shape of the head, each mint had a slightly different shaped die, so parts of the design has a slightly different shaped heads or thinker lines.

This coin would not only be legal tender it would also have told the people of Romano-Britain what the emperor looked like, and about the battle which had been won by the Roman fleet.

Bibliography:

Internet source:
www.constantinethegreatcoins.com/comm

Sealby Coins of England 1995, page 33 , item 702

Rodney Gunner

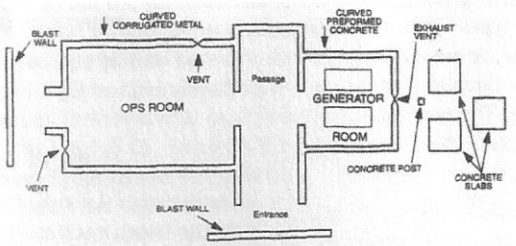
Decoy airfields

Slindon Estate part 1.

The Slindon Estate contains many reminders and remains of relativity modern military activities over the past 100 years or so, the First World War, and the Second World War. The society has the past few years been investigating and recording the remains, found on the estate.

On the estate there are remains of airship stations, decoy airfields, prisoner of war camps, and many other various remains of war time activities, including Canadian Special forces secret activities.

Over a period of time this research will be published in the form of a local history book, some of it will be published on line,, check out our Journal on line site. http://arch-news.blogspot.com.and http://sussex-ww2-decoy-sites.synthasite.com



Layout of a typical Decoy Airfield operations bunker

DECOY AIRFIELD

Location: Gumber farm adjacent to Stane Street:

Background: Slindon Village, Estate:

A National Trust Village, which has changed little, over the years.

There many very early houses, many date from the late 1400s.

There is a fine mansion, Slindon house, and now a boy's school known as Slindon College.

The Estate has a very varied history, once the home for periods of time to the early Archbishops of Canterbury, circa 1200s-1500s, Thomas Becket made many visits to the Archbishops palace, and two ordinations were carried out there.

The First World War it was home for German Prisoners of War, and an Airship Station, these airships went on patrol in the English Channel looking for German Submarines.

The Second World War it was home for Italian Prisoners of War, and a Dummy Airfield at the Gumber.

Deception

Deception in war is the art of misleading the enemy into undertaking something, or not undertaking doing something, so that his strategic or tactical position will be weakened.

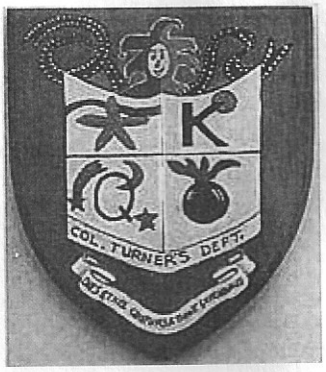
During the early period of the Second World War a secret department was formed at Britain's Air Ministry to co-ordinate a strategy to defeat German bombing by deception. With the help of leading technicians from the film industry, ingeniously designed decoy airfields, towns and military bases were built throughout the island. This campaign of illusion, masterminded by the charismatic Colonel John Fisher Turner, did more to protect Britain's forces and civilians from the Nazi threat than, at the time, they were allowed to know.

John Turner was born in 1881 and had been commissioned into the Corps of Royal Engineers in 1900. In 1931, following a long association with the RAF as a civil engineer, Turner became the Director of Works and Buildings at the Air Ministry in London. His knowledge as a qualified pilot and of airfield construction and infrastructure made him a good candidate for the role of masterminding the creation of Decoy Sites.

In 1939 Colonel John Turner was put in charge of British deception and decoy schemes,, the H.Q. was at Sound City Film Studios at Shepperton, in Surrey.

Most films at this time were made under cover, but so good were the film crews that they could make sets look very realistic. With lighting and paint and mock ups of buildings and streets many an audience watching a film would have never guessed it had been made entirely under cover, the main reason of making films this way was the weather was not reliable enough to make then outside on location, film equipment at that time was not so robust as now.

The film men became the backbone of Col.Turners Dept, where they mass produced dummy aircraft and equipment to be used on decoy airfield sites.



Badge for decoy crew

Joker: How the decoys tricked the Germans.

Film strip: The connection to the film industry, cut to a "V2 at the ends for how the decoys helped to win victory.

Sun: The day time Decoys.

K: The daytime K site airfield Decoys.

Grenade: The bombs dropped by Germans on Decoy targets.

Wavy Line: The Navy crews who manned some sites.

Starfish: Codename of Decoy towns.

Moon: The night time Decoy sites.

Q: The night time Decoy airfields.

Shooting star: The RAF Decoy sites.

Star: The The American airmen who manned the Q sites.

Motto: Dies et Couturbation Defendimus (Day and night, defend by confusion).

Types of Decoy sites

The first type of site was known as a K site, (day sites) from the air they looked just like any other operational air field, they consisted of dummy aircraft, bomb dumps, many old vehicles, tents, buildings, and anti-aircraft guns, the later usually being the only real thing there, the rest all being mock ups, made out of wood and canvas. They were in use from 1940 till 1942.

The second type of site was known as Q Sites, these were in use from 1940 to 1945, some sites were on the same site or close by the day time site, others were on sites that crossed streams, dykes, hedges, marches, and canal locks. At night theses sites looked like any other operational station.

Another site was known as Starfish sites, they would draw the enemy away from towns and cities. Dummy towns were set up on open ground between one or two miles and up to eight miles from the intended bombing targets. In the day time these's sites would look like chicken sheds and barns,this would confuse the enemy planes. The reason was that by night the sites would become active industrial sites, QL lights were switched on, and the sites started to look like factories, marshalling yards, ship yards, tram flashes, standard lamps, open sky lights and windows, plus welding flashes. Fire baskets were ignited to look like exploding bombs, burning buildings, the effects could be made to last for hours on end, thus confusing the enemy planes.

GUMBER DECOY SITE

There are still remains to be seen at Gumber today, the old generator building is still intact, lacking the generator, but the concrete shell can still be viewed, together with a large underground shelter, not accessible. The decoy airfield is adjacent to the Roman road to the west, with a little imagination you can visualise the airfield during the last war.

The following is a quote from an airman who was based at the site (now deceased); after the war Harold immigrated to Canada, he died there a few years ago.

Operations room and generator at Gumber

(Text not changed in anyway).

Harold Sykes was stationed at Gumber farm, Slindon Sussex.

He joined the Royal Air Force on the 4th of January 1940 and, after initial training at Padgate, was posted to Shepperton in early February for training on decoy aircraft of various types, erecting, dismantling, and moving them as we would have to on the decoy airfield we were posted to." After two weeks training I was posted to RAF Tangmere, moving onto its K site decoy airfield at Gumber farm, Slindon, Sussex in March 1940, officially known as K.51."

To start with we had to clear the site to make it look like a grass aerodrome.

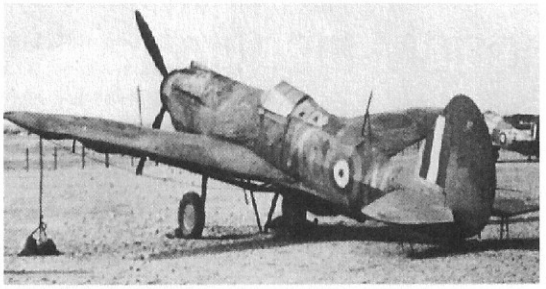
For this task, we were issued with picks, axes, shovels and spades; clearing bushes and undergrowth.

We built two sandbag gun pits, where Lewis guns were mounted on wooden posts. To start with, the crew were housed in Bell tents, one of which had 'Ye Olde Stynes street hotel' painted on it in white.

Stynes street was the name of a Roman road that ran across the site. To stop us getting flooded out in the Bell tents, in heavy rain, there was a large round wooden floor the same size as the tent raised off the ground, allowing water to go underneath.

We were issued with rifles for guard duty, we also had a shot gun for rabbiting, using them to supplement our rations. In the early days our cookhouse was a trestle table outside the Bell tents with a duckboard floor, "equipment" Including three big pans about two foot across for peeled potatoes, etc, and a food chest for storing flour, sugar, tea, etc.

We adopted five stray dogs, including two Old English sheepdogs, "The Boss "and "Scuffy ". Our transport to the village for that pint of brew was a tandem.



Decoy aircraft built of wood and paper. From the air very realistic

"Operational equipment was about a dozen dummy Hawker Hurricanes, the realistic wooden framed type covering and painted with camouflage and markings, like the real ones at nearby Tangmere airfield. These dummies were constructed at Hailsham, by Green Brothers, who had made garden furniture and cost £50 each. Our M.T. including a lorry, with canvas back, and paraffin/petrol tractor for moving the Hurricanes, on the site; In case of a gas attack we had a gas panel mounted on a post about 3 foot high, which would change colour if there was any gas present.

Eventually we had some wooden huts for billets and a cookhouse.

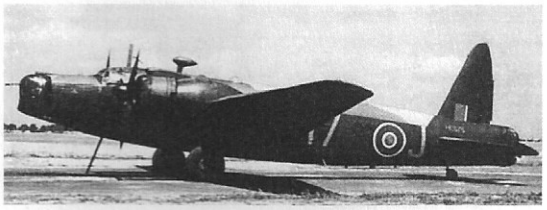
"For use, as a Q site, we had about a dozen Gooseneck flares to mark out the runway. One night before we

could warn them or douse the flames, a Wellington bomber returning from a leaflet raid and in trouble came in to land, hitting some trees and crashing. It was sad night for the crew- only the tail gunner survived.

Later we had a night fighter crash on the edge of the site; it was a Bristol Beaufighter killing the crew, Pilot Officer Head, Sgt. Willis and Sgt. Le Dong.

October 1941 German plane shot down containing decoy site map

A German aeroplane was shot down. In it was a map, with many of Britain's 'K' sites (unimportant sites made to look like daytime RAF stations) marked on it as decoys.



The Vickers Wellington, affectionately known as the "Wimpy," was armed with twin .330 machine guns in the nose and tail turrets. It also had 2 manually-operated .303 guns in the beam positions and could carry a 4,500 lb bomb load. Slow speed, limited ceiling, and a small bomb load soon made the Wellington obsolete, although one significant design advantage was Barnes-Wallace's geodetic lattice-work fuselage construction. This made the Wimpy extremely tough, and it often survived battle damage which would have destroyed other Aircraft.

The Bristol Type 156 Beaufighter, often referred to as simply the **Beau**, was a British long-range heavy fighter modification of the Bristol Aeroplane Company's earlier Beaufort torpedo bomber design. The name Beaufighter is a portmanteau of "Beaufort" and "fighter".

Unlike the Beaufort, the Beaufighter had a long career and served in almost all theatres of war in the Second World War, first as a night fighter, then as a fighter bomber and eventually replacing the Beaufort as a torpedo bomber. A unique variant was built in Australia by the Department of Aircraft Production (DAP) and was known in Australia as the **DAP Beaufighter**.

Bristol Beaufighter

The site was later equipped with Drem electric light flare path, with a generator in a purpose made bunker. (This survives on the site at Gumber Farm.)

June 1942 K sites closed. Q sites continue to be used.

By now all of the decoy 'K' sites - made to look like RAF stations - had been closed. 'Q' sites - made to look like airfields at night - continued to be used.

K: Decoy Airfield. Day-time use with dummy aircraft, vehicles, buildings, etc:

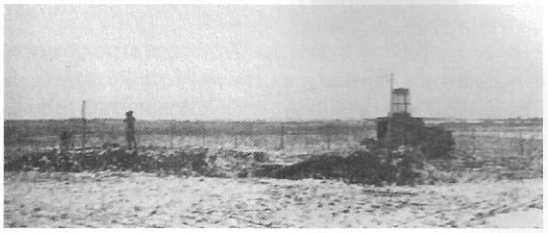
Q: Decoy Airfield. Night-time use with dummy flare path lights, obstruction lights, etc:

QL: Night-time Decoy Town with various lights.

Starfish: Night-time Decoy Town with various fires to simulate bomb hits.

Other decoys included Coastal Gun Sites. Also, under Operation 'Fortitude' (D-Day deception) there were dummy tanks, Lorries, landing craft; plus at night, the lights of dummy Army Lorries heading towards the coast.

In operating these sites, the Decoy Crews were inviting the Luftwaffe to bomb them instead of the real target and, consequently, put their own lives and the local villagers at great risk. Happily, this did not prevent close ties being formed with local people, for many of the men met their future wives within the community.



West Wittering Q site. There would have been similar ones at Slindon (poor photo)

Towards the June 1941 Gumber site was closed down, and Harold Sykes was transferred to Devizes, where he helped set up the "Sound and Decoy Warfare Establishments ". This was training centre for the Army, Navy, and RAF personnel, in sound warfare, concealment, and decoy warfare.

At the time of writing this article I am still trying to track down other personal that were involved in the Gumber farm site, I have had some success, of course some will have passed on, but others are still firmly with us, and its there contribution that is sought to complete the story.

Known personnel:

By Tom Merritt's daughter:

Tom Merritt, who was in the RAF, was involved in Decoy sites, and one of these was at Gumber farm in West Sussex. Unfortunately he died six years ago, and my own knowledge is a bit rusty. He was also posted at a decoy site in Kent. As he had formerly been a butcher, he was asked to help out the local butcher who supplied the personnel with meat. However, whilst he was training on the Isle of Man, the site was bombed and the butcher's shop was hit, the butcher was killed. So he had a lucky escape!

Leading Aircraftman Jack Tinsley, details not known at present.

Bill Mouland from Kirdford

Bill was the son of the local farmer who farmed the Gumber site, Bill was on site when the Beaufighter crashed, and he towed it from the crash site with his tractor.

Bill has many memories of the Gumber, not only the airfield but the farm its self. Bill was working as a baker's delivery driver during the war, and knew the area and the local people very well.

One of the most important finds that has come out of this research is the discovery of a colour cine film taken of the area in 1938, this gives a fascinating insight to life on the farm in the late 30s.

Private John (Jack) Cuthbertson, worked on the setting up of the Decoy site, now in his 90s, has an excellent memories of the site and the personal involve at the time, he remains is a friend of Bill Mouland to this day

The second part of this article on the history of war on the Slindon estate will include the Airship Station, and the prisoners of war camps, covering the First and Second World War.

References and acknowledgments: kind permissions obtained where possible, with thanks to;

Huby Fairhead, Norfolk and Suffolk Aviation Museum author, Colonel Turners Department.(Out of print)

National Trust: Slindon Estate.

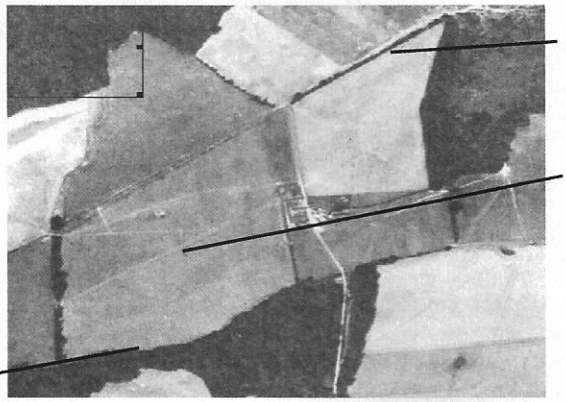
Robin Upton local historian Slindon:

BBC, Archives. People War.

Portrait of Slindon, Josephine Duggan Rees: (ref)

Bill Mouland. Kirkford.

Plus many others, whom I thank for their fascinating information.



Decoy site from the air, post 1945

Dedisham Manor

Richard Symonds

Was Dedisham Manor really knocked about by Waller's troops during the Civil War?

This is a question which has puzzled local historians ever since the Revd. Dallaway, Rector of Slinfold, wrote a Sussex History in the early years of the 19th century, in which he stated that there is a tradition that the manor house was ransacked by Sir William Waller's Parliamentary troops in 1643, and afterwards left to decay.

It is true that the present Manor has an unusual shape, taking the appearance of a surviving wing to a much larger edifice. According to Diana Chatwin's structural survey report, it can be described as *"a long narrow house; ten bays in length, and just one bay deep. The eastern end is the oldest, being Mediaeval, and various bits have been added on to it at different times, ending with a brick-built section at the west dating from the late 1600s. The Mediaeval part of the building extended further east than it does today and contained a large upper chamber, only part of which is now left."*

However, The WAS Field Unit has conducted a restivity survey around the perimiter of the house and could find no evidence to suggest footings of a much larger structure. I must stress that I am not saying there were none, but that none were revealed by the survey.

Personally, I have little knowledge of building construction, and leave such things to those who have wiser heads on their shoulders about such matters. I posed the question of the possibility of a larger building with a colleague, and having studied the structural survey carried out by Diana Chatwin, he observed "Is there any substance to the evidence or suggestions in the structural report, that the building was larger? Misreading a reference to a repair can easily lead to such an assumption. For instance, section 11 refers to an eastern crown post that indicates a further bay to the east. I immediately see two alternative explanations: a) Reuse of material; this is backed up by evidence of reused material elsewhere in the building; b) separate buildings (supported by the reference to butt-purlins) which have been consolidated into one at some time, and the last bay lost later due to lack of upkeep or even a sacking. Ditto to the west. Also, in the comments section it says, "There is no indication of whether this might have originally been a cross-wing or not." which I interpret as saying there is no evidence that we have a larger building with wings."

My own views are well known as to the reason why I believe the manor takes on the shape it does, and that I sincerely believe that it stands on the footprint of a Roman long-house styled villa. No Roman Villas have been identified in the Slinfold area, and the close proximity of this structure to the Romano-British Settlement and Mansio of Alfoldean in an adjoining field, adds credence to this assertion. As yet, I must stress, I have no firm evidence that this is the case except that Winbolt reported in the 1930s that quantities of Roman CBM were found in the gardens of the manor house. Could they perhaps be remnants of a building predating the earliest portions of the existing structure?

The origin of the name Dedisham is also curious, and tne postulation put forward by Richard Coates in his 1980-1 work Review of A.L.F. Rivet and Colin Smith (1979) The place-names of Roman Britain, Journal of the English Place-Name Society 13 pp. 59-71 [at p. 67] is that it stems from the word Mutuantonis, an alternative for Mansio. In his explanation, (and this is fodder for the Linguists amongst us). He says, *"This name appears to be in the general area of Sussex, and R & S do some gymnastic philology to relate it to the river name TRISANTONA, i.e. the ubiquitous FL (U) plus TRISANTON- . It cannot be denied that they make a fair case. It was undeniably written inland, and so it seems just as simple to see this as an example of the form MUTATIONES "posting station" which is found as a place name as appreciable number of times on the continent. (Against this proposal and for theirs is an i in the final syllable...If this name referred to the posting station at Alfoldean, we could arrive at a neat origin for the peculiar name Dedisham, adjacent to Alfoldean. Assume two "British" forms: MUTATIO and a more fossilised oblique form MUTATIONE or plural MUTATIONES. MUTATIO is late British* $M\tilde{u}daqdi\tilde{u}$. *MUTATIONE(S) is late British* $M\tilde{u}dadi\tilde{u}n$ *with Vulgar Latin pretonic short a. If you will allow the aphaeresis of MU-... we will have* $d\check{a}di\tilde{u}$ *and* $dadi\tilde{u}n$*, yielding probable English Doddi and Dæddi(n). Curiously enough, we find early variations between two virtually identical forms to these in history of Dedisham (PNSx p.159); the editors of PNSx take it to be from a personal name. It is just possible rather, that it is a survival of (MU)TATIO(NE(S))...."*

A scenario, entirely conjectural, could well be that the Prefect of the cohort at the Mansio was living a reasonably comfortable life as part of the garrison to a substantial private estate. The Mansio farmstead had been built on the banks of the River Trisantona and under normal circumstances that would not only have been a great honour, but would also have increased his wages quite considerably. Could it be that he ploughed his money into having a Villa built for himself nearby, so he could live a life more in accordance with his new-found status, rather than remain billeted with his troops?

I leave that speculation there and now refocus upon the main thrust of this article. If Waller's troops did not attack the Manor, what gave rise to the tale?

At the same time that I tackled a colleague about the manor house having been larger than at present, as a further comment to those given above, he went on to observe *"I suppose I am having difficulty with the idea of a significantly larger manor house. Wouldn't this make it a "palace" and require the owner to be a lord of the realm or a bishop/archbishop? Is there any evidence of significantly larger manor houses? Or evidence that a lord of the realm owned the estate? Would the Earls of Onslow have sufficient wealth and status? I'm not sure that an earl is really high enough."*

What I find very strange is that if Dedisham Manor was such a large and imposing country "pile",(a reasonable assumption to make if it were true that the surviving building was but a wing of a former larger building), then why is there no reference to the attack in any of the books on the Civil War, as indeed they do survive for other large properties in the County - Cowdray, Petworth, Parham, and even Stansted House? I have studied a plethora of books on the subject (see references below) and can find nothing whatsoever.

So what historical evidence do we have to the contrary, to support my assertion that it was not attacked.

Firstly, we have the matter of ownership. Sir Richard Onslow of Knowle Park, Cranley, purchased the remaining one-quarter share in the house and estate in 1650 from Dame Mary Lewknor (nee Blount), relict of Sir Lewis Lewkenor, and one of the 4-daughter co-heiresses of Sir Richard Blount, who died in 1629 (SRO GMR Onslow 97/13/732). Dame Mary then ceased her occupation of the property. Sir Richard had already purchased the Manorial Rights and the other three-quarters shares from the remaining 3 Blount heiresses, but there was no written proof of title. Therefore, on 4th May 1636, a Finalis Concordia was resorted to (MP23 R21. WSRO).

Dallaway states that Dedisham was afterwards left to decay. What remains, he says, is just some of the offices which have for many years been occupied as a

farmhouse. *"While there is no documentary evidence to corroborate Dallaway's statement, it does seem that from the mid-1600s, Dedisham was a farmhouse, rather than the mansion house it was previously, and for many years it was occupied by the Puttock family who farmed the land"* (Chatwin, Diana, WSCT Feb 1989).

From this time, the Onslows became absentee landlords and Dedisham began to be occupied by tenant farmers. Sir Richard Onslow was of a wealthy and powerful family "which was to produce three Speakers to the House of Commons, were traditionally Lords Lieutenant of Surrey, and represented Guildford for 300 years. He found Cranleigh too remote to his political interests, and moved his seat to Clandon Park in 1641. During the Civil War he led the combined Surrey regiments on the Parliamentary side, and afterwards was speaker of the House of Commons during the Commonwealth. Being one of Cromwell's trusted aides his property would not have been harmed, or if so by mistake, he would have been amply compensated." (Siney, Alan, unpublished manuscript *Rudgwick's Forgotten Industry: Dedisham Iron Furnace & Forge etc.* Rudgwick Preservation Society).

So, if it was not Dedisham Manor that was sacked, if indeed a sacking took place, where or what was sacked? May I postulate that the target was in fact Dedisham Forge which lay adjacent to the Manor and was at that time in the hands of a turncoat Royalist, who in all likelihood was supplying armaments to the King's forces.

The Furnace house is dated to c1580 (Diana Chatwin, *The Development of Timber-Framed Buildings in the Sussex Weald - The Architectural Heritage of Rudgwick*), but this does not necessarily date the furnace.

Reference to Political Histories for Sussex, and to recent publications of Waller's own Despatches slowly allowed the unravelling of this conundrum.

Dedisham Forge had been in the hands of the Middleton Family since at least 1597 (PRO, REQ2 166/46), then known as Detsom Forge. The Middletons also had other Ironworking interests, and in 1595 John Middleton had leased Gosden Furnace at Lower Beeding to William & Neville Cheeseman, with part of the deal being that the Cheesemans would supply Middleton with sows (iron ingots). Gosden Furnace was on the site of what is now Leonardslee Gardens, where the ponds have since been landscaped.

The document here referred to contains depositions that Thomas Middleton had in the Maytide of 1597 taken divers tons of sows laying at Gosden Furnace and carried them to Detsom Forge. Basically, it had been stated that the Cheesemans at Gosden were producing *"the worst Iron in all of Sussex"*(Cleere & Crossley, The Iron Industry of the Weald, Merton Priory Press 1995) and it would appear that Middleton had taken it upon himself to replace the inferior stuff previously delivered or to take more than the agreed amount to make up for its poor value. (Alan Siney, ibid). It took until 1602 to resolve the issue.

Dedisham Furnace and forge were in common occupation during this period and it would certainly have been easy to carry sows a little over a quarter of a mile from one to the other. From Gosden to Detsom, however, was a different matter and was a very long way to cart the heavy sows, but not as far as some (Cleere & Crossley, *ibid.*), and must have contributed not inconsiderably in churning the roads into impassable tracks.

The Middletons still had an interest in Dedisham Ironworks and grew in status. John Middleton bought Hill's Place in Horsham in 1608, and was elected the Member of Parliament for the town in 1624. His son, Thomas, was elected in 1640 when on 3rd November the Long Parliament met at Westminster. Sussex returned 28 members, who, judged by their subsequent conduct, may be classed as 17 Roundheads and 11 Cavaliers. Thomas Middleton was on the Parliamentary side.

Following the outbreak of the Civil War, it became clear that Sussex was principally for the Parliamentary cause, and the last strongholds of Royalist support were captured in the early part of 1643. Waller took Chichester early that year and the two most powerful men in the county were Colonel Anthony Stapley and Colonel Herbert Morley. Waller moved to Hounslow in Early November to muster further troops and made Farnham his base of operations. This left Sussex exposed and the Royalists retook Chichester on 22nd November and this had to be retaken by Waller in December. This showed how shaky the parliamentary hold on the County actually was and by late 1643 all those who had relied on the mud of Sussex as a protection against Royalist invasion were soon awakened. At the beginning of December, taking advantage of a sharp frost, the Royalist forces under Lord Hopton advanced into the County via Petersfield, Hastings, and Marsden, and thence over the downs to Arundel. Sir Edward Ford was in command of a Regiment of horse in Hopton's Army and he, with Sir Edward Byshopp, arrived before the gates of Arundel on 6th December, whereupon they captured the town and laid siege to the Castle, which soon fell. Col Morley attempted a counter-attack but suffered a reversal at Bramber Bridge.

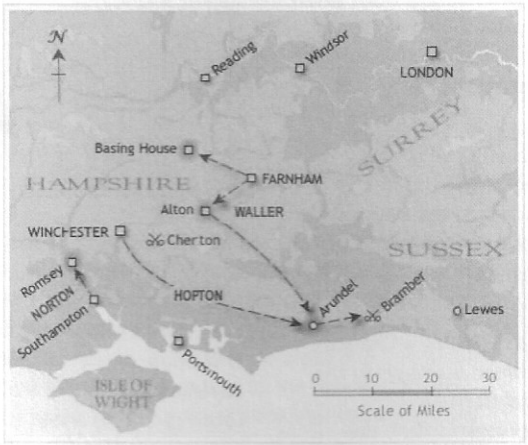
Now, what has all this to do with Dedisham Forge, I hear you readers ask.

Although the Royalist advance across the Adur was prevented, the prospect of the Parliamentary party looked bleak. Their only hope lay in the intervention of Waller and he was known to be in difficulties. It is not surprising that one at least of the Parliamentary leaders should seem to have thought it advisable to curry favour with the other side. It was at this point that Thomas Middleton, MP for Horsham, changed sides.

In August 1644 articles were formulated against Middleton alleging that in the previous December when the King's forces invaded Sussex, pretending himself to be sick, he would not in any way show himself against the King's forces but discouraged the countrymen who took up arms for the Parliament when the King's forces were within a few miles of Horsham and that he was in all probability consenting to bring in some of the King's forces to take Horsham (Portland MSS, [Inst MSS Com] i, 183).

It is interesting to note that Middleton, who resided at Hill's Place, seems to have been absolved of this accusation, but he was again arrested in 1648 on a charge of being concerned in the rising which took place at Horsham in that year. (Cal, S.P.Dom., Chas I, dxvi, 76)

Sir William Waller marched out of Farnham on 17th December 1643 to meet the Royalist forces in Sussex who were in possession of Petworth, Cowdray, Stansted and the Castle at Arundel. The frost was still holding and Waller was able to move with great rapidity. He "wheeled-about" towards Midhurst, hoping to surprise the Royalists at Cowdray, but they got wind of his ploy and escaped to Arundel. He then advanced upon Petworth, finding the enemy had also fled before him (Hopton towards Winchester, and others to Arundel). Thus there was very little check to his advance, and he reached Arundel by 19th December 1643. The castle held out for 17 days but eventually fell on 6th January 1644.



Map of Sir William Waller's march to Arundel, late 1643.

Immediately upon investing Arundel Castle, Waller sent 2000 horse and foot and two "drakes" to besiege *"My Lord Lumley's howse in Sussex"* (at Stansted, in the Parish of Stoughton) then in the possession of Richard Lewknor, a Royalist, who surrendered at once. A force was also sent to destroy (or more probably, to capture) the Ironworks in St Leonard's Forest which was presumed to be furnishing ammunition for the Royalist cause (Stanford, Thomas; Sussex in the Great Civil War & the Interregnum 1642-1660 [1910], p94).

John Adair, on page 131 his book "Roundhead General, A Military Biography of Sir William Waller, writes; *"Having settled his men into their winter quarters, and cleared the Royalists out of one important Sussex iron works, Waller journeyed to London, which he had reached by 25 January"* (1644).

I have taken a look at all possible iron-works present at the time in question which were situated in St Leonard's Forest, and there are only 3 of any consequence, and all under Middleton ownership:

St Leonard's furnace & forge, 2 sites named (a) Upper Forge, and (b) lower Forge; situated 1.25 miles N by W of Lower Beeding Church. According to Straker, these 2 sites must be considered with Godsen Forge which is situated below Leonardslee and treated as one entity. In 1665 the Royal possessions in and about the forest were surveyed, the Upper forge being valued at £27 and the Lower Forge at £32 per annum. They were claimed by one Walter Pawley who had bought the lease, but the claim was not admitted by the Commissioners as they stood on the Forest. They also reported that the furnace was *"decayed and downe aboute fortye yeares past."*, which would make it about 1615.(Parliamentary Surveys, 317. p35). This then, would leave just Gosden still active during the Civil War.

Warnham Furnace; situated about 1.25 miles North of Horsham Church. This was indeed a Stuart Furnace, 1st mentioned as being leased from John Middleton of Horsham on May 22nd 1607 to Sir John Caryll at a peppercorn rent for 1000 years. It was ruinous by 1664.

Dedisham or Rudgwick Furnace & Forge, which was also gone by 1664.

The date Waller sent his troops off to destroy the *"St Leonard's Ironworks"* fits the 1643 date for the purported sacking of Dedisham Manor, and I just wonder if the Ironworks referred to, was none other than those belonging to Middleton.

This would make sense, firstly to secure new sources for the supply of badly needed armaments and at the same time deprive the enemy of such a valuable asset.

Little destruction of ironworks took place during the Civil War. The only known instances are these in St Leonard's Forest. It is interesting that those nearby at Tilgate, despite its reputation for having cast ordnance for the Crown, appears to have escaped. (Cleere & Crossley, *Ibid.* p183). No, this was undoubtedly a one-off targeted attack. One can imagine what a pleasantly rich taste in the mouth Sir William Waller must have experienced revelling in the knowledge that he was smacking down such a turncoat as Middleton by taking possession of his Ironworks.

The only fly in the ointment which a colleague has pointed out to me, is that the Dowager Lady Lewknor would still have been in residence at Dedisham Manor; and Sir Richard Onslow, as Lord of the Manor of Dedisham, would more than likely have easily learnt of any duplicity by Middleton. So if Dedisham Ironworks was taken by Waller's men in 1643, we must assume that it had fallen into the hands of the Royalists. If that were case, then there is a good chance that Mary Lewknor would have provided hospitality to the occupying royalist officers, or the officers assumed she would and occupied it despite any dissent. If this were the case, then Waller's men would have taken and occupied the Ironworks, but could probably have sacked the manor house, especially if the royalists present had tried to defend it.

So did they or didn't they? The Jury is still out on this one.....

References:

Adair, John. Roundhead General, The Campaigns Of Sir William Waller

Sutton Publishing,, Stroud. 1997. ISBN 0750913126

Adair, John Roundhead General - A Military Biography of Sir William Waller Macdonald, London 1969 ISBN 0356026418

Albery, William. A Parliamentary History of the Ancient Borough of Horsham 1295-1885. Longmans Press. 1927.

Burne, Lt Col Alfred & Young, Lt Col Peter. The Great Civil War, a Military History of the Civil War 1642-1646. Windrush Press 1998 ISBN 1900624222.

Chatwin, Diana. The Development of Timber-Framed Buildings in the Sussex Weald - The Architectural Heritage of Rudgwick 1996 ISBN 0907264999

Chatwin, Diana, Structural Survey Report on Dedisham Manor (unpublished)

Chatwin, Diana, Article in West Sussex County Times February 1989

Cleere, Henry & Crossley, David. The Iron Industry of the Weald, Merton Priory Press 1995 ISBN 898937044

Coates, Richard. Review of A.L.F. Rivet and Colin Smith (1979) The place-names of Roman Britain, Journal of the English Place-Name Society. 1980/1

Dallaway, Revd James, History of the Rape of Arundel 1815

Field, John. Full Relation of Late Proceedings of Sir W. Waller, 8th January 1644 .(the account of the siege of Arundel is mainly based on Waller's own despatches which were promptly published and have been several times reprinted.)

Fletcher, Anthony, Sussex 1600-1660, A County Community in Peace & War. Phillimore 1975 ISBN 0850333768

Gardiner, Samuel R. History of the Great Civil War, Vol 1 1642-44. Longmans Green & Co, 1904,reprinted by Phoenix Press 2002. ISBN 1842126393

Gaunt, Peter. The Cromwellian Gazeteer. An Illustrated Guide to Britain in the Civil War & Commonwealth. Wren's Pubn. 2000. ISBN 0905778480.

Horsfield, Thomas Walker, History, Antiquities & Topography of the County of Sussex. Sussex Press, Lewes. 1835.

Newman, P. R. Atlas of the English Civil War. Routledge 1998. ISBN 0415196094.

Siney, Alan. Rudgwick's Forgotten Industry: Dedisham Iron Furnace & Forge etc. Rudgwick Preservation Society, unpb ms. c1997

Spring, L. The Campaigns of Sir William Waller's Southern Association 1643-1645 Stuart Press.

Stanford, Thomas; Sussex in the Great Civil War & the Interregnum 1642-1660 [1910]

Straker, Ernest, Wealden Iron. David & Charles, 1969 ISBN 715344706

King Solomon's (Copper) Mines?

Inga Kiderra

Humanities University of California, San Diego

Did the Bible's King David and his son Solomon control the copper industry in present-day southern Jordan? Though that remains an open question, the possibility is raised once again by research reported in the Proceedings of the National Academy of Sciences.

Industrial copper slag mound excavated at Khirbat en-Nahas

Photo by Thomas Levy, UC San Diego.

The building and layers above it date to the mid-9th century BCE; slag deposits below the building date to the 10th century BCE.

Led by Thomas Levy of UC San Diego and Mohammad Najjar of Jordan's Friends of Archaeology, an international team of archaeologists has excavated an ancient copper-production center at Khirbat en-Nahas down to virgin soil, through more than 20 feet of industrial smelting debris, or slag. The 2006 dig has brought up new artifacts and with them a new suite of radiocarbon dates placing the bulk of industrial-scale production at Khirbat en-Nahas in the 10th century BCE - in line with biblical narrative on the legendary rule of David and Solomon. The new data pushes back the archaeological chronology some three centuries earlier than the current scholarly consensus.

The research also documents a spike in metallurgic activity at the site during the 9th century BCE, which may also support the history of the Edomites as related by the Bible.

Khirbat en-Nahas, which means "ruins of copper" in Arabic, is in the lowlands of a desolate, arid region south of the Dead Sea in what was once Edom and is today Jordan's Faynan district. The Hebrew Bible (or Old Testament) identifies the area with the Kingdom of Edom, foe of ancient Israel.

For years, scholars have argued whether the Edomites were sufficiently organized by the 10th to 9th centuries BCE to seriously threaten the neighboring Israelites as a true "kingdom." Between the World Wars, during the "Golden Age" of biblical archaeology, scholars explored, as Levy describes it, with a trowel in one hand and Bible in the other, seeking to fit their Holy Land findings into the sacred story. Based on his 1930s

surveys, American archaeologist Nelson Glueck even asserted that he had found King Solomon's mines in Faynan/Edom. By the 1980s, however, Glueck's claim had been largely dismissed. A consensus had emerged that the Bible was heavily edited in the 5th century BCE, long after the supposed events, while British excavations of the Edomite highlands in the 1970s-80s suggested the Iron Age had not even come to Edom until the 7th century BCE.

Thomas Levy in the Levantine Archaeology Lab, UC San Diego

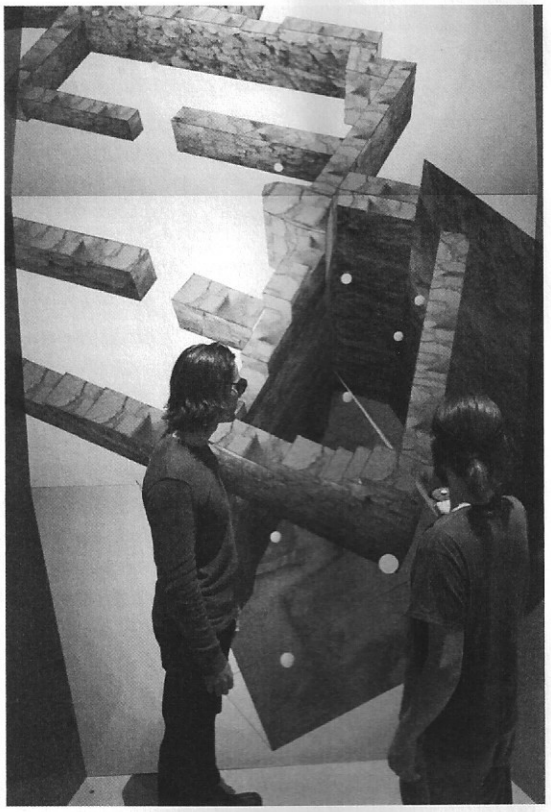
"Now," said Levy, director of the Levantine Archaeology Lab at UCSD and associate director of the new Center of Interdisciplinary Science for Art, Architecture and Archaeology (CISA3), "with data from the first large-scale stratified and systematic excavation of a site in the southern Levant to focus specifically on the role of metallurgy in Edom, we have evidence that complex societies were indeed active in 10th and 9th centuries BCE and that brings us back to the debate about the historicity of the Hebrew Bible narratives related to this period."

Khirbat en-Nahas, comprising some 100 ancient buildings including a fortress, is situated in the midst of a large area covered by black slag - more than 24 acres that you can clearly see on Google Earth's satellite imagery. Mining trails and mines abound. The size argues for industrial-scale production at Khirbat en-Nahas, Levy explained. And the depth of the waste at the site, more than 20 feet, he said, provides a "measuring stick" to monitor social and technological change during the Iron Age, which spans around 1200 to 500 BCE, a key period in the histories of ancient Israel and Edom.

The archaeological team, Levy said, used high-precision radiocarbon dating on date seeds, sticks of tamarisk and other woods used for charcoal in smelting (along with Bayesian analysis) to obtain the 10th- and 9th-century BCE dates. The analyses were carried out by Thomas Higham of the University of Oxford.

Additional evidence comes from ancient Egyptian artifacts found at the site. The artifacts, a scarab and an amulet, were in a layer of the excavation associated with a serious disruption in production at the end of the 10th century BCE - possibly tying Khirbat en-Nahas to the well-documented military campaign of Pharaoh Sheshonq I (aka "Shishak" in the Bible) who, following Solomon's death, sought to crush economic activity in the area.

For a comprehensive picture, the researchers marshaled the "the newest and most accurate digital archaeology tools," Levy said: electronic surveying linked to GIS that all but eliminates human error, as well as digital reconstruction of the site in the "StarCAVE," a 3-D virtual environment at UC San Diego's California Institute for Telecommunications and Information Technology.



Digital reconstruction of the Khirbat en-Nahas site in the "StarCAVE," a 3-D virtual environment at UC San Diego's California Institute for Telecommunications and Information Technology

Photo by Pinak Istek, UC San Diego-Calit2

As the associate director of the new Center of Interdisciplinary Science for Art, Architecture and Archaeology (CISA3), Thomas Levy is directing a number of digital archaeology projects, including the PNAS study reported here.

The present findings, Levy noted, support early results he and his colleagues obtained from digs at Khirbat en-Nahas in 2002 and 2004.

"We can't believe everything ancient writings tell us," Levy said. "But this research represents a confluence between the archaeological and scientific data and the Bible.

"Our work also demonstrates methods that are objective and enable researchers to evaluate the data in a dispassionate way. This is especially important for 'historical archaeologies' around the world where sacred texts - whether the Mahabharata in India or the Sagas of Iceland - and the archaeological record are arenas for fierce ideological and cultural debates."

Future research at Khirbat en-Nahas, Levy said, will focus on who actually controlled the copper industry there - Kings David and Solomon or perhaps regional Edomite leaders (who had not been written about in the biblical texts) - and also on the environmental impacts of all this ancient smelting.

Meanwhile, Levy is working with the Royal Society for the Conservation of Nature in Jordan and other organizations to have Khirbat en-Nahas and the more than 450-square mile ancient mining and metallurgy district declared a UNESCO World Heritage Site, to protect it from possible mining in the future and preserve "its spectacular desert landscape and rare, ancient character."

The study was supported by grants from the National Science Foundation and the National Geographic Society.

Deep Dig Finds Confluence of Science and the Bible

By Inga Kiderra

Associate Director of Communications

Social Sciences, International Relations, Arts,

Field Unit

Gill and Bob Turner

What happens after the back fill?

Most archaeological devotees will know all about the dig, recording finds in situ, planning and section drawing and the best to be avoided task of back fill. Armed with a trowel or a metal detector, a total station, knee pads and buckets they brave rain, cold, mud and site directors to give their all.

But what happens when the dig is complete?
On occasions they are required to attend and wash mud off bits of flint and building material and sometimes, at the museum open days, write strange numbers and symbols on the pieces with old-fashioned dip pens and ink. None of these bits seem to be very interesting nor even recognisable as the hard one trophy's from the trench you spent hours kneeling in.

Lets enter this shrouded world of post excavation, unravel the mysteries of recording, specialist reports and finds processing and delve into the hidden recesses of brown cardboard boxes and plastic containers lined with silicon gel.

At the end of a dig we have several things

Bagged finds with descriptions on the bags

A site plan showing what was where

Draft section and planning drawings

Undeveloped photographs or digital records

Unprocessed information in a total station

This then is our entry point into post excavation work so lets explore exactly what happens.

Firstly the finds. There are two types of finds, the finds we extract from field walking and our trenches and the finds we leave in situ. Obviously bits of pottery and flint are examples of the first and walls and floors illustrate the second. All finds removed from site are recorded from where they came by context and small special finds recorded additionally by three dimensional co-ordinates. In this way we have a permanent record of what we found and where.

Archaeological excavation is a destructive process and so if the recording is poor then the artefact becomes less meaningful as it loses provenance. Each layer of the excavation or context is numbered to denote a change in position or emphasis of what is being uncovered and likewise the find carries the same nomclature in its identification. Thus we know where everything came from and finds of significance delineated "small finds" recorded by length, breadth and depth. In extreme cases small finds can also be recorded by north, south orientation and dip angle to show exactly how they were lying when discovered.

The "in situ" finds such as walls, fire pits and ovens etc of course cannot be taken away and so they are recorded in horizontal section by "planning" where a 10cm grid is placed on top of the feature and recorded at a scale of 20 to 1 and if necessary to establish their position vertically in a "section" drawing at a scale of 10 to 1.

A photographic record backs up all this work so ensuring no aspect of the excavation has been lost even if there is removal of further layers of the site.

Once the finds have been sorted then non-diagnostic material is weighed counted and discarded.

Diagnostic finds are washed dried and then marked with Indian ink with the site code and context number in a square while small finds have the site code and find number in a triangle. This find number ties up with the three-dimensional record either listed on a finds sheet or recorded by the total station.

Finds can now be sorted between fine wear and coarse wear pottery, glass, metal, tile, coins, flints and foreign stone ready for specialist analysis if required. Specialists will deliver a report on selected material of what, when, why and how and if possible extrapolate on quantity and distribution.

Planning and section drawings are now inked in so they become a permanent record and again are linked to the total station information with position and levels and the site plan showing the overall picture for awareness of anyone looking at the excavation as a whole.

When all this effort is completed then it is the responsibility of the site Director to co-ordinate all aspects of the excavation into a final report or where a site is ongoing an interim report. This report will include the project design for what was trying to be achieved, the results of what were found. photographs, illustrations. plans, sections, specialists reports and an extrapolation of this information and an assessment of the site.

Dating evidence is crucial for an understanding most sites to enable an evaluation and interpretation to be made. So in analysis a few weeks with bucket and trowel can mean years of further effort to produce a record for antiquity.

Often the art of photography cannot always encapsulate all details or the essence of a item, especially flint tools, and so for the report to show all aspects of the finds illustrations are a necessary as is with detailed sections of structures and buildings so again the illustrator plays a vital role.

The final report, the detailed recording work and the finds them selves will then be stored in the museum and certain documentation placed on the SMR (Sites and Monuments Record) to enable future scholars to have access to the full record. In this way we preserve the discoveries for all and not just the selected few. So what we find out today will be available to our descendants but only if we do the job properly.

In the past so many archaeological investigations have been poorly recorded or quite often not recorded at all so that what was discovered is now lost forever. It is vital that our heritage be both understood and preserved so if finding out about the past is your thing then make sure that your grandchildren can have access to what you found on those muddy days.

So there we are, the overview of what happens when the tools and barrows go back in the shed, (to use an apt quotation) This is not the end, not even the beginning of the end but it might be the end of the beginning.

Dendrochronology

Jonathan Taylor

Dendrochronology in Dating Timber Framed Buildings and Structures

Tree rings

Each ring represents one year's growth. A good year for growth will be recorded by a wider ring in all trees affected, whatever their age, like an annual date stamp. The outermost ring records the year that the tree was felled.

Dendrochronology, or 'tree ring dating' as it is often known, can provide an invaluable insight into the history of a building by revealing the year in which timbers used in its construction were felled.

It was discovered early in the 20th century that trees of the same species in the same region displayed remarkably similar ring patterns across the tree trunk and in the end grain of timber beams. Each year a tree gains another ring as it grows; the thickness of which depends on the amount of growth. In a year with ideal growing conditions, trees will produce a wider ring than in a year with poor conditions, and all the trees in the same region are likely to display the same general chronological growth pattern, despite any local ecological variations. By plotting the relative thickness of these rings in a newly felled oak of say 200 years old, a clearly identifiable sequence of variations will emerge like a date stamp for each period. By comparing variations in the first 100 years growth (ie the innermost 100 rings) with those of the last 100 years growth (ie the outermost 100 rings) of similar timber felled locally 100 years ago, the match should be immediately apparent. If the older timber retains its bark, the year that it was felled will be recorded by the outermost ring, the ring which was grown in the year that the tree was felled.

Tree ring data for most areas of the country are now documented by master chronologies spanning hundreds of years, based on timbers of the same tree species, from the same region, with overlapping periods of growth. Oak is the best documented species because it was the one most widely used for the construction of timber-framed buildings in the past. By cross-matching the tree rings of historic timbers from existing buildings with the master chronology, dendrochronology laboratories are able to determine when the timbers were felled.

The appeal of dendrochronology as a dating tool is that it is objective and entirely independent of other evidence such as datable design features and documented information. Furthermore, where analysis results in a clear match with the master chronology the results are completely accurate and reliable.

However, not all buildings can be dated by dendrochronology. A project to examine the medieval timber-framed buildings of Kent [1] which was established in 1986 examined 74 buildings across the county and firm results were obtained for 53 of them. Nevertheless, data from the study of these buildings established clear dates for certain features such as joint details and mouldings which are known to change chronologically, from which it was possible to gain a much clearer picture of the development of all the buildings in the study.

For tree ring analysis to produce an accurate result, it is necessary to have samples of timber which retain their bark, so that it is clear which ring was outermost when it was felled. If only some sapwood remains (this is the outer layer of timber which lies beneath the bark and transports sap), the year in which the tree was felled can be estimated, probably to within 15 to 20 years. This is because the number of rings in the sapwood varies widely, with some estimates suggesting that the range may be from 15 to 50 rings in the sapwood of mature oak trees in 95 per cent of the cases considered in the UK. In Kent, 18 samples of oak taken from different medieval timbers indicated a smaller range of 15 to 35 sapwood rings.

TAKING SAMPLES

In practice, samples are prepared by the dendrochronologist either from cores drilled out of the timber or, if the timber is to be replaced as a result of a repair, by taking complete slices through the whole timber. Core samples leave a hole of up to 15mm diameter. The hole may be filled with a dowel to disguise it, but nevertheless some damage is done to the timber. Slices on the other hand are far more destructive but give the most clear picture of tree ring sequences.

Samples should include the bark, and finding suitable timbers for examination may require dismantling part of the structure. In some cases it may be possible to carry out some analysis from exposed beam ends in situ.

It becomes progressively easier to date timbers the more rings there are and the more samples taken. English Heritage recommends [2] that generally a minimum of 50 rings should be present in each sample and that eight to ten timbers should be sampled per building or per phase of the building's development, with no more than two core samples taken from the same timber to avoid unnecessary damage.

The samples are first polished. Then the dimensions of each ring are measured under a microscope and the results recorded on both a graph and on a computer for statistical analysis. All the samples are then cross-checked with each other to identify any possible measurement errors and abnormalities before a master curve is prepared based on average tree ring sequences.

LIMITATIONS

- Not all timbers used in timber framed buildings and roofs are of oak. Elm and other species were also used. If the only master chronology available for the region is oak, cross-matching with timbers of these other species cannot be relied on.
- Where trees were felled at a relatively young age there may not be enough rings to cross-match accurately.
- Sapwood is highly susceptible to decay particularly by beetle larvae. As a result all sapwood may have been removed from the accessible surfaces of timbers during building repairs and conservation work, making it impossible to determine when the timber was felled.
- The date the timber was felled may not necessarily be the date that the building was constructed. A surprisingly early date may suggest the use of salvaged timbers.
- Occasionally no cross-match will be identifiable. This may be for a number of reasons such as the use of timber imported from another area or unusual growth conditions caused by pollarding for example.

FURTHER READING

1 The Medieval Houses of Kent by Sarah Pearson, RCHME, HMSO London, 1994. The book describes a thorough dendrochronology program and the results obtained in some detail.

2 A leaflet entitled 'Dendrochronology: Guidelines on producing and interpreting dendrochronological dates' is available from English Heritage Publications, Tel 020 7973 3000.

Deadline for articles for next issue is 30th September 2009, please supply in .pdf format if possible and photos as separate .jpegs.

Articles from members own research are most welcome.

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Annual membership fees are now due.

Please contact the membership Secretary for details and gift aid forms.

Journal

All contributions to the newsletter are very welcome!

Please supply in pdf format if possible, and photos as separate .jpegs. to Secretary, Rodney Gunner.

Any views and/or opinions expressed in this newsletter are not necessarily those of the Society nor it's membership