

birmingham archaeology



UNIVERSITY OF
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TUTBURY CASTLE, STAFFORDSHIRE
A PROGRAMME OF ARCHAEOLOGICAL WORK
2005



Tutbury Castle,
Staffordshire

**A Programme of
Archaeological Work, 2005**

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Tutbury Castle, Staffordshire

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SUMMARY

A second season of archaeological work was carried out at Tutbury Castle, Staffordshire, by the Institute of Archaeology and Antiquity, University of Birmingham as part of wider research project in collaboration with the British Museum and Tutbury Castle. The archaeological work included a resistivity survey of the middle bailey, a topographical survey of the Park Pale, a large linear earthwork of unknown date that lies to the south of the castle, extending into the town of Tutbury. In addition, three areas of excavation were opened, Area 1 in the inner bailey to the southwest of the North Tower, Area 2 also in the inner bailey to the northwest of the South Tower, and Area 3 on top of the motte.

Area 1 uncovered more of a building that was partially investigated in the 2004 season, and which is traditionally on the site of the lodging occupied by Mary Stuart during her incarceration at the castle. The building was rectangular, and the remains comprised a comparatively narrow stone plinth, probably designed to carry a timber-framed superstructure. A sondage excavated inside the building at the southern end of the trench revealed a cobbled surface associated with 12th/13th-century pottery. Within the north end of the building was a sub-circular pit of dished profile c. 3.2m in diameter. It was filled with rubble and mortar including a number of moulded stones, perhaps from the nearby North Tower. Generally, the finds from the upper levels of the interior of this building, both pottery and clay pipes, date from the mid-17th century, and may point to a final phase of occupation during the Civil War. To the north of the building's northwest corner a substantial 2.8m long dressed stone gully was uncovered, and, adjacent to it towards the east, a metalled surface. The gully had been broken through at each end by possible postholes. A curiosity was that the one at the south end contained a complete Midlands Purple pot dating from the 15th/16th century, apparently in situ though its purpose has yet to be determined.

Area 2 was situated immediately northwest of the assumed line of the rampart identified during the 2004 excavations. The trench was excavated to a depth of 2m below ground level, and the natural subsoil located by auger at a depth of approximately 3.6m. Overlying the subsoil was a 0.44m thick layer of redeposited silty clay, sealed by a thin deposit of pale grey clay. Above this was a waterlogged layer of clay containing large amounts of wood and 12th-century pottery. The excavation appears to have located a major feature, possibly a ditch, although its nature could not be determined owing to the limited nature of the investigation. It is planned to continue working on this area next year.

The trench on the motte (Area 3) was located on the northwest side in an area previously excavated in 1913 and the 1950s, when substantial stone foundations were discovered. The 2005 excavation uncovered, in the northeastern portion of the trench, a medieval stone structure at least 1.2m thick, which was tentatively identified as a flight of steps. In the southwest portion of the trench, at a depth of approximately 2.7m, was a possible floor surface consisting of flat stones pressed into clay. Part of this surface was sealed by 0.3m thick flat stones, which appeared to form a pavement. These features indicate that the motte was formerly occupied by a substantial stone building, although further investigation is required to ascertain its nature.

TUTBURY CASTLE, STAFFORDSHIRE

A PROGRAMME OF ARCHAEOLOGICAL WORK 2005

1 INTRODUCTION

A second season of archaeological work was carried out at Tutbury Castle, Staffordshire over the three-week period 31 May-17 June. The archaeological programme was centred around a training excavation for first and second year undergraduates from the Institute of Archaeology and Antiquity, University of Birmingham, and included excavation, and geophysical and topographical survey. The archaeological project was instigated in 2004 by Mrs Lesley Smith, the lessee of Tutbury Castle, as part of a wider research programme on the castle and town being co-ordinated by Dr Gareth Williams of the British Museum. The professional direction and supervision of the archaeological fieldwork was undertaken by Birmingham Archaeology with input from the British Museum.

2 LOCATION

Tutbury Castle is situated on the northern edge of the town of Tutbury, East Staffordshire at NGR SK20952915. It lies on the south side of the River Dove, which forms the county boundary with Derbyshire.

3 SCOPE AND METHODS

3.1 Survey Control

An overall survey control network had been established at the site during the 2004 season. However, the permanent GPS base station point could not be relocated and it therefore proved necessary to create a new point at the start of this season's work. A location on top of the castle motte was again selected and a short-stem earth anchor was used to mark the permanent GPS station. The survey was carried out using a Leica System 500 GPS, a unit that incorporates Differential GPS with Real-Time Kinematic survey to provide data to sub-centimetre accuracy. The GPS base station was set up on the permanent point and allowed to calculate its position over a period of a day. The data collected by the base was later corrected to the Ordnance Survey grid using the RINEX post-processing facilities of the Leica SKI-Pro software.

The GPS system was then used to establish a series of temporary control stations across the focus areas for this season, located to complement the network of permanent stations laid out in 2004. These stations were positioned so as to provide intervisibility between the points in order to enable the use of optical surveying techniques as well as the GPS. This network formed the basis for all aspects of the 2005 survey, including the positioning of the excavation trenches and the geophysics grids.



Fig. 1 Location of main survey control stations

3.2 Topographical Survey

The topographical survey concentrated on the middle bailey, the earthworks within the inner bailey that had not been surveyed in 2004, notably the north and south ramparts and the northeastern slope of the motte, and an earthwork to the south of the castle known as the Park Pale. The survey was again carried out using the Leica System 500 Differential GPS unit. Since a large mass of points are required to form an accurate and representative Digital Terrain Model (DTM), the GPS was set to record in kinematic mode, automatically logging readings every two seconds as the earthworks were traversed. Ranging rods were used to direct the surveyor and separate the earthworks into transects of approximately 5m, with the spacing being reduced where the topography became more varied and more detail was required (as suggested by Barratt *et al* 2000:138).

The collected survey points were imported into the Leica SKI-Pro software and corrected to the National Grid using RINEX data downloaded from Ordnance Survey. Once processed, the points were exported into ArcView GIS 3.3 for analysis and display. This included the creation of Triangular Irregular Networks (TINs) for each area in order to view the survey as 3-dimensional images.

3.3 Resistivity Survey

The resistivity survey for this season focussed on the middle bailey and was carried out using a Geoscan RM15 metre with a twin probe array. The data was collected along 1m wide zigzag traverses with a sample interval of 0.5m. The survey grid consisted of a series of 20m x 20m squares laid out using a Nikon NPL-332 total station and orientated roughly southwest-northeast, in order to obtain the greatest number of complete grids. The grid corners were marked by temporary plastic pegs and were fixed using the Differential GPS unit before being removed at the end of the survey. This provided the geographical positioning of the grid intersections to sub-centimetre accuracy and was therefore within the accuracy range suggested by English Heritage for geophysical surveys (David 1995:4).

In total seven complete and nine partial grids were covered within the bailey, with the survey being extended as far as the field boundary where this proved possible. The main entrance track to the castle curves through the middle bailey and up to the gatehouse to the inner ward and so this area had to be excluded from the survey by replacing the relevant points with a predetermined 'dummy' value. Similarly, the presence of the

adventure playground equipment and picnic benches to the south of the field meant that an entire 20m x 20m grid was omitted from the survey at this location.

The geophysics data was downloaded into the Geoplot software and a composite of all the individual grids created. The various processing functions available within Geoplot were used to remove the limited number of anomalous readings that are inherent in most resistivity surveys and to emphasise the archaeology from within the background geological 'noise'. The processed images were then exported into ArcView GIS and rectified to the corrected grid points collected with the GPS unit.

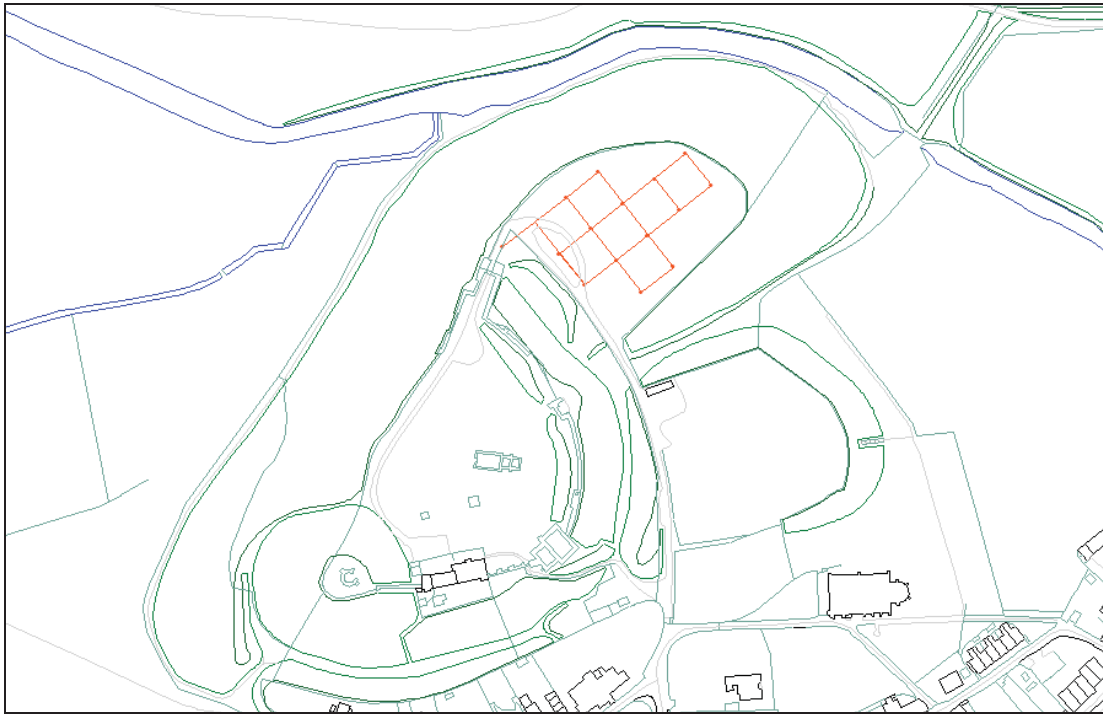


Fig. 2 Location of geophysics grids for middle bailey resistivity survey

3.4 Excavation

Three areas of excavation were opened in the inner ward:

- Area 4 to the west of the North Tower
- Area 5 to the northwest of the South Tower
- Area 6 on top of the motte

All excavation was by hand. Recording was by *pro forma* context sheets, and drawn plans (at 1:50) and sections (at 1:20) supplemented by monochrome and colour slide photography. All datable features and deposits were sampled for the recovery of charred or waterlogged plant remains, in addition to pollen and insect remains.

4 RESULTS

4.1 Topographical Survey *by Mark Kincey*

The Inner Bailey

The topographic survey of the main area of the inner ward had been carried out in 2004 and was extended this season to include the northeast facing slope of the castle motte and the inner faces of the north and south ramparts, located either side of the north tower. The results of the survey clearly show the steep gradient between the relatively flat inner ward and the plateau of the motte itself.

The inner faces of the north and south ramparts display a similarly steep gradient and presumably provided a form of revetment for the curtain wall itself. Further conclusions based on the topographic data for the inner ward will be made following the completion of the GPS survey in a future season, including the full circuit of the motte, and the extension of the excavation areas within the ward.

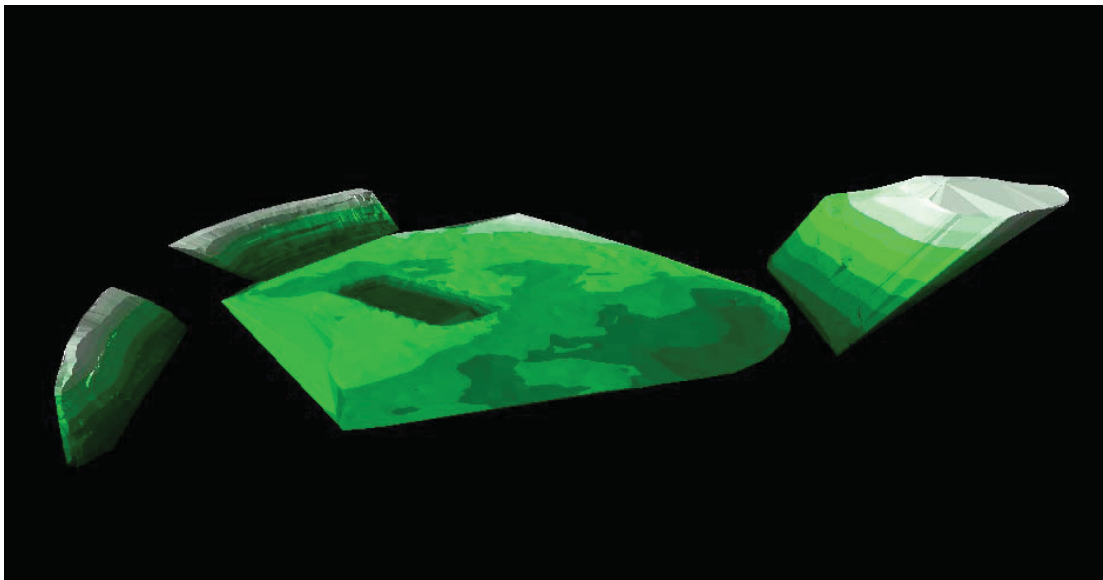


Fig. 3 Results of inner bailey topographic survey

The Middle Bailey

The topographic survey of the middle bailey highlights a gentle, yet clearly identifiable, southwest-northeast downward slope across the entire area. Although the gradient is only minor the ground nearer to the castle itself is higher, possibly suggestive of deliberate alteration. Maintaining a downward slope from the castle outwards would presumably allow better drainage than a uniformly flat bailey and would also provide a further physical obstacle, however slight, to anyone attempting to attack the castle from this direction.

To the far south and west of the middle bailey the ground slopes down in a westerly direction, at a steeper gradient than is present across the rest of the area. This dip is the eastern extent of the sizeable ditch that encircles three sides of the inner ward and motte. The gradient begins as this gentle incline before dropping sharply further to the west to form the outer slope of the ditch (outside this season's survey area). The topographic survey shows that the depression continues as far as the wedge of ground between the gatehouse and the modern approach path to the castle. It is known from documentary sources that the ditch originally continued in front of the gatehouse, and that a bridge

provided access to the inner ward, at least until the 16th century. This portion of the ditch has therefore been infilled since.

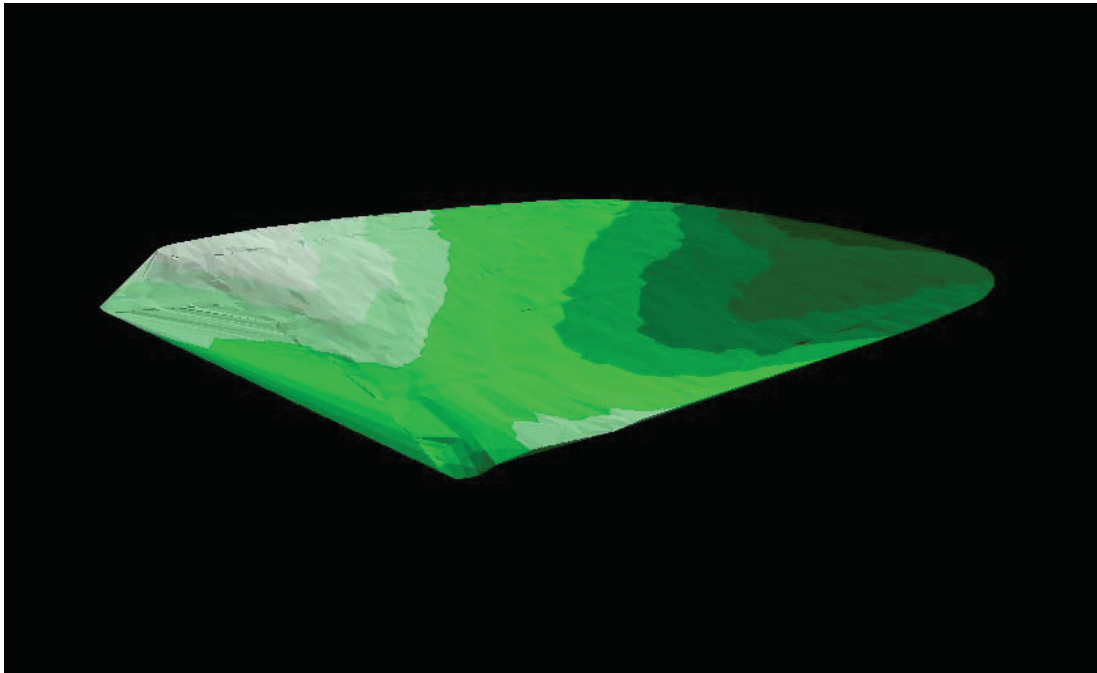


Fig. 4 Results of middle bailey topographic survey

There is also an additional rise in topography towards the southern corner of the bailey, located close to the deep depression that separated the middle and outer baileys. This rise could be natural in origin but would also have had the effect of accentuating the sides of the depression, which is traditionally believed to have formed the main eastern approach to the castle. The plateaux on which the two outer baileys stand overlook this central approach route and would have provided formidable defensive positions. By artificially heightening this location, or even simply exploiting a natural rise in the ground level, the occupiers of the castle would further reinforce their defensive capabilities.

The Park Pale

The survey of the Park Pale earthworks located to the south and west of the castle grounds was begun in 2004, with a preliminary hand-held GPS survey being carried out to plot the location and extent of the monument. In the 2005 season the survey was extended considerably as part of a postgraduate research project being conducted by the author. The objectives of this project are to provide a comprehensive survey of the Park Pale and through a combination of primary survey data and desk-based research, to provide possible interpretations for the original date and function of the earthworks and how they relate to the history of the castle and town. All of the information collated as part of this project will be incorporated into a Geographical Information System (GIS) for investigation and the presentation of the results.

The substantial portion of the earthwork located to the west of the town, between 420746,328716 in the southeast to 420701,328802 in the north, was the primary focus for this season's work on the Park Pale. A kinematic GPS survey was carried out using the Leica System 500 Differential GPS unit, collecting data points every 2 seconds while the earthworks were being traversed. The survey transects were again at approximately 5m intervals with the spacing being reduced where the topography became more varied. The data from this topographic survey was imported into ArcView GIS and a 3-dimensional surface model produced of the points.

The GPS unit was then employed to record strings of points along the main topographic changes present on the earthworks, notably the tops of banks, bases of ditches and any clear breaks in slope. A series of single transects running perpendicular to the features was also recorded in order to show the shape of the earthworks in profile at various points along their course.

The initial proposal was to survey all extant stretches of the earthworks located around the town using this method. However, it soon became apparent that in a number of areas the presence of tall buildings or dense tree cover meant a loss of satellite lock and the subsequent requirement for a different surveying technique. To counteract this problem, the GPS 500 was used to create a secondary survey control network across the town of Tutbury, from which optical surveying techniques could be used to record the detail of the earthworks. At each area control points were established by placing temporary plastic pegs into the ground and occupying the position with the GPS kit. The DGPS equipment provided sub-centimetre accuracy and the control network was therefore within the precision range specified by English Heritage for survey control (Lunnon 2000:2.1.1).

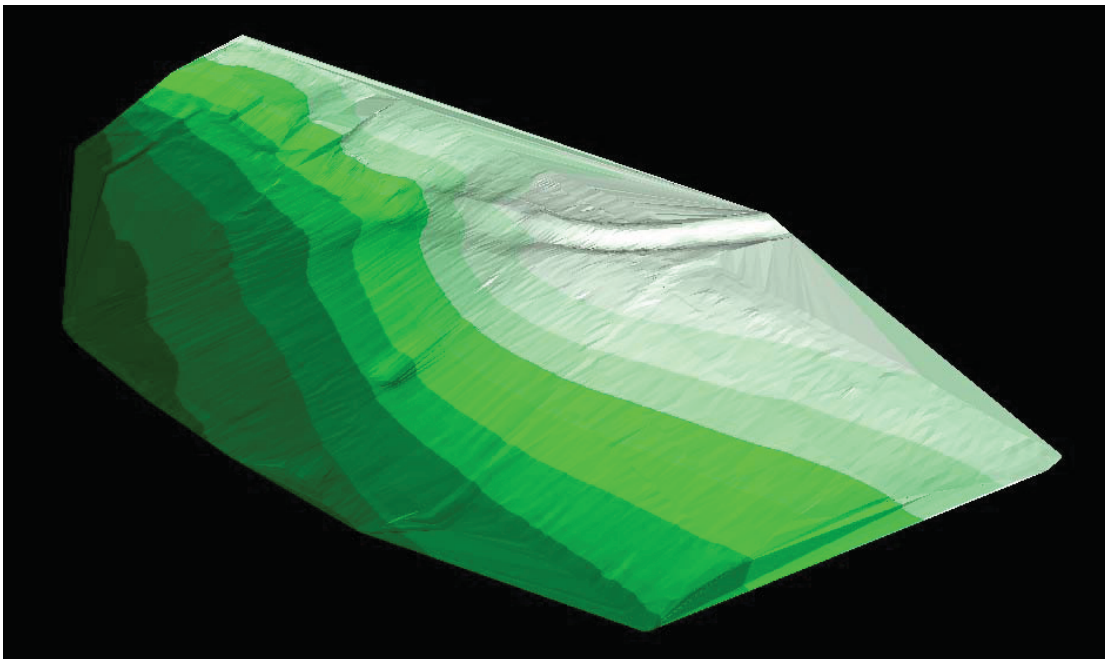


Fig. 5 Results of Park Pale topographic survey

The optical survey was carried out using a Nikon NPL-332 total station with in-built data logger. The detailed survey conducted with this equipment again involved the recording of strings of points along the main topographic features of the earthworks, as well as closely spaced profiles running perpendicular to the main direction of the monument. Once completed, the survey data was downloaded into GeoSite Office 3.1, before being exported to AutoCAD 2002 for further attribute editing. These files were subsequently incorporated into the overall GIS project set up within ArcView 3.3.

The results of the Park Pale survey are only provisional at this stage but the work clearly shows an extensive arrangement of linear earthworks forming a broken circuit around a considerable portion of Tutbury town. The location and morphology of the individual stretches of earthworks were described in the previous season's report (Barratt and Hislop 2004:4.2). One of the outstanding questions regarding the earthworks is how they relate to each other and to the castle itself. To the west the monument extends right up to the

southwestern side of the moat and can therefore be clearly linked to the castle at this location. To the east, however, the situation is far less clear as the Pale earthworks can only be traced as far as the grounds of the modern primary school. A number of suggestions can be made for the original continuation of the Pale, although at present these remain merely conjecture and rely to a large extent on whether the earthworks do actually relate to a park pale or to some other form of boundary such as a town border. These include the possibility that the earthworks turned to the northwest in order to rejoin the hill on which Tutbury Castle stands; that the earthworks extended as far north as the natural boundary of the River Dove or one of its diverted channels; or that the circuit was in fact considerably smaller than either of these options and curved sharply back to the west to rejoin the other stretches of the earthworks. These alternatives are to be looked at in more detail as part of the aforementioned research project and a conclusion possibly reached through the analysis of aerial photographic and early cartographic evidence (see below).

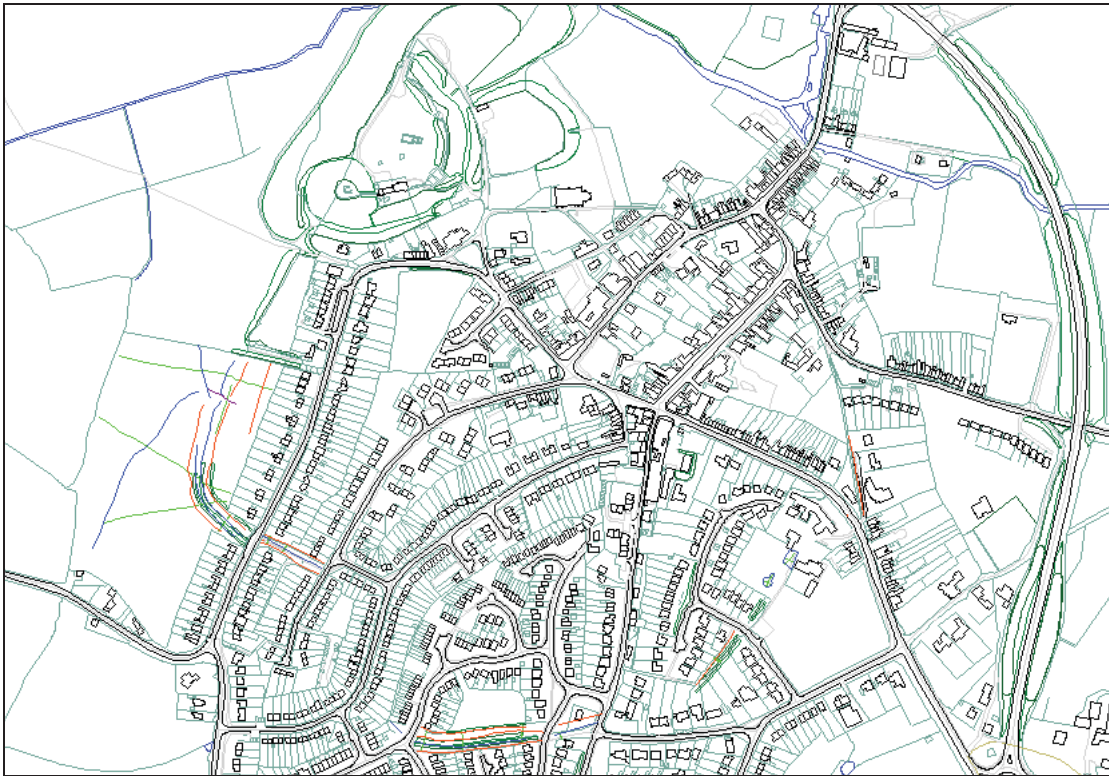


Fig. 6 Preliminary results of measured survey of Park Pale earthworks

Although traditionally grouped together and labelled 'Park Pale', there are important reasons to doubt the contemporaneity of the various stretches of earthwork. The survey of the curving linear earthworks located immediately southeast of the castle hill, between 420743, 328921 and 420748,328712, has shown it to be noticeably more substantial than the other extant stretches. This area is outside the town itself, with its associated modern housing developments, and could therefore simply reflect a better level of monument preservation. However, the alignment of this stretch also does not appear to correspond well with the course of the other known linear earthworks located further into the modern town. Consequently, it remains a significant possibility that the earthworks relate to different phases, even if they were all utilised together at one stage to form a medieval park pale, as the name suggests. This interpretation obviously requires verification through further research, ideally small-scale trial trenching across the different stretches of earthworks to provide secure dating evidence, a possible objective for a future season's work.

One other important aspect of this season's Park Pale survey was the GPS mapping of areas of visible erosion, most notably along the lower slopes of the western stretch of the earthworks. These areas of soil slippage and root disturbance had been noted in 2004 and several spot finds of 13th-14th-century pottery were recovered and plotted. The decision was made this year to survey in the extent of these areas of erosion and to assess the damage they are possibly causing to the scheduled monument. Although the areas of erosion are individually relatively small, they are on land commonly used by local walkers and without a careful management plan the situation could lead to lasting damage being caused to the monument. A more detailed account of the erosion threat to the earthworks is to be included in the postgraduate research project mentioned above.

The further objectives for the Park Pale study are to incorporate a variety of other sources into the project in order to broaden the understanding of the nature and function of the earthworks. This is to include map regression, aerial photographic analysis, HER/SMR enquiries and documentary research, all of which will be included in the overall GIS project. The GIS allows the collation and analysis of such diverse data sets as those listed above, and therefore provides a suitable medium of data integration for the work, as well as creating widely accessible files for the future dissemination of the project results. The research carried out to date has provided tantalising evidence that the 'Park Pale' earthworks may not actually relate to a medieval deer park as local tradition dictates. An early 19th Century estate map of the area appears to show an alternative location for the Tutbury Castle park to the northwest of the motte on the low-lying floodplain of the Dove. Although the morphology and size of the earthworks are suggestive of a number of archaeological monuments, perhaps the most plausible interpretation is that they are the remains of a boundary associated with the medieval town. The historical sources relating to Tutbury record the presence of a boundary around the medieval settlement in approximately the same location as the 'Park Pale' earthworks, probably contemporary with or constructed soon after the castle itself. In addition, the form, position and scale of the earthworks themselves would certainly be appropriate for a medieval town boundary, whether this limit was originally defensive or purely administrative in nature. Further work is again required to ascertain whether this interpretation is correct, or whether the history of the earthworks is actually more complex and multi-phased.

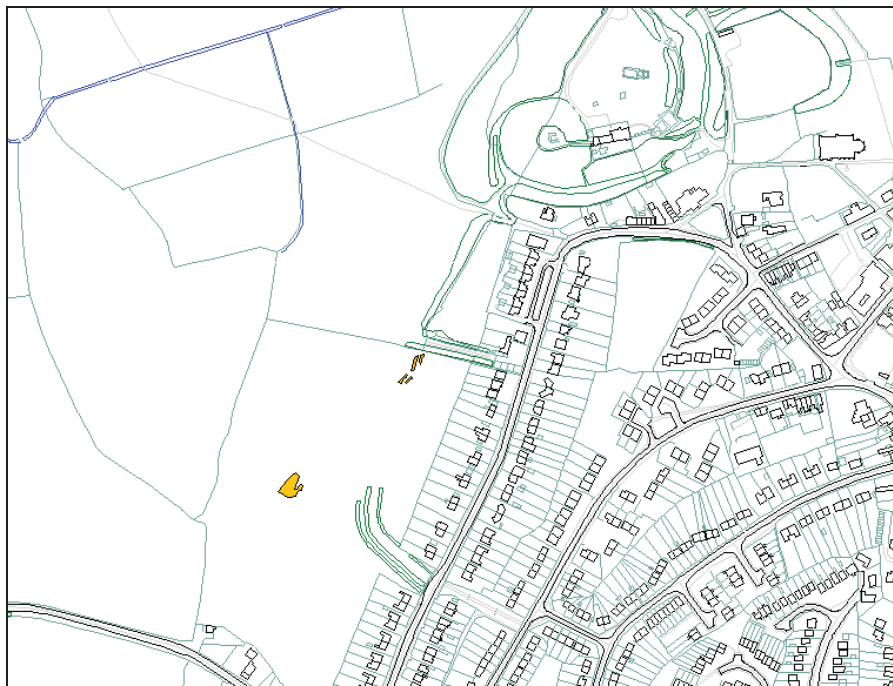


Fig. 7 Location of areas of erosion along Park Pale earthworks



Plate 1 One of the areas of erosion along the Park Pale

4.2 Resistivity Survey by Mark Kincey

The results of the resistivity survey for the middle bailey have highlighted a number of possible features that may warrant further investigation, as well as several anomalies that are probably natural/modern in origin. The large arc of high resistance readings located to the north of the bailey (between grid references 420987,329315 and 421027,329324) almost certainly relates to the line of vegetation that borders the field at this point. The soil in the immediate vicinity of the vegetation will generally be drier due to the take-up of water by the tree roots, creating the high resistance readings displayed in the survey results. Equally, the low resistance curving linear feature located to the far west of the survey area (420931,329271 to 420946,329272) can probably be discounted as modern in origin. This feature originates from an external electricity socket situated close to the gatehouse and is almost certainly therefore the signature of the power cable which extends from this point. The broader area of high resistance located around this cable (between 420931,329271. 420939,329286 and 420947,329273) could also relate to disturbance caused by the electricity cable. However, there were considerable problems with attaining probe contact in this area, as the ground was noticeably drier and more compact. This could plausibly relate to sub-surface compacted material, although the location and electricity point suggests it may again be modern in origin.

To the east of the gatehouse are two linear features, one high resistance and one low, which are located between 420938,329284 to 420959,329267 and 420945,329284 to 420962,329269 respectively. These features are oriented northwest-southeast and run parallel to the line of the castle moat as it leads up to the castle entrance. The high resistance linear was located on top of the eastern bank of the main ditch (see above, section 6.2) and therefore probably relates to the differential drainage patterns of the local topography. Any moisture in the ground will tend to drain to the base of any negative features such as ditches, consequently leaving this bank relatively dry when compared to the surrounding soil and causing the high resistance readings. The low resistance linear is located on the ward side of the high resistance linear and is possibly deserving of further investigation. There were no surface topographical changes to account for the feature and

therefore it appears to relate to a sub-surface negative feature such as a ditch or channel located on the exterior of the moat itself.

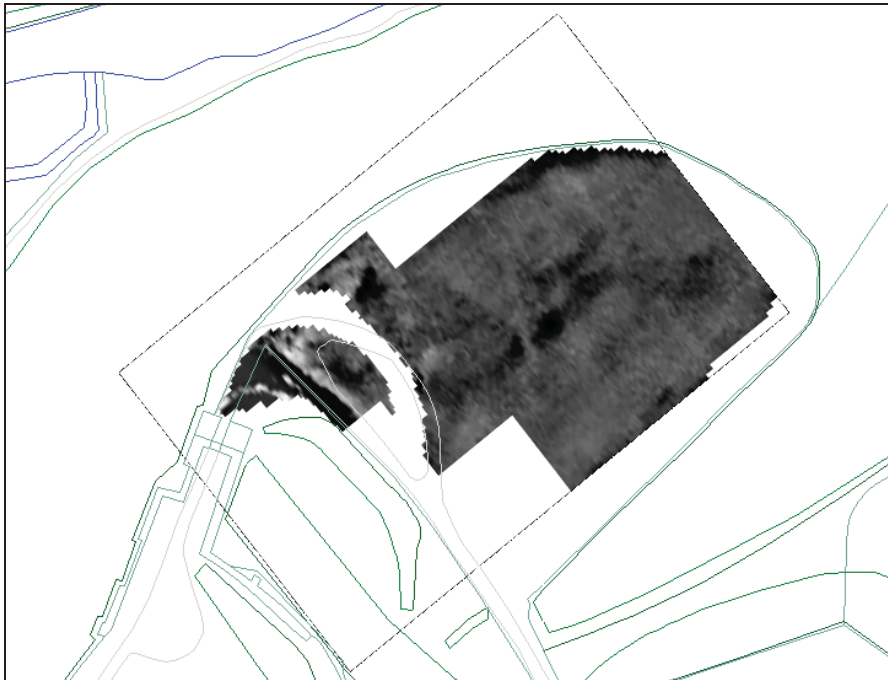


Fig. 8 Processed results of middle bailey resistivity survey (black = high resistance values, white = low resistance values)

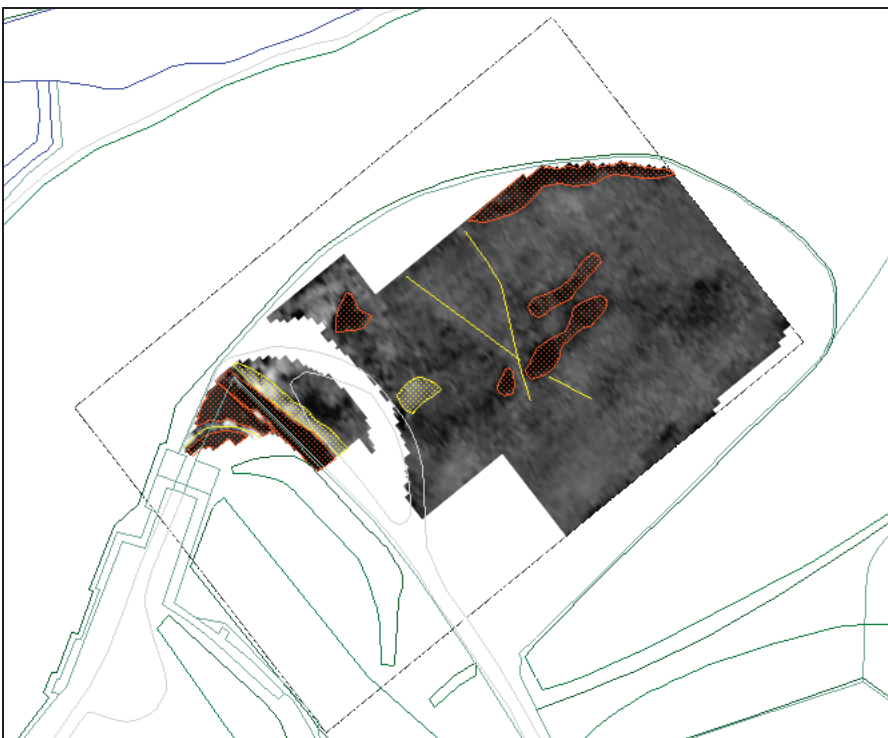


Fig. 9 Interpretation plot of middle bailey resistivity survey (red = high resistance features, yellow = low resistance features)

An irregular concentration of high resistance readings (centred on 420963,329296), again with no surface features to account for its occurrence, was located to the northwest of the ward. This feature has no clearly regular shape to it and so no real interpretation can be made as to its nature. However, the readings are markedly higher than those around it and are suggestive of some form of buried compacted material. To the southeast of this feature and of a similar size, is a concentration of low resistance readings (centred on 420977,329281). This feature is roughly square in shape and measures approximately 8m x 6m. Again the shape and association are not obvious enough to clarify the nature of the anomaly and further work is therefore required.

In the centre of the bailey are two faint yet perceptible low resistivity linear features oriented roughly northwest-southeast. The western linear is approximately 45m in length and runs in a broadly straight line between 420975,329303 and 421011,329280. The eastern linear runs fairly parallel to the other feature for 13m (between 420986,329313 and 420994,329302) before turning abruptly south for a further 24m (terminating at 420999,329280). These features again necessitate additional investigation, as they cannot be linked to surface features. Their shape and linearity is possibly suggestive of drainage channels but this requires verification.

A large and fairly amorphous area of high resistance is located in the centre of the middle bailey, roughly between grid references 421011,329309 and 420993,329281. The feature is broadly rectangular in shape, but with relatively indistinct western and eastern edges, and has an overall size of approximately 25m x 12m. This feature is of particular interest as it was also visible on the ground as areas of stunted grass growth during the 2005 resistivity survey. Furthermore, a feature of similar shape and size was tentatively identified at this location through parchmarks visible on an aerial photograph examined as part of the 2004 season (Barratt and Hislop 2004:4.1). The size and shape of this feature is suggestive of a large area of sub-surface compacted material and could feasibly be the outline of a building, although this remains a tentative interpretation requiring more examination, it is worth noting that a rectilinear stable block is recorded in this area on a plan of the castle in the Sadler papers in the British Library, dating from c. 1585 (*BL Add Ms 33594, f.175*).

4.3 Excavation by Helen Martin-Bacon



Fig. 10 Location of Trenches

Trench 1 (North Tower) Fig. 11, Plates 2 and 3

In the southern half of Trench 1 the earliest layer, which produced 12th or 13th century pottery (Ratkai below), consisted of charcoal-rich, thick brown clay (3032) into which rounded pebbles were pressed to form a cobbled surface. A circular pit (3051, unexcavated), which contained large amounts of charcoal and burnt material (3052), and which produced possible 16th-century pottery (Barker below), cut layer 3032 at the southern edge of excavation. Pit 3051 was associated with three large blocks of stone which formed an arc around its southeastern edge, and the pit was sealed by a second layer of brown clay and cobbles (3030). The remnants of a north to south aligned possible wall (3021) consisting of several sandstone blocks (3022), which were bedded into layer 3030, was visible along the southeastern edge of Trench 1. 3021 was overlain by a deposit of red/brown sandy silt (3023, mid-17th-century pottery) which contained a substantial quantity of degraded alabaster chunks, and this was, in turn, sealed by thick, compacted brown clay (3054) with charcoal flecking and animal bone throughout. Red clay (3019, mid-17th-century pottery) sealed layer 3054.

In the northern half of Trench 1 the earliest layer observed was a thin deposit of red clayey sand (3041/3047/3048/3055) which contained flecks of charcoal and alabaster. Layer 3041 was sealed by a charcoal rich dark brown/black silty clay (3040/3045/3046) which produced pottery of 12th-or 13th-century date. This layer was, in turn, overlain by a compact mix of sand, mortar and silt (3039/3025/3031) which produced pottery of possible 15th or 16th century date (Ratkai below). Layer 3039 was cut by an ovoid-shaped pit (3042) with a bowl-shaped profile. The pit contained two fills, the lower of which consisted almost entirely of charcoal (3044) and the upper of which was loose grey/green ashy material (3043) with animal bone. Overlying pit 3042 was a north to south aligned gully

(3008) which was formed from a series of large flat sandstone blocks set end to end with a shallow channel running down the centre of the stones (3009). A paved surface (3006), consisting of flat sandstone slabs (3007), abutted the western edge of the gully. The sandstone block at the southern end of the gully had been broken through in order that a small, circular pit could be dug. A complete pot (3033), which dated from the 15th or 16th century (Ratkai below), was placed inside the pit and packed round with brown silty clay. Three roughly worked pieces of sandstone were placed around the edge of the pot which was filled by loose dark silt (3034) containing occasional small animal bones. Similarly, at the northernmost end of the gully, the sandstone block had been chipped away and a small circular pit (3036) dug. The pit was filled with loose dark silt (3035/3037), very similar to the fill found in 3003, which produced early to mid-17th-century pottery. A number of unworked sandstone blocks had also been placed around the edge of the pit. These deposits were sealed by a thick layer of compact red/orange clay (3003/3011) which sealed all the layers and features in both the northern and southern halves of Trench 1 and which produced 15th to 16th -century pottery along with one sherd of 17th-century pottery. Towards the central area of the trench was a large spread of crushed brick (3012) which sealed layer 3003. Part of the foundation of a substantial north to south structure (3004) was also uncovered in the central area of Trench 1 but it could not be ascertained whether the structure was cut into layer 3003, or whether the layer had been packed around the base of the structure. The walling of structure 3004, which survived to a height of 0.5m and was approximately 0.35m in width, was of poor quality consisting of roughly squared sandstone blocks with brick and alabaster patching. Crudely applied white mortar still adhered to the walling. Only the northern, east to west aligned wall, and western, north to south aligned wall, of the structure were partially visible in plan with the remainder of the structure extending beyond the edges of excavation. At the eastern end of the northern wall, the walling was capped by a number of squared, chamfered sandstone blocks, which had remained *in situ*. The chamfered stones, which originally capped the remainder of the wall, were missing. Within the building, a large bowl-shaped hollow (3049) truncated layer 3003 and was filled by crushed yellow mortar (3053) sealed by mixed rubble and earth (3050/3029/3027). In the northernmost part of Trench 1 layer 3003 was sealed by loose charcoal rich silt (3014/3018/3038) which contained pieces of brick and tile and 17th-century pottery. This had, in turn, been overlain by grey/brown, charcoal flecked silt (3010/3020), which produced mid-17th-century pottery along with two sherds of 19th-century pottery.

A substantial quantity of rubble (3002) covered the southern and central parts of Trench 1 and overlay the walls of structure 3004. The rubble was very compact and consisted, in the main, of pieces of unworked sandstone mixed with brick, tile and pieces of alabaster, but also contained large quantities of animal bone and mid-17th-century pottery (Barker below), clay pipe bowls, metalwork and fragments of moulded stonework. Towards the southern half of the trench there was a concentrated spread of loose pale brown mortar (3017) which dated from the early- to mid-17th -century (Barker below).

A thin layer of dark brown silt (3001), which contained pieces of crushed rubble, and a large assemblage of mid-17th-century pottery mixed with a small quantity of 19th-century pottery (Barker below), glass and animal bone, sealed layer 3002 and layer 3010 and was itself overlain by topsoil and turf (3000).

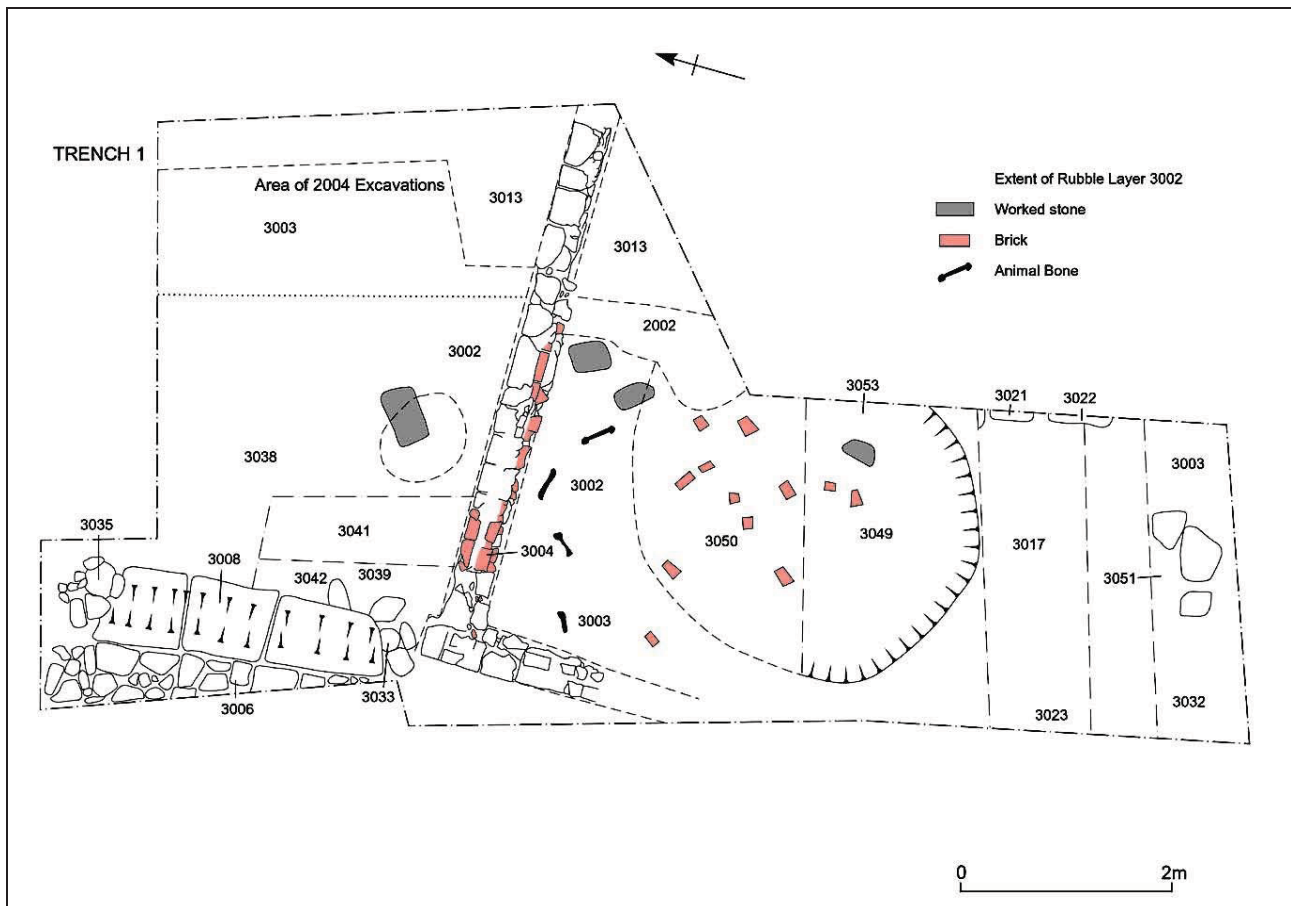


Fig. 11 Trench 1, plan

Discussion

Cobbled surface 3032, which provided a *terminus post quem* of 12th -or 13th -century for all subsequent activity in this part of the trench, was only partially exposed. It was, therefore, impossible to determine whether it was associated with the interior of a structure or whether it was an outside yard surface. Pit 3051, which truncated the cobbled layer, may represent domestic rubbish disposal associated with occupation nearby. However, the concentration of charcoal and burnt material in the fill, in addition to the deliberate placing of three sandstone blocks around the edge of the pit, suggests that it may actually have been a hearth or oven. As the pit was not excavated it is difficult to say whether it was for domestic or industrial use.

The pit/hearth was sealed by a second layer of clay and cobbles (3030) which suggests a new phase of activity during which changes may have been made to the layout of this area. The later cobbled surface may belong to the same phase of activity that saw the construction of the north to south aligned putative wall (3021). This was suggested by the fact that the stone blocks were directly bedded into the upper horizon of the cobbled surface. As the cobbled surface and putative wall post-date 12th -and 13th -century deposits but pre-date 17th -century deposits, this activity may belong in the later medieval or early post-medieval periods. If so, then 3021 may, in fact, be associated with structure 3004 (see below) which appears to belong in the 15th- or 16th-centuries. Layers 3023, 3054 and 3019 probably represent dumping of material in this spot once the wall was no longer in use. The large quantity of degraded alabaster chunks in layer 3023 certainly points to dumping activities, possibly associated with a phase of destruction or demolition. The clay pipe bowls (Higgins below) and pottery (Barker below) retrieved from these layers suggest a likely Civil War time frame when the destruction of structures followed by

dumping and levelling could be expected, especially during the slighting of the castle in 1647-8. The substantial amounts of charcoal in layers 3041 and 3040 may be evidence of daily occupation, or, of industrial activity, during the 12th-or 13th-centuries (Rátkai below). The deposit of mixed sand and mortar (3039) is suggestive of demolition and levelling activities during the 15th -or 16th -centuries (Ratkai below). The sudden break from early medieval deposits to late medieval (Rátkai below) may be a result of the removal of 14th-century archaeological deposits during an episode of later medieval levelling (the construction of the 15th-century North Tower could be connected to this). Re-use of the area after any such demolition and levelling activities is indicated by the construction of pit 3042. The charcoal and ash fills of the pit suggest that, as in the case of pit 3051 in the southern half of the trench, this too was a hearth/oven. Both pits may, therefore, belong to the same phase of activity, which on the basis of the pottery evidence, could lie in the 15th or 16th centuries.

The date of the sandstone gully and associated paved surface is uncertain but the deliberate chipping away of the stones at either end of the gully for the construction of two pits, one of which contained the pot of 15th -or 16th -century date, would suggest a medieval context. As the gully and its associated paved surface were only partially uncovered it was not possible to determine whether they belonged to the interior or the exterior of a structure, or to a road or pathway. Further excavation would be necessary to determine the extent, date and function of the gully and paved surface. The deliberate truncation of the gully from the construction of the two pits (3033 and 3035) is difficult to interpret in the absence of any associated evidence and the presence of a complete pot in one of the pits is something of a puzzle. It is possible that the two pits were postholes which belonged to a structure erected over the existing gully and surface and if so, it could mark a change in the function of this area, possibly connected to the construction of structure 3004. Similarly, the deliberate insertion of a pot into one of the pits/postholes would only have occurred when the original function of the pit/posthole was obsolete, unless, of course, the pit had been deliberately created for the pot. The purpose of the pot is uncertain but it can be said with some degree of certainty that it was intended to remain *in situ* once in place. This was indicated by the fact that it was packed round with brown clay, leaving only the rim showing. A number of suggestions have been forwarded for the function of the pot (Ratkai below) which range from drainage, to a place of concealment, to ritual deposition ('a witching pot'). Comparative examples, if they exist, might help to illuminate the purpose of the buried pot and further excavation in this area may provide evidence might also produce evidence to aid interpretation.

The thick orange clay layer 3003/3011 covered both halves of the trench and its compact nature suggested a floor surface. It was not clear, however, whether the surface was associated with structure 3004 or belonged to an earlier building in this area. The fact that the walls of structure 3004 were very crude, with thick, uneven mortar, in addition to brick and alabaster patching, suggests that they were only intended as invisible footings, whilst the narrow width of the walls seemed to preclude the possibility that they carried a masonry superstructure. It was more likely that they formed the foundation walls for a timber framed building and the *in situ* chamfered stones, probably formed the stone base on which the sill beams of the timber framed building rested. The walls were directly sealed by rubble layer 3002 and as the latter produced a very large assemblage of mid-17th century material it is possible that the building dates from the 16th century. The large hollow or pit (3049) inside the walls might represent some form of quarrying activity once the building had gone out of use but as the pit was only partially visible it is difficult to say what its function may have been. The rubble and mortar which filled this pit was the same as the material which made up layer 3002, which would mean that the pit was open at the time the rubble was deposited. The rubble appeared to have been left *in situ* after the collapse of masonry structure (it also contained pieces of moulded stonework and brick) rather than being spread out and levelled. However, as building 3004 was unlikely to have been constructed of stone, it follows that the rubble originated from the collapse of another

stone structure nearby. The pottery from the rubble layer could put this event within a Civil War time frame and the collapse may have occurred during the siege of the castle or during the slighting of the castle following its surrender. The thin layer of silt (also observed in Trench 2), which contained pieces of crushed rubble (3001), produced 17th-century pottery with a small mix of 19th-century pottery and could have resulted from late levelling activities in the castle.



Plate 2 Trench 1, stone gully (3008) from the south



Plate 3 Trench 1, buried pot (3033) from the west

Trench 2 (South Tower) Fig. 12, Plate 4

The natural subsoil (4015) was reached, by auger, at a depth of approximately 3.6m below ground level, and was overlain by re-deposited silty clay (4014) which was itself sealed by a very thin deposit of pale grey clay (4013). Overlying 4013 was green, organic, waterlogged silty clay (4012) which contained a substantial amount of bark and wood, in addition to producing pieces of leather and 12th-century pottery (Ratkai below). A deposit of black organic peat (4011) with abundant charcoal and animal bone throughout sealed layer 4012. Overlying the black peat was dark grey clay (4010/4009) which contained animal bone and sherds of 12th-century pottery in addition to mid-17th-century pottery. Overlying this was a deposit of compact red clay (4008) which produced glass, animal bone, 12th-century pottery and metalwork. Layer 4008 was sealed by a thick deposit of compact, dark brown clay (4007), which produced 12th-century pottery and layer 4007 was itself sealed by similar brown clay (4002). Interestingly, layer 4002, which yielded 17th- and 19th-century pottery, also produced a coin of James I dated 1623 (See Williams below). Two pits or postholes (4005 and 4003) cut layer 4002, the smaller of which (4003) contained a charcoal rich fill (4006) and the larger of which (4003) contained rubble. The pits/postholes were covered by brown silt (4001) which contained crushed rubble and a large quantity of mixed mid-17th- to 19th-century material. This deposit was overlain by topsoil and turf (4000).

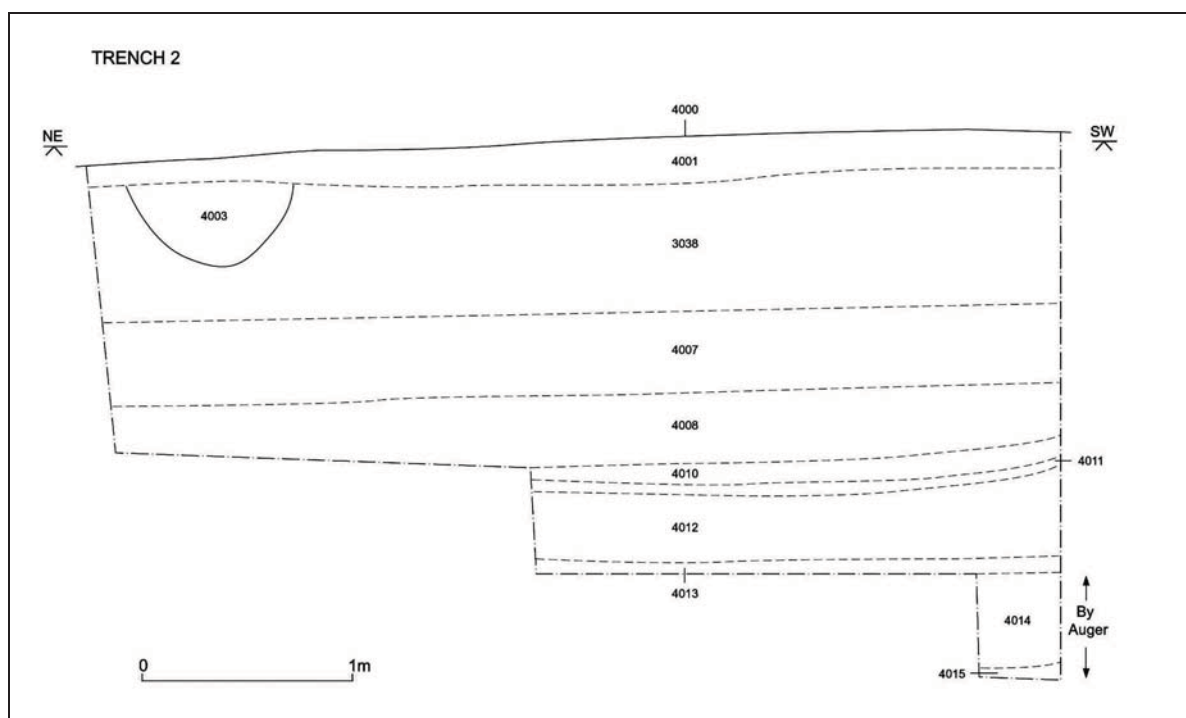


Fig. 12 Trench 2, northwest facing section

Discussion

The depth of stratigraphy encountered in Trench 2 was considerable, and this, in combination with an almost total absence of any cut features or structural evidence, is significant in itself. One possibility is that Trench 2 was located over a ditch, which could explain the deep stratigraphy and the presence of waterlogged, organic material (4012, 4011 and 4010) at such a depth below ground level (at least 2.9m). A ditch located in this position, at the edge of the bailey, could offer several possible explanations. It could have belonged to an earlier phase of castle construction than that represented by the ditch now

around the outside of the castle. The 12th-or 13th-century pottery retrieved from waterlogged deposit 4012 provides a *terminus ante quem* for the construction of the ditch. This means that the ditch could be contemporary with the building of the original motte and bailey castle, which may have been smaller than the castle as it now stands, or that the ditch relates to much earlier activity on the site. If the castle was preceded by a Saxon *burh* or a prehistoric hillfort, then the ditch may have been associated with these phases of activity. Another possibility is that it was a counter-scarp ditch, part of a triple line of defence perhaps contemporary with the earliest phases of the Norman castle. A ditch running around the edge of the bailey might also explain the considerable depth of the stratigraphy encountered during the 2004 excavations in front of the North Tower, where an organic layer was also noted at some depth below ground level (Barratt and Hislop 2004). . The date of the infilling of this feature is, however, problematic, as there appears to be an anomaly in its stratigraphic sequence in that a layer containing mid-17th-century pottery (4010) is sandwiched between layers producing 12th-and 13th-century pottery (4012, 4008 and 4007). Further excavation would be necessary to clarify the stratigraphic sequence in order to determine whether the 17th -century material is actually anomalous (i.e. intrusive or wrongly allocated during recording).



Plate 4 Trench 2 from the northwest

Trench 3 (The Motte) Figs 13 and 14, Plates 5 and 6

In the northwestern half of Trench 3 (Trench 3a) part of a north to south aligned possible stone stairway of uncertain depth (5026) was revealed, leading up to the remains of a door jamb. The three steps uncovered were constructed from large, flat sandstone blocks which were up to 1m in length by 0.6m in width and 0.15m in depth. A narrow, northeast to southwest-aligned channel ran across the upper face of the lowest step. The west facing elevation of the stairway consisted of ashlar blocks with fine mortaring between them. A rebated doorjamb (5016) was located on the eastern side of the top step and white lime-wash could be seen adhering to the stone work. A northwest to southeast-aligned wall (5025) abutted the front of the door jamb and was placed on top of the eastern side of the stairway. The wall was dry stone and consisted of rubble and worked blocks of stone placed randomly together. A couple of pieces of alabaster were also included amongst the stone blocks of the walling and a number of the stones still showed traces of lime-wash. The aforementioned structures were all sealed by loose silty backfill (5017/5015) from the 1950s excavation on this spot.

In the southeastern half of Trench 3 a possible floor surface (5019) was partially exposed in plan at a depth of approximately 2.8m below ground level. The surface consisted of flat pieces of sandstone pressed into a red clay matrix to form a flagged floor. Sealing this flagged surface was evidence of a second surface (5021) represented by three large flat stone blocks, shaped and fitted together. The blocks varied in size but were fairly uniform in thickness (0.3m), which gave a level surface. There was no evidence of mortar on the upper faces of the blocks to suggest that they formed the base of wall. This floor surface was sealed by brown silty sand (5020) which contained rubble. A whole series of other layers (5012, 5011, 5010, 5007/5014) consisting of sandy silt with rubble lay above deposit 5020. Layers 5011 and 5007 contained large amounts of charcoal and burnt material and layer 5007 produced pottery of early to mid-17th-century date.

A wall cut (5008) which still contained the remains of a north-south aligned wall (5009) truncated the aforementioned layers. The wall cut contained red clay and the wall itself consisted of randomly sized stones placed together to form a dry stone wall. The vestigial wall was sealed by a deposit of light brown sandy clay (5001) which was cut by two small postholes (5005 and 5003). Both postholes contained black sandy silt (5006 and 5004) which produced charcoal flecks and animal bone. The postholes were overlain by a thin layer of sandy silt (5018) which contained a large amount of crushed alabaster and white mortar. Layer 5018 was directly sealed by topsoil and turf (5000).

Discussion

The possible steps, and doorway, as represented by the door jamb, in addition to the stone floor, may have been associated with a room inside some form of masonry building, which once occupied the motte. Unfortunately, the extent of excavation was not sufficient to determine the likely shape or date of the room or of the building itself. However, the use of masonry for the steps, doorjamb and floor surface, as opposed to timber, in addition to the width of the steps, akin to those in the lower rooms of the North and South Towers, may be suggestive of a later medieval date, rather than a Norman or earlier medieval date. Although further excavation would be needed to confirm it, the weight of the evidence appears to suggest that Trench 3 was located over a basement room inside a tower with access through a doorway at the top of the steps. The floor surface uncovered at the bottom of the southeastern end of the trench could mark the depth to which the steps descended. The stone flagged surface (5019) may represent an earlier floor, which was superseded by the stone floor surface (5021), or, could be a bedding layer for the latter.

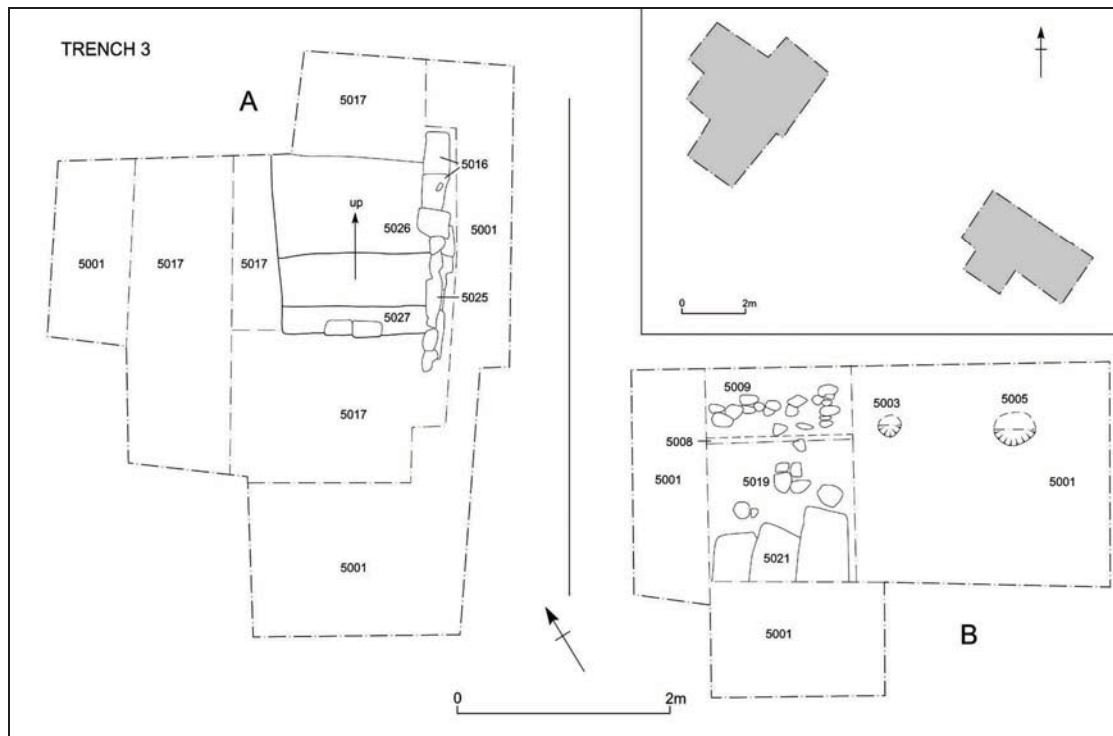


Fig. 13 Trench 3, plan

The steps and vestigial doorjamb may not represent the structure shown on a plan of the motte in 1913 and possibly excavated at that time. This plan could show the corner of a building, or alternatively, a part of the curtain wall, which originally ran across the northwestern edge of the bailey, continuing up the side of the motte. The northwestern section of walling shown on the 1913 plan certainly appears to be as substantial as the curtain wall to the castle, and is, moreover roughly in line with the remains of the northwestern curtain wall. The northeastern section of walling, shown joining the northwestern section at a right angle on the plan, may be an integral part of a masonry structure on the motte. It is uncertain at present whether such a structure is associated with the same building which contained the putative basement room in Trench 3. It is worth noting that two plans of the castle dating from c. 1585 appear to show a wall around the top of the motte, outside the tower, and joining the curtain wall roughly at right angles (BL Add Ms 33564, f.174-5). This would be consistent with the walls recorded in 1913, in which case the putative basement room in Trench 3 is unlikely to relate to the same structure (Dr Gareth Williams, pers. comm.). Only the southwestern face of the northwest to southeast aligned dry stone wall (5025) in the northwestern half of the trench (Trench 3A) was visible and as a consequence, its full width is unknown. It was clear that the stones of the wall were not bonded into the doorway or into the stairway, but were simply placed on top of the northeastern edge of the steps and stacked against the doorjamb. On this basis it seems reasonable to conclude that wall 5025 was not part of the outer wall of a tower or of the wall shown on the 1913 plan. The mix of rubble, worked stone and alabaster fragments, in addition to the traces of lime-wash on some of the stones, indicates the re-use of material to construct the wall. The building material may well have come from rubble already on the motte, and the construction of the wall probably post-dates the use of the stairway.

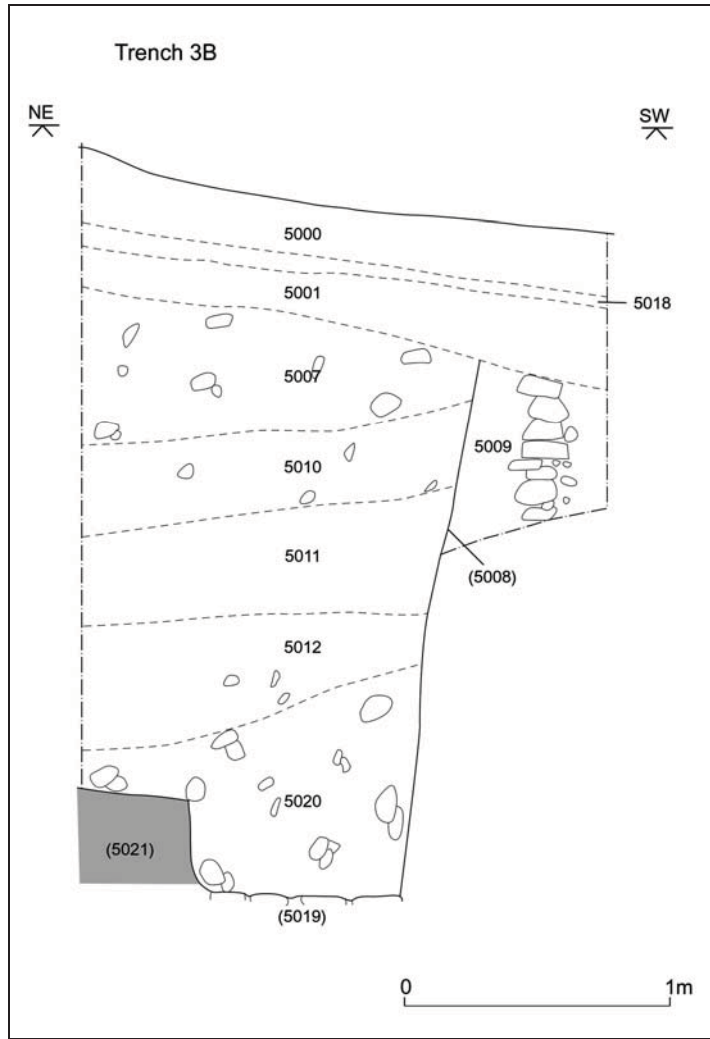


Fig. 14 Trench 3b, northwest facing section



Plate 5 Trench 3a from the southwest

Wall 5025 was on the same alignment as the wall (5009) uncovered in the southeastern half of Trench 3 and it is possible that they are part of one continuous wall aligned northwest to southeast along the edge of the motte. The date of wall construction cannot be fixed securely but one strong possibility is that it was constructed when the folly was erected in the late 18th century. It could have functioned as a retaining wall intended to prevent material from slipping down the side of the motte. As the top of the motte is capped by at least 3m of post-medieval build-up, as represented by layers 5020, 5012, 5011, 5010, 5007 (Fig. 14), it may be that the wall was constructed to stabilise this material. The foundation trench (5008) for wall 5009 cut the aforementioned layers and this reinforces the view that the retaining wall is relatively late. The post-medieval build-up material was probably used to build up the height of the motte for the construction of the folly. As the build-up material sealed the stone floor surface found at the bottom of Trench 3 (and probably originally overlay the steps until it was removed in the 1950s), it could indicate that the material was also used to backfill the remains of the possible basement room to which the steps and floor belonged. There were large quantities of rubble and burnt material present in the build-up layers capping the motte and this suggests that much of it came from demolition activities or from collapse. Part of this material could have been imported to the top of the motte from elsewhere in the castle but some of it may have come from rubble already present on top of the motte. It is difficult to be certain of the origin of this rubble but it may have resulted from the slighting of the castle during the Civil War. For example, it could be that the curtain wall round the top of the motte was slighted at this time and possibly a tower, if one was still standing by the time of the Civil War. Pictorial representations of the castle in the 17th and 18th centuries show the stump of a tower on top of a lower motte than the present one, but with no signs of any other walls or structures on top of the motte (Dr. Gareth Williams pers. comm). If the castle was no longer used as a military centre post-Civil War, no reconstruction of the structures on the motte is likely to have taken place, and rubble from the slighting may have been left *in situ* on the motte. The most likely context for the re-deposition of the Civil War demolition rubble was during infilling and levelling activity prior to the construction of the folly in the 18th century. On present archaeological and pictorial evidence the most likely scenario is that the construction of the folly in 1780 was immediately preceded by raising the height of the motte using the rubble already present on top of the monument and material imported from elsewhere in the castle. This activity would also have involved backfilling the lower level of the ruined tower shown in drawings of the 17th and 18th centuries and probably represented by the possible basement room excavated in Trench 3. The presence of an 18th-century clay pipe in the build up material (see Barker below) reinforces an 18th century context for the build-up of the motte. Moreover, pottery evidence from the layers of build up material indicates a *terminus post quem* of the mid-17th century for such building activities, in addition to a *terminus ante quem* for the steps and masonry stone floor surface. By the mid-19th the folly was in danger of collapse and, as a result, buttresses were added and it may be that the retaining wall observed in Trench 3 was also constructed at this time in order to prevent further slippage of the 18th century build-up layers on which the folly was constructed.



Plate 6 Trench 3b from the northwest

5 FINDS

5.1 Medieval Pottery *by Stephanie Rátkai*

Method

The pottery was examined under x 20 magnification and divided into fabrics and a type series established. Since only a small amount of medieval pottery has thus far been excavated, 96 sherds in 2004 and 147 sherds in 2005, the type series may be modified in the light of future seasons of excavation when more material is available for study. For this reason full fabric descriptions etc are not given here but will be found in the final report. Proposed dating of the pottery is based partly on the stratigraphic sequence and partly on diagnostic or typological factors. The pottery was quantified by sherd count and weight, minimum rim, base and handle count and rim percentage (eves). Details of form, decoration, glaze and sooting were noted.

Results

Most of the medieval pottery occurred residually in post-medieval contexts. However a number of contexts in Trench 1 and Trench 2 were of medieval date. The earliest pottery was found in Trench 2 and comprised cooking pot sherds in fabrics SC01, SC02 and SC03 and glazed Stamford ware. The cooking pot fabrics were generally reduced, with varying degrees of quartz sand temper and small amounts of calcareous inclusions. In general the fabrics had poorly sorted inclusions. A very finely sandy sherd (fabric sand01) with one sooted surface but otherwise heavily abraded was found in 4007. It is difficult to be certain if this is indeed a piece of pottery or whether it is a small piece of daub or similar. If it is pottery, it is unlikely to be medieval and may be prehistoric.

The medieval contexts in Trench 2 comprised 4007, 4008, 4009 and 4012. The earliest of these, 4012, contained five cooking pot sherds in SC01 and SC03, two pitcher sherds from the same vessel in fabric SC03 and three sherds in a crude limestone tempered fabric (fabric CA01). Both the SC03 and CA01 sherds were stained brown on the interior. The olive glaze on the pitcher sherds had also been affected by burial conditions and their olive glaze had been turned almost black in parts. Given the presence of wood, bark and leather in 4012 and its water-logged nature, discolouration of the sherds is not surprising. The date for all these Trench 2 contexts would seem to lie in the 12th century. The same range of fabrics was present in material recovered from the rampart make-up of the timber castle in 2004 (site code TTD04), although here Stamford ware was much better represented. Sherds of Stamford ware from TTD04, datable to the second half of the 11th century, were found with fabrics SC02 and SC03, and sherds datable to 1050-1150 were found associated with sherds of fabric SC01. The longevity of fabrics SC01, SC02 and SC03 is not yet established but these three fabrics were also found at Monk Street, Tutbury and it seems possible that they continued to be made into the 13th century.

The earliest context in the south of Trench 1 (3032) contained cooking pot base sherds of fabric SC03, whilst to the north, 3046, a possible pit fill, contained cooking pot base and body sherds in fabrics SC01, SC02 and SC03. Without any rim sherds, it is impossible to date these two contexts with any accuracy, other than to say a 12th- or 13th-century date is likely. Of the remaining medieval contexts, 3025, 3031, 3033 and 3046, in the trench, all but 3031 contained Midlands Purple ware and date to the 15th or 16th centuries. Context 3033 contained a virtually complete Midlands Purple ware jar with rim cut-outs which had been carefully placed within a pit. One small section of the rim was missing. Strangely, there was a second Midlands Purple ware rim sherd from the same context but from a different vessel of identical form. The deliberate deposition of whole pots is known from other sites; two, of similar date to the Tutbury example, were found, for example, set within a kitchen annexe, close to a hearth, at Dudley Castle (pers inspection by author). Their exact function remains a mystery but they may have been used as fire-pots or water

containers for use during cooking. Context 3031 contained an iron-rich, oxidised, gritty ware jug sherd (fabric grittyw02). The dating of this sherd is also uncertain but it could belong to the 14th or 15th centuries. The sudden change from early medieval contexts to late medieval is quite striking and it is possible that there may have been some truncation in the archaeological deposits.

The remaining pottery from Trench 1 which was found residually in post-medieval contexts, contained early cooking pot sherds in fabrics SC01, SC02, SC03, Sand01, Sand02 and Sand03, early sandy glazed ware (fabric Sand04) none of which is likely to be later than the 13th century. Pottery of the later 13th and 14th centuries was represented by whiteware and sandy buff ware sherds (fabrics WW01, Buffw01, Buffw03, Buffw04). Coarse gritty ware sherds both iron-rich (Grittyw02) and iron poor (Grittyw03) probably date to the 14th-15th centuries and later 13th-15th centuries respectively. The iron-rich gritty ware under certain firing conditions becomes Midlands Purple ware. Pottery of the 15th-16th centuries was represented by late redware (fabric LRW01), Midlands Purple ware (fabrics MP01, and MP02) and Cistercian ware.

Medieval pottery found residually in Motte context 5017, probably dated to the mid 13th-14th centuries and comprised sherds of Sand05, Buffw04 and Grittyw03.

Table 1. Medieval pottery quantification

Fabric	TTD04	TTD05 Tr 1	TTD05 Tr 2	TTD05 Motte
Buffw01	3	1		
Buffw02	1			
Buffw03		1		
Buffw04		1		1
CA01			3	
Cistercian ware		1		
Grittyw01	1	1		
Grittyw02	6	12	1	
Grittyw03		1		6
LRW01		2		
MP01	5	17		
MP02		8		
Sand01	1	1	2	
Sand02		3		
Sand03		1		
Sand04		1		
Sand05				1
SC01	10	4	5	
SC02	19	6	3	
SC03	12	6	52	
Stamford ware	36	3	2	
WW01		1		
Total	96	71	68	8

5.2 Post-Medieval Pottery by David Barker

Method

The ceramics from the 2005 season of excavation comprise a total of 929 sherds, of which 871 are from stratified contexts. These were sorted by type, without the need for microscopic examination of fabrics at this stage, using established criteria for north Staffordshire and related post-medieval ceramics, and sherd counts were made. Decoration, where present, has been noted and a note of obvious vessel forms has been made; this latter will be refined when further analysis stage is undertaken. Some cross-context joins have been identified, and it is likely that more will become evident upon closer examination. It seems probable that a small number of individual vessels may be dispersed amongst two or more contexts, and more cross-joins are anticipated once a more detailed examination of the material is undertaken.

Results

The greatest number of sherds from both Trenches 1 and 2 are from topsoil contexts 3001 and 4001, which also, not surprisingly, include the highest proportion of late 18th- and 19th-century wares (71 or 14%, and 19 or 49% respectively). These wares are unexceptional and include moderate numbers of sherds of pearlware, white ware, bone china, Rockingham ware, yellow ware and grey stoneware in all the standard forms; white salt-glazed stoneware and creamware, staples of the mid 18th- to early 19th-century ceramics trade, are poorly represented in these and other contexts. Other Trench 1 contexts which include late 18th- and 19th-century ceramics are 3002, with two sherds or 2%; 3008, with one sherd or 5%; 3010, with one sherd or 8%; and 3013, with nine sherds or 69%. In Trench 2, the two sherds of creamware in 4002 constitute 13% of the ceramics, while in motte context 5017, three mid 19th-century sherds account for 18% of the ceramics.

A very small number of sherds date to the early to mid 18th century. These include one sherd each of press-moulded slipware and mottled ware from 3001, one sherd of slip-coated ware from 3014 and three sherds of mottled ware from 5017. Three sherds of tin-glazed earthenware, two from 3001 and one from 4001 may be of late 17th- or early 18th-century date.

Otherwise, the majority of the post-medieval ceramics date to the middle years of the 17th century. Blackwares, (Midlands) yellow wares and Cistercian wares make up the vast majority of these, with smaller but significant quantities of coarse earthenware, Midlands purple ware, slipware and Rhenish stoneware bottles of 'bellarmine' or *bartmann* types.

The yellow wares comprise a limited range of flat ware (dishes) and hollow ware forms, the latter being somewhat more numerous. Amongst the latter are large single-handled mugs, mostly with internal and external glazes, although one foot/base sherd of a tripod pipkin is present in 3001. Also in 3001 is a yellow ware dish rim with incised decoration to its upper surface.

The problems of distinguishing between some blackwares and Cistercian wares are well-known, and are especially acute in early to mid-17th-century deposits, when the Cistercian ware appears to have been evolving into the somewhat better-made type of blackware, with its distinctive range of forms and finishes, which is typical of the mid to late 17th century (Barker 1986b). While a number of typical blackware forms occur alongside what are clearly true Cistercian ware forms (Barker 1986a) in most of the Tutbury Castle contexts, a significant proportion of the black-glazed wares are what may be called 'transitional' blackwares. 'Transitional' forms are predominantly straight-sided, or slightly flaring cups, many of which are three-handled, but round-bodied cups and chamber pots are not unknown. The vessels are well-made of iron-rich clays which have been well-

prepared, with thin walls, and a modest degree of finishing to their bases which is significantly less than that seen on true blackware forms; handles have more in common with the later blackwares, but are still thin in comparison. 'Transitional' blackwares are well-represented in the Civil War period deposit from Eccleshall Castle, slighted following a brief siege in 1647, and are commonly found in production deposits from the north Staffordshire Potteries which have been tentatively dated to the 1640s (Greaves 1976, 5, 29 no. 56). At Eccleshall, too, blackwares, 'transitional' blackwares and smaller quantities of Cistercian wares occur together.

To some extent the problems of distinguishing between these wares are self-made, and too much time can be spent on the minutiae of early to mid 17th-century assemblages, with the only result being that a neat catalogue can be produced. This would appear to have little bearing upon interpretation or dating and uncertainties over the precise identification of these two (or three) ware types will inevitably remain; two persons' sorting of sherds into blackware and Cistercian wares will almost certainly result in different sherds counts. The problem is exacerbated when dealing with the larger black-glazed vessels, especially jugs, which vary considerably in form and finish; they are often not well-made, and their glazes and fabrics may be affected greatly by poorly-controlled firing conditions; frequently they are not glazed on the inside. Some more undiagnostic sherds may be confused with what has been termed coarse earthenware.

No blackware sherds are decorated, while a single Cistercian ware cup from 3001 has a simple applied pad in white clay, a simple form of decoration which is well-known on Cistercian wares from the north Midlands region.

Decoration is present on a small range of slipware vessels which are found in a little over half the contexts. The best represented form is a small thrown dish or plate with a well-formed everted rim, of the kind which is ubiquitous in north Staffordshire production deposits from the mid-17th century (e.g. Kelly 1968), and which is present in a number of groups which are likely to be somewhat earlier in date (e.g. Greaves 1976, 29 no. 52, 36 no. 133). The cream-white trailed slip decoration on these vessels typically combines a single wavy line to the rim, with stylised floral or leaf decoration to the interior, although other interior patterns are known. The fabric of these dishes is a light orange colour; the lead glaze which is present on the vessels' interior surfaces appears orange brown over the fabric, or over a thin light brown slip coat. A vessel of this type was recovered from the Civil War period deposit at Eccleshall Castle. A few sherds are of a 'yellow ground' slipware, with a rich yellow glaze over cream-white fabric. These slipwares are all hollow wares; porringers and what have been referred to as 'honey pots' are the most commonly found forms, the latter being, in effect, large round-bodied vessels with a single handle. The slip decoration on the yellow ground slipwares is of a light or dark brown colour which has been trailed on to the exterior bodies of the vessels in a series of short lines which form a band around the vessel. One example of each of the two forms mentioned was present in the Eccleshall Castle deposit; they are well known in 'early to mid 17th-century' production groups in north Staffordshire (e.g. Kelly 1975, 18-19) where they seem to represent a transition between Midlands yellow wares and the more elaborately decorated hollow slipware forms of the 1660s and later. A number of diagnostic slipware sherds are present in contexts 3001, 3002, 3010, 3014, and 4001; these are probably sherds of just one vessel, which may be a jug, whose red body is decorated with a trailed slip pattern in cream comprising stylised leaves. A sherd of this vessel from 3001 joins one each from 3014 and 4001. The use of trailed slip decoration in cream onto a red body is comparatively unusual during the second half of the 17th century, whereas those groups thought to date to the first half of the 17th century regularly have examples of this type (e.g. Kelly 1975, 18-19). A single example of this type, albeit of a multi-handled cup, was recovered from Eccleshall Castle.

Surprisingly, coarse earthenwares and Midlands purple wares constitute a comparatively minor part of the ceramic assemblage, in marked contrast to the Civil War period

assemblages from both Eccleshall and Dudley Castles (Ratkai 1987). What there is seems mainly to be dish or pan forms in a range of coarse earthenware bodies and cylindrical jars or butter pots in Midlands purple ware. The latter have characteristics that have been observed amongst the ceramics from the 1980s excavations at Tutbury, as well as on material recovered from production sites in Ticknall. Ticknall is the probable source of the Midlands purple wares, and a likely source for some if not all of the coarse earthenwares, which are quite unlike material known in north Staffordshire production groups.

The only definite imports represented in the assemblage are a number of Rhenish brown stonewares. Sherds of bottles of the 'bellarmine' or *bartmann* type are present in five Trench 1 contexts, with 17 sherds from 3001; just one sherd was recovered from 4001 in Trench 2. Again, this reflects the situation at Eccleshall Castle, where several vessels of different forms were found.

Five sherds, four from 3052 and one from 3023 appear to be late medieval to early post-medieval in date, and require further study. They suggest that context 3052 is likely to date to the 16th century, although it may be possible to refine this subsequently.

Apart from this one context, 3052, it is likely that all of the contexts date to the mid-17th century, or at least contain significant quantities of mid 17th-century material. Whether these are all Civil War period deposits, is debatable; it is perfectly possible that some pre-date the Civil War by a decade or more, but it is almost certain that immediately post-Civil War activity (i.e. in the period 1660 and later) is not much in evidence on the basis of the ceramics found. Indeed, there is very little material to suggest significant late 17th- and early 18th-century activity of any kind, and only a very small number of sherds of white salt-glazed stoneware from 3001 and 4001 date to the period 1750-1770. The majority of the later ceramics date to the 19th century.

The ceramics from the 2005 excavations have the potential to contribute to an understanding of activity and events at Tutbury Castle in the early to mid-17th century, and evidence will almost certainly be enhanced by drawing upon the results of the analysis of material from the 1980s excavations undertaken on the site. In order to contextualise the Tutbury ceramics, it will be necessary to make some comparison with other Midlands castle sites which have Civil War period deposits, notably Eccleshall Castle and Dudley Castle; other sites with Civil War period deposits, such as Beeston Castle, Cheshire, may also contribute to a more thorough understanding of the material culture of the period and of the patterns of distribution for a range of local and non-local ceramics. The wider context for the Tutbury ceramic assemblage is also one of local ceramic production, which Tutbury is well placed, geographically, to inform. Proximity to the major 17th-century industry of Ticknall in south Derbyshire may account for the quantity of material which does not directly relate to north Staffordshire products at this time. North Staffordshire itself was developing to the point of becoming a major manufacturing centre by the 1640s to 1650s, and it will be important to determine its impact upon ceramic consumption in east Staffordshire, with all of the implications for competition between two similar industries. Also relevant, at this time, is the ceramics industry of Wednesbury in the West Midlands, whose products are still poorly understood, at least in terms of wares from production groups. Then to the southeast, is the ceramics 'industry' of north Warwickshire; the major medieval industry of Chilvers Coton was in decline by the early 17th century, but the extent to which it survived and the extent to which production was picked up by nearby workshops is not yet understood. There is every possibility that ceramics from both north Warwickshire and Wednesbury are present at Tutbury Castle, but it is less certain whether these may be identified at this time.

Table 2. Post-medieval pottery quantification

Fabric	TTD05 Tr 1															TTD05 Tr 2			TTD05 Motte		TTD05 Unstrat			
	3001	3002	3003	3008	3010	3011	3013	3014	3017	3018	3019	3023	3027	3029	3035	3052	unstrat	4001	4002	4010	5007	5017	u/s	
BRICK*	4			1						1														
TILE*					2								1						1	2	4			
LME											1					4								
MPW	21	9	2							1		3					4	1	2				2	
CTW	45	33	1	5	7				9			13	1	2		5	3	5		1	1	13		
BLW	196	35	2	5	1		2	1	1	2	1	4	7				8	2	10		1	31		
YLW	82	21	1	3	3		1		1	1		5						1	8	6				
SLW	30	5		1	1			2		1		2				1	3	2	7	2	1			
CEW	34	8		6		1	1					4				1		3	3	1	8	3		
SCW								1																
MOT	1																				3			
TGE	2																1							
BST	17	3		1					3			1				1	1							
WSG	1																3							
BSG	2																							
CRW	2						1										7	2						
PLW		1															5							
WWE	39			1			6										1				1	1		
DRB																	1							
BBW	1																							
BCH	6						1																	
RCK	7	1					1																	
YWE	8																2				1			
GST	5				1																1			
Total	499	116	6	22	13	1	13	4	14	2	3	2	32	8	2	4	8	39	16	30	10	17	50	

* Figures omitted from overall totals

LME Late medieval earthenware - To Check with SR

MPW Midlands Purple Ware

CTW Cistercian ware

BLW Blackware [3001 count includes 23 large CTW/BLW sherds - to check]

YLW (Midlands) Yellow Ware

SLW Slipware

SCW Slip-coated ware

CEW Coarse earthenware

MOT Mottled ware

BST Brown salt-glazed stoneware, German

BSG Brown salt-glazed stoneware, English

TGE Tin-glazed earthenware (delftware)

WSG White salt-glazed stoneware

CRW Creamware

PLW Pearlware

WWE Whiteware

DRB Drab ware

BBW Blue-bodied earthenware

BCH Bone China

YWE Yellow ware - 19th c.

RCK Rockingham

GST Grey stoneware, Bristol-glazed

Table 3. Post-medieval ceramics: context summaries

Context	Summary description	Date
3001	Large assemblage of post-med material. The majority dates to the mid 17th century (Civil War period or slightly later) and comprises blackware, yellow ware, slipware and lead-glazed coarse earthenware, together with smaller quantities of Cistercian ware, Midlands Purple and Rhenish stoneware. A small amount of 19th century material comprises standard refined earthenware and stoneware forms.	mid C17 with small qty of C19 material
3002	As 3001, but with very little 19th-century material.	mid C17
3003	Small group of blackware, yellow ware & Midland Purple Ware	
3008	Small group of coarse earthenware, blackware, slipware, yellow ware and a single sherd each of Rhenish stoneware and C19 white ware.	mid C17
3010	Small group of blackware, Cistercian ware, yellow ware and slipware, with one sherd each of C19 stoneware and unglazed red floor tile.	mid C17 with 2 C19 sherds
3011	Single coarse earthenware sherd.	mid C17
3013	Small group of mostly 19th C material, with some mid 17th C sherds	C19
3014	2 sherds slipware, 1 of blackware, and 1 of early-mid C18 slip-coated ware	mid C17 with 1 early-mid C18
3017	Small group of blackware, Cistercian ware and yellow ware (1sherd), with sherds of Rhenish stoneware	mid C17
3018	1 sherd each of yellow ware and slipware	mid C17
3019	2 sherds blackware	mid C17
3023	1 sherd unglazed earthenware, 1 sherd blackware	mid C17
3027	Mid-sized group of blackware, yellow ware, slipware and lead-glazed coarse earthenware, together with smaller quantity of Rhenish stoneware.	mid C17
3029	Small number of blackware/Cistercian ware sherds	early/mid C17
3035	2 sherd Cistercian ware	early/mid C17
3052	4 sherds glazed and unglazed coarse earthenwares	?C16
4001	Large group of mixed mid C17 to C19 material.	C17 with C18 and C19 sherds
4002	Small group of blackware, coarse earthenware, slipware and yellow ware, with 2 C19 sherds.	C17 with C19 sherds
4010	M9d-sized group of blackware, yellow ware, slipware and coarse	mid C17
5007	1 sherd each of blackware and Cistercian ware, with 2 unglazed tile fragments	Early/mid C17
5017	Small group of coarse earthenware, tile, blackware, Cistercian ware and slipware; 3 C19 sherds	mid C17 with 3 C19 sherds

5.3 Coins and a Jeton *by Gareth Williams*

A number of modern coins were found in the topsoil, probably representing casual loss by visitors. These have not been recorded in detail. However, there were two pieces of greater interest.

- Silver sixpence of James I of Great Britain (1603-25), Third Coinage (1619-25), issued in 1623, mint-mark fleur-de-lis. Coins of James I continued to circulate until the coinage reform of 1696, so the coin could plausibly have been deposited at any point between 1623 and 1696. The coin shows some signs of wear, but is not very heavily worn, and this would be consistent with loss around the middle of the century. Found in trench 2, in an orange clay level.
- Copper alloy jeton (reckoning counter), rose and orb type, issued in Nürnberg by Hans Schultes II between c. 1584 and 1603. He was the second mint-master of that name to issue jetons of the type, succeeding his father. He is first recorded as master in November 1586, but it is likely that he was already established as a master by the time of his father's death in June 1584, at which time his father was recorded as 'Hans Schultes the Elder'. It is possible that he was producing jetons in his own name even earlier, but there is no firm evidence one way or the other. Continental jetons were imported into England in large numbers in this period, and were widely used. There has been no systematic study of how long they normally remained in circulation, but given how common they were, and their low value, it seems unlikely that an individual jeton would have been used for more than 20 years or so at most. That suggests a deposition date of c. 1585- 1620. Found in trench 1, in a circular feature under the rubble layer 3002.

5.4 Small Finds *by Jon Goodwin*

Method

The examination of the small finds assemblage from the 2005 excavations at Tutbury Castle was divided into material types, examined in order to determine diagnostic forms and features and quantified by weight. The assemblage comprises 2.687kg glass, 1.971kg lead (Pb), 2.947kg iron (Fe), 33g copper alloy (Cu) and 521g miscellaneous material (leather, shell, bone etc.). A basic catalogue of the finds is provided in Appendix 1.

General

In general, the composition of the 2005 small finds assemblage is similar to those groups generated from excavations in the late 1980s (TUMS 86, TIGS 87 and TC88). Each contains a small number of military finds, limited in range, but datable to the Civil War occupation of the site, with the bulk of the finds indicating later, domestic activity in the castle. One significant difference between the 2005 assemblage and the earlier groups is the lack of early post-medieval dress accessories, namely pins and lace ends which were particularly common in the TC88 material.

For the purposes of the interim report only those diagnostic or potentially important artefacts are reported below.

Glass

The glass assemblage mostly comprises post-medieval window glass and bottle fragments, although contexts 3027 and 5010 contain fragments of medieval window glass. The former group of three sherds is particularly significant as, although the fragments are in a poor condition, they clearly feature a painted design.

Lead

Three musket balls from 3001 (two examples) and 3002, and three casting runners from 3001 attest to Civil War activity on site. Each of the musket balls from 3001 has a diameter of c.16-17mm, representing 20-to-the-pound (or 20 bore) shot, whereas the example from 3002 is slightly larger with a diameter of 18mm, indicating 12-bore shot. This latter bore would have been compatible with muskets of the mid-17th century, which had a calibre of 19-20mm (Mayes and Butler 1983, 261). Smaller 20-bore shot may have been centrally supplied for use in the varied calibres of unstandardised and antique weapons, such as arquebuses, used by many local militias during the conflict (Courtney 1993, 159). Twenty-bore shot was predominant at Sandal Castle and Marston Moor, although at Beeston Castle, 12-bore shot appeared most frequently (*ibid.*). Finds of musket shot from the earlier excavations at Tutbury demonstrate more unusual sizes of 15 and 22 bore.

Although some shot may have been centrally supplied, the production of musket balls in the field was a common practice. This was usually done with a hinged two-piece iron mould with multiple chambers. The casting runners from which the balls were cut once cool survive as evidence of this process. The three examples found in 3001 are identical to two strips found during earlier excavations at the castle (TC88 1035), in that they feature casting runners spaced at 4mm-5mm intervals. Headers from the production of 12-bore musket balls found at Beeston Castle have casting runners spaced at 18mm intervals (Courtney, 1993, Fig. 105, nos. 32 & 33). The comparatively small divisions between runners on the Tutbury examples indicates the casting of a very small shot, perhaps comparable to examples from Marston Moor, which had a diameter of 5-6mm (Mayes & Butler, 1983, 263), or scatter shot (Redknap & Besly, 1997, fig. 12, 201).

Evidence for the scavenging of lead for shot production may be found in the twisted scraps of window that came from 3001, 3013 and 3027. Certainly, some heating and working of lead did take place on site, as is indicated by the solidified puddles from 5007 and 5017, and pottery finds from each of these contexts suggest a 17th-century date (D. Barker pers. comm. 2005).

Iron

Two iron rowel spurs from contexts 3001 and 3029 are similar to examples recovered from Beeston Castle, dating from the 17th to 19th centuries (Ellis 1993, 165, fig 113 10, 11,15). These are characterised by straight sides, a flattened D-shape in section, which taper towards the terminals (missing on the Tutbury examples). The necks are horizontal with downward-bent rowel boxes.

An example of a Jew's Harp features amongst the ironwork from 3001. The harp has a wide rounded head, circular in section, with two prongs each lozenge-shaped in section. The central tongue is missing. Medieval iron examples from London (Egan 1998 284-5) have slightly narrower heads than that of the Tutbury example, as does a copper alloy harp from Lincolnshire (Portable Antiquities Scheme website www.findsdatabase.org.uk). A post-medieval date for the Tutbury example is likely.

Table 4. Glass context summaries

Context	wt (g)	Date Range	Description/Notes
3001	1839	Post-med >19 th century	Mostly window and bottle glass. Bottle glass is aqua, green and clear - some mineral water (including one Codd's patent stopper) and beer/wine. Includes two sherds of post-med drinking glass.
	16	19 th -20 th century	Globular stopper finial?
	10	19 th -20 th century	Glass pipit
	<1	20 th century?	Test tube?
3002	84	Early post-med (?) - 19 th century	Mostly window glass, the thicker examples of which could be early. Clear mineral water bottle indicates presence of a 19 th -century element
3008	18	Post-med >19 th century	Window glass with two fragments of clear bottle glass - 19 th century
3013	114	19 th century	Mostly bottle glass including neck with internal screw-thread - late 19 th century. Two 19 th -century drinking glass fragments - base cross joins with fragment from 3027
3014	60	19 th century	Bottle glass - aqua and green
3017	18	Post-med	Mostly window glass with two iridescent bottle fragments - could be 17 th /18 th century
3018	<1	Post-med	Window glass
3027	30	Med - post-med	Mostly window glass, including three fragments of painted window glass - medieval. One 19 th -century vessel base fragment cross joins to one from 3013
3035	12	Post-med >19 th century	One window glass sherd and a fragment of 19 th -century mineral water bottle
4001	10	Post-med >20 th century	Window and bottle fragments
	14	Post-med - 19 th century	Globular stopper finial
4002	32	Med (?) - post-med	Window and bottle glass
4010	18	Post-med	Window and one bottle fragment
5010	12	Med.	Two conjoining fragments of thick window glass
5017	218	19 th century	Aqua, clear and green bottle glass. One mineral bottle has Codd's patent stopper with separate lip - c.1875-1890
u/s	180	Post-med >20 th century	Mix of window and bottle glass.
TOTAL	2687		

Table 5. Lead (Pb) context summaries

Context	wt (g)	Date Range	Description/Notes
3001	40	?	Disc
	24	Post-med – 17 th century	Musket ball - d.16mm
	26	Post-med – 17 th century	Musket ball - d.17mm
	8	Post-med – 17 th century	Header with 6 runners spaced at 5mm intervals
	<1	Post-med – 17 th century	Header with 4 runners spaced at 5mm intervals
	4	Post-med – 17 th century	Header with 5 runners spaced at 4mm intervals
	4	Post-med - mid 16 th century+	Two strips of milled window came - 1mm spaced reeding
	8	Post-med	Twisted came
	<1	?	Twisted strip - window came?
	16	?	Folded sheet
	8	?	Lead strip
3002	68	?	Folded lead sheeting - roofing material
	36	Post-med – 17 th century	Musket ball - d.18mm
3013	4	Late med-early post-med	Strip of milled came - lack of reeding indicates toothless mill
3017	10	Late med-early post-med	Strip of milled came - lack of reeding indicates toothless mill
3018	<1	?	Folded strip
3032	580	?	Folded lead sheet - roofing material
3027	4	Late med-early post-med	Strip of milled came - lack of reeding indicates toothless mill
4001	510	?	Lead sheet
5007	70	?	Lead puddle
5017	130	?	Lead strips (some twisted) and small sheet fragments
	354	?	Lead puddle
	38	?	Lead sheet
	18	?	Lead sheet
u/s	8	?	Strip
Total	1971		

Table 6. Iron (Fe) context summaries

Context	wt (g)	Date Range	Description/Notes
3001	50	17 th -19 th century	Rowel spur - horizontally straight sides of flattened D section, downward bent rowel box
	18	Post-med	Heel iron?
	388	Post-med	Nails
	10	20 th century	Bottle opener
	8	19 th -120 th century	Barbed wire
	6	19 th -20 th century	Washer
	18	Post-med?	Jew's Harp
	10	Post-med	Nails
3002	370	Post-med	Spiked ferrule
	34	Post-med	Nails
3003	318	Post-med?	Slag
3013	10	Post-med	Nails
	58	Post-med	Slag
3014	22	Post-med	Nails
3025	286	?	Slag
3027	<1	Post-med	Nail
	530	?	Slag
3029	54	17 th -19 th century	Rowel spur in two pieces - badly corroded. Horizontally straight sides, probably of flattened D section
3035	16	Post-med	Nails
3052	6	?	Fe object
4001	4	?	Bent wire
	10	Post-med?	Iron pin with globular Cu finial
	4	?	Nail
5007	30	Post-med	Nails
5010	4	Post-med?	Knife blade tip
5014	164	?	Fe object
5017	132	Post-med	Looped bracket
	50	Post-med	Saw blade
	76	Post-med	Trowel blade
	30	?	Slag
u/s	230	Post-med	Misc. Fe includes nails and corroded plate
Total	2947		

Table 7. Copper Alloy (Cu) context summaries

Context	wt (g)	Date Range	Description/Notes
3001	8	1940	George VI Penny
	<1	19 th -20 th century	Fastener - cuff link/collar stud?
	<1	1948	George VI Sixpence
3002	4	Post-med	Heart-shaped loop handle (see Margeson 1993, 80, Fig. 491)
	<1	19 th -20 th century	Convex button
3013	4	Post-med - 19 th century	Decorative plate brooch - two cast hearts either side of bezel - stone missing. Pin missing
u/s	14	?	Cu object
Total	33		

Table 8. Miscellaneous context summaries

Context	wt (g)	Date Range	Description/Notes
3001	4	19 th century	Slate pencils
	<1	20 th century	Plastic hair slide
	<1	?	Flint
	100	Late 19 th -early 20 th century	Bakelite bottle screw tops
	6	Post med - 19 th century	Foliate design bone handle, with internal screw thread and lateral rivet hole
	<1	Post-med?	Cream/white mortar fragments
	34	?	Vitrified slag
	40	Post med	Shell - oyster, winkle, cockle
3002	26	Post-med?	Cream/white mortar fragment
3013	44	Post-med	Oyster shell
3018	12	?	Flint
3027	248	19 th -20 th century	Concrete fragments, some painted
4001	<1	?	Flint
	<1	1911-1920	George V first issue silver sixpence
	<1	20 th century	Plastic
4011	<1	?	Leather strip, tapers to a point at either end
Total	521		

5.5 Clay Pipes by David Higgins

Introduction

The pipe fragments have been individually examined and the details of each logged onto an Excel worksheet. The layout of the worksheet has been based on the draft clay tobacco pipe recording system that has been developed at the University of Liverpool (Higgins & Davey, 1994). Copies of both the worksheet and the draft recording system have been provided for the site archive. Bowl forms have principally been dated with reference to the London typology established by Atkinson & Oswald (1969), although the dating has been modified according to the form and attributes of the individual fragments. Bowl forms identified from the London typology have been prefixed with the letter 'L'. Variants of the basic London shape illustrated in the typology have had the letter 'v' placed after the type number.

An assessment of the likely date of the stem fragments has been provided. The stem dates should, however, be used with caution since they are much more general and less reliable than the dates that can be determined from bowl fragments. All of the pipes were recorded and dated before context information and other site data was examined. This methodology avoids any pre-conceptions being formed as to the possible date or nature of the various pipe groups while they are being identified and catalogued. A context summary has been prepared and this is included below as Table 9. This provides a summary of the overall numbers and date range for the pipes recovered from each context, together with the most likely deposition date, based on just the pipe evidence.

The 2005 excavations form part of a larger programme of research and excavation on the castle, which will also consider previous work on the site. For this reason the pipes from the 2005 excavations have been added to the same catalogue as that which contains details of the pipes that were recovered from the site during the 1980s. The author reported on these earlier excavations in 2000. The amalgamation of any new finds with the existing database structure will allow a comprehensive analysis of all the pipe finds from this site once the current series of excavations have been completed. At the time that this report was prepared, there was no site matrix or context summary available for the 2005 excavations. A working draft narrative for Trench 1 was available and so any comments as to the archaeological context of the pipes is solely based on the information contained in that draft.

The Clay Tobacco Pipes

The excavations produced 106 fragments of pipe, comprising 20 bowl, 84 stem and 2 mouthpiece fragments, from a total of 12 different contexts in the excavated trenches. There is also one bag of unstratified finds. The pipes were not evenly distributed between the trenches with 71 pieces coming from Trench 1 but only 25 pieces from excavations on the motte. There were no pipe finds at all from Trench 2. The stratigraphic groups that produced pipes are described and discussed by trench below, followed by a general section dealing with the pipes themselves.

The Pipes as Archaeological Evidence

Despite the relatively small size of this assemblage, the pipes are still able to contribute to a broader understanding of the site and its use during the post-medieval period. As with the material recovered during the 1980s, the first point to note is the overall chronological distribution of the pipe assemblage. Out of the 106 fragments recovered all but four of the fragments, i.e., 96.2% of the assemblage, dates from the 17th century. More specifically, 19 out of the 20 bowl fragments have been dated to the Civil War period and all but four of the other stems and mouthpieces are likely to be contemporary with these bowls. This supports the impression, formed from the earlier excavations, that the post-medieval use of the site, at least in terms of the archaeological finds, is overwhelmingly dominated by Civil War activity.

Pipes of this period clearly litter the site and this in itself could lead to problems with dating and interpreting the excavated contexts. The scarcity of later material means that the majority of the contexts contain only Civil War pipes. While many of these contexts may well be the result of Civil War activity it is important to be aware that later earthmoving activities may well have redeposited some of the pipes but that this remodelling may not be immediately apparent from the finds if no later objects have become incorporated within the deposits. Having sounded this cautionary note, the following sections will discuss the pipes in their context groups.

Trench 1

This trench produced the majority of the pipe fragments recovered during this season's work, comprising 71 of the 96 stratified pieces (74%). Most of these pieces (49 fragments) were recovered from contexts 3001 and 3002.

In the southern half of the trench the stratigraphically earliest pipe fragment appears to be a single stem recovered from a red / brown sandy silt containing alabaster chunks (3023) and overlying a wall (3021). The stem from this layer (3023) is certainly of 17th-century type and it could well date from the Civil War period. This stem provides a *terminus post quem* for the sealing of the demolished wall. Context 3023 was overlain by a brown clay layer (3054) that did not produce any pipes and then a red clay layer (3019) that produced a single Civil War period bowl, stamped GH (Fig. 15:2). It is possible, therefore, that this whole sequence of layers overlying wall 3021 is the result of Civil War activity on the site.

In the northern half of the trench, the stratigraphically earliest pipes appear to have come from a dark brown clayey silt (3027) that sealed a pit (3042). This layer (3027) produced a group of seven pipe fragments, including two bowls dating from the Civil War period (Figs 15:7 & 15:8), and so this deposit seems likely to date from the mid-17th century. A related clay layer (3038) was cut by a gully (3008) that also produced a small group of 17th-century pipes, including a heel bowl of c1610-40, the earliest bowl to have been recovered from these excavations (Fig. 15:1). At the northernmost end of the gully a small pit had been dug (3035), which produced three pieces of 17th-century pipe stem.

The largest group of pipes from Trench 1 was recovered from a rubble layer covering the southern and central parts of the trench (3002), which produced 29 fragments, including three bowls fragments, all of which dated from c1640-60 (e.g., Fig. 15:5). Another bowl of the same date and five further pieces of 17th-century pipe stem were recovered from 3017, an associated spread of brown mortar. The draft report suggests that the pottery associated with 3002 dates from the 17th and 18th centuries, but there is nothing amongst the pipes to suggest that this deposit is any later than the Civil War in date.

The rubble layer (3002) was overlain by a dark brown silt layer (3001), which produced four pipe bowl fragments and 16 stems (e.g., Fig. 15:6). The 20 fragments from this deposit (3001) all date from the 17th century with the exception of one stem that dates from somewhere between about 1760 and 1910.

Trench 2

This trench did not produce any pipe fragments.

Trench 3

The motte area produced 25 fragments of pipe from three different contexts. Context 5007 produced four bowl and four stem fragments. All the bowls in this group are of Civil War date (e.g., Figs 15:3 & 15:4) and so it seems likely that this is a Civil War deposit. Context 5010 only produced four stems, all of which are of 17th-century type. The largest group, comprising two bowls and eleven stems, was recovered from 5017. Ten of the stems are of 17th-century

type and the bowls, including one stamped PT (Fig. 15:9) both date from c1640-1660. There is, however, one stem that probably dates from c1700-1780, suggesting that this context has either been disturbed or redeposited at a later date.

The Pipes Themselves

Just one bowl that probably pre-dates the Civil War activity on the site was found (Fig. 15:1). This piece dates from c1610-40, is neatly made and probably of local manufacture. All of the other bowls probably date from the Civil War occupation of the site and add to a growing corpus of evidence for this period from the site. Full details of the pipes have been logged on a database with the 1980s finds, but it seems sensible to wait until the current series of excavations is complete before attempting a detailed analysis of this material.

What is evident, however, is that these bowls support and add to the impression created by the earlier finds. All of the pipes recovered are heel types, with spur types being completely absent. The pipes are generally rather plain with few marked examples (only two out of 15 heels are stamped) and they have a basic finish, the majority being unburnished. Out of the 20 bowl fragments, only two are burnished and these are both from a distinctive mould with a very poor and lumpy surface (e.g., Fig. 15:5). These two pipes are almost certainly from the same mould as nine examples noted from the 1980s excavations. This association between a burnished finish, albeit of a very poor quality, and this very shoddy mould type was also noted amongst the previously excavated material.

Another finishing characteristic that may link the products of a single maker has been noted amongst this group. In at least three of the bowls the wire used to form the stem bore appears to have been pushed through so far that it has pierced or marked the front of the bowl. This is most evident in an example from 5007 where there is still a clear bulge visible at the front of the bowl (Fig. 15:3). The fact that this mark is visible shows that the wire must have been pushed against the front of the bowl after the pipe had been removed from the mould, either as it was being laid to dry or, more likely, as a second wire was inserted later to support the stem while the partially dried pipe was being trimmed. This poor workmanship may well be a reflection of a skills shortage in the local pipemaking industry as a result of men going off to fight in the war. Marks where the wire has pushed against the bowl and then been smoothed can also be seen in two other examples, Figs 15:4 & 15:6. The stem bores represented by the Civil War bowls are quite variable, ranging from 5/64" to 8/64". This is a similar range to that previously noted from the site (Higgins 2000).

Another general observation than can be made about the pipes is with regard to the fabric from which they are made. This is usually a good, fine-grained fabric without any visible inclusions. This contrasts with the rather gritty coalmeasure clays that are characteristic of the Shropshire pipes made in the Much Wenlock and Broseley area, which were widely exported. The absence of these gritty fabrics not only shows that Shropshire pipes did not form a significant element of the mid-17th-century pipes being used in this area, but also that the local pipemakers must have been accessing good quality clay deposits from which to make their pipes.

The final point to note in relation to the bowl forms themselves is to do with their size. Tutbury Castle is one of only four Civil War sites in the country where systematic data regarding the bowl height and widths has been collected (White 2004, 44). A further six or seven bowls could be measured as a result of these excavations, the six with complete heights giving measurements of between 28.2 and 30.0mm, with an average of 28.91mm. This is very similar to the measurements previously obtained (average height 29.14mm) and in keeping with the results that showed a very slight increase in heights between Civil War pipes produced in the north (Pontefract and Sandal Castles, Yorkshire), Midlands (Tutbury Castle) and south (Portland Castle, Dorset). A larger sample would clearly be beneficial, both from this site and from other comparable Civil War sites from elsewhere in the country.

Marked Pipes

As noted above, only two marked pipes were present on the 15 heel fragments recovered (13%). There is one example of a mark reading GH (Fig. 15:2; National Die Number 319), a damaged example of which has previously been found on this site (Higgins 2000, Figure 2). Similar GH marks on mid-17th-century pipes have been found at Dudley Castle and at Lichfield (Higgins 1987, Figs 81.12 and 95.15). This cluster of GH marks from around the south Staffordshire area might indicate that this maker worked somewhere in this area, rather than this being a product from the Broseley area, as the bowl form might suggest.

The other marked pipe occurs on quite a neat, well-finished bowl form but the mark itself is very crudely executed (Fig. 15:9). As impressed, the mark reads as a T followed by a retrograde P. The T, however, would look the same either way and so it is perhaps more likely that the whole mark is retrograde and that it should be read as PT. Either way, this mark does not appear to have been previously recorded and so it has been added to the National Catalogue that the author is compiling as Die No 2056. This is likely to be a locally produced pipe although, at present, no known pipemakers with either the initials TP or PT have been documented from the Tutbury area.

Decorated Pipes and Modified Stem

Other than the usual rim milling that was typically used on 17th-century pipes, none of the fragments recovered is decorated. There is one fragment from 3001 that has a very small section of milling on its stem, but this is almost certainly accidental rather than any attempt at decoration. There is also a stem fragment from 3002 that has possibly has its thinner end slightly ground. This grinding, however, is very slight and may again be accidental. It certainly does not match the clearly reworked ends that are sometimes found on broken pipe fragments.

Summary and Conclusions

The 2005 season has added to the corpus of pipes that have been collected from Tutbury Castle. These not only provide dating evidence for the deposits from which they have been recovered but also reinforce the impression that large numbers of Civil War pipes are present right across the site. The high proportion of mid-17th-century pipes strongly suggests that this was the period that saw the highest density of occupation and activity within the castle during the post-medieval period and it is to be expected that large numbers of features will be related to this occupation. In terms of the pipes themselves, a clear picture of the styles, manufacturing techniques, and quality available is emerging. Rather plain heel forms dominate this assemblage with only a small proportion of marked pipes. Most of the forms are likely to have been produced locally and the quality of production is often poor, perhaps reflecting a shortage of skilled labour during the War. Individual moulds and manufacturing techniques can be identified within this assemblage. The new finds have been catalogued to the same standard and using the same recording system as for the 1980s material. By the end of the current research programme, there should be a substantial body of data that can be analysed in detail to characterise the local industry. The close dating afforded by Civil War assemblages makes them important as benchmarks for checking bowl form typologies and defining the local pipemaking industries. The material from Tutbury had the potential to provide a benchmark of both regional and national significance.

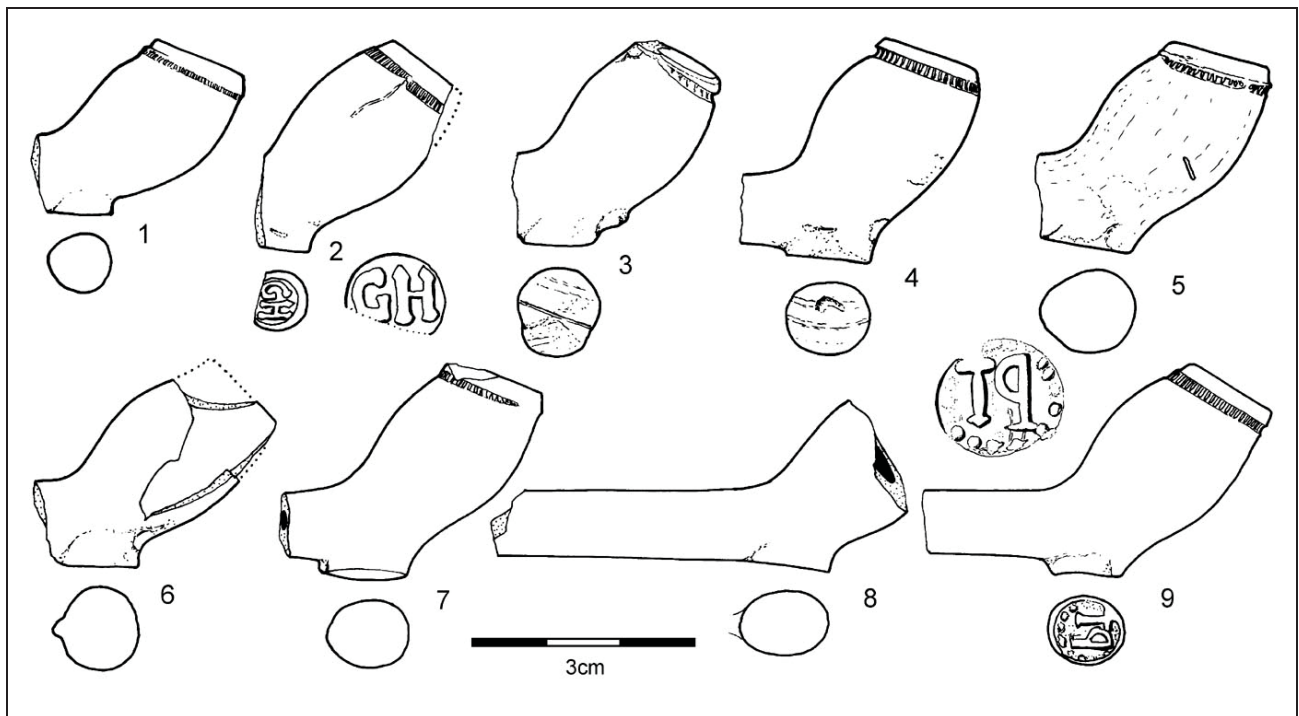


Fig. 15 Clay pipes

KEY TO FIGURES

All of the illustrations are at 1:1, with the exception of the stamp details in Figs 15:2 and 15:9, which are at 2:1. The die numbers given for the stamped pipes are from an as yet unpublished national catalogue that is being compiled by the author.

15:1 Pipe bowl of c1610-1640 with a stem bore of $8/64''$. The rim has been bottered and is three-quarters milled. Quite a neatly finished early heel form in a local style. The surface is smooth and glossy but does not appear to have been burnished. Very fine fabric. TTD 05 Tr 1 3008.

15:2 Pipe bowl of c1640-1660 with an unmeasurable stem bore. The rim has been bottered and is milled. Damaged bowl, neatly made and with a GH stamp on the heel. Unidentified maker, probably working in the south Staffordshire area. Quite a fine fabric with occasional small granular inclusions. All the surviving rim is milled. National Pipe Stamp Catalogue Die Number 319. TTD 05 Tr 1 3019.

15:3 Pipe bowl of c1640-1660 with a stem bore of $5/64''$. The rim has been bottered and is fully milled. Very poor lop-sided mould and a poorly made pipe with two cuts used to trim the heel. The wire has almost pushed through the front of the bowl and the finish is quite heavy-handed. Fine fabric with a very glossy surface but does not seem to have been burnished. Unusually small stem bore. (Area C 5007 [A])

15:4 Pipe bowl of c1640-1660 with a stem bore of $8/64''$. The rim has been bottered and is fully milled. (Area C 5007 [B]).

15:5 Pipe bowl of c1640-1660 with a poorly burnished surface and a stem bore of $6/64''$. The rim has been bottered and is fully milled. Poor mould with marked mould flaws on heel sides, another example of which was found in the same context (3002 (B)) and nine examples of which were found during the 1980s excavations. Quite a heavy handed finish

giving a poor end product, including some extremely poor and scrappy burnishing. Fine fabric. TTD 05 Tr 1 3002 (A).

15:6 Three joining fragments (freshly broken) from a local heel bowl of c1640-1660 with a stem bore of 7/64". One of the fragments is labelled '3008', despite all the pieces being freshly broken and in the same bag (3001). The rim has been bottered and is milled. Made of a fine fabric. TTD 05 Tr 1 3001 (B).

15:7 Two joining fragments (freshly broken) from a pipe bowl of c1640-1660 with a stem bore of 7/64". The rim has been bottered and milled. The pipe is fairly neatly finished and would have been either three-quarters or fully milled (rim slightly chipped). Heel trimmed at a rather strange angle and the pipe has been made in a rather lop-sided mould. Fine fabric. TTD 05 Tr 1 3027 (A).

15:8 Lower half of a heel bowl of c1640-1660 with quite an oval heel and a stem bore of 7/64". Fine fabric. TTD 05 Tr 1 3027 (B).

15:9 Pipe bowl of c1640-1660 with a stem bore of 6/64". The rim has been bottered and is fully milled. Neat and reasonably well finished bowl made of a fine fabric with a reduced grey core. The surface is glossy but not burnished. The stamped heel mark is quite crudely executed with a retrograde P, suggesting that it should be read as PT, rather than TP, which is the order in which the initials occur on the pipe. Previously unrecorded mark from an as yet unidentified maker, who probably worked in the Tutbury area. National Pipe Stamp Catalogue Die Number 2056. TTD 05 MOTTE 5017 (A).

Table 9: Clay pipe context summary

This table provides an indication of the overall date range represented by the clay tobacco pipe fragments recovered from each Trench (Tr) and context (Cxt). It also shows how many fragments of bowl (B), stem (S) or mouthpiece (M) this date range is based on as well as the total number of fragments (Tot) that there are in each context. An overall date range for the all the pipes fragments is given (Range), followed by a likely deposition date (Deposit), based on the pipe evidence. A transcription of any mark is given followed by its position (P), where H is on the heel; its type (T), where R is in relief and its method of application (M), where S is stamped. A note of any decorated or other notable pieces is given, followed by the drawing numbers for any illustrated examples (Dr). Bowl fragments, especially if they are marked, are much more closely datable than stem fragments. For this reason, the number and type of fragments present should be taken into account when assessing the reliance that can be placed on the date range of any particular context group.

Site	Tr	Cxt	B	S	M	Tot	Range	Deposit	Mark	P	T	M	Decoration	Dr	Comments
TTD 05	Tr 1	3001	4	16		20	1610-1660	1760-1910					One milled stem	6	One stem of c1760-1910 shows that this context includes some later material. All of the other fragments; however, are of c1610-1710 types and they could well all belong to the Civil War activity on site. The one milled stem is accidental marking, not intentional.
TTD 05	Tr 1	3002	3	25	1	29	1610-1710	1640-1660					Ground end?	5	The stem fragments are all of c1610-1710 types but all three bowls date from c1640-1660 and all these pipes would fit well in a Civil War deposit. One stem of c1640-1710 type has possible light scraping to its thinner broken end.
TTD 05	Tr 1	3008	1	2		3	1610-1710	1610-1660						1	One bowl of c1610-1640 type and two stems of general C17th type (c1610-1710), but most likely to be early- to mid-C17th examples.
TTD 05	Tr 1	3017	1	5		6	1610-1710	1640-1660							Part of a heel from quite a neat looking bowl of c1640-1660 plus 5 stems of general C17th type. Could all date from the Civil War period.
TTD 05	Tr 1	3018	1	1		1	1840-1910	1840-1910							Thin stem fragment with a very small bore.
TTD 05	Tr 1	3019	1			1	1640-1660	1640-1660	GH	H	R	S		2	Damaged bowl, neatly made and with a GH stamp on the heel. Quite a fine fabric with occasional small granular inclusions. All surviving rim is milled.
TTD 05	Tr 1	3023	1	1		1	1610-1710	1610-1710					?repaired		Stem with an odd bulge at one end; perhaps repaired during manufacture. No trace of covering milling. Could well be Civil War period.
TTD 05	Tr 1	3027	3	4		7	1610-1710	1640-1660						7, 8	Four stems of C17th type (could well all be Civil War period) and three bowl fragments representing two different pipes, both of which date from c1640-1660.
TTD 05	Tr 1	3035	3	3		3	1610-1710	1610-1710							Three stems of C17th type - could well all be of Civil War date.
TTD 05	MOTTE 2	5007	4	4		8	1610-1710	1640-1660						3, 4	Three of the four bowls are of c1640-1660 and the fourth is too fragmentary to be sure, but it certainly dates from between 1610 and 1660. All the stems are of C17th type and would fit with Civil War activity.
TTD 05	MOTTE	5010	4	4		4	1610-1710	1610-1710							All stems of C17th type and could all belong to Civil War period.
TTD 05	MOTTE	5017	2	11		13	1610-1780	1700-1780	PT	H	R	S		9	Two bowls of c1640-1660, one of which is marked with a retrograde PT mark. All of the other stems are of C17th type and could well be Civil War except for one, which dates from c1700-1780. Either this is intrusive or the whole deposit dates from the eighteenth century (or later).
TTD 05	-	U/S	1	8	1	10	1640-1660	NA							The bowl dates from c1640-1660 and all of the other stems are of C17th type. The mouthpiece is of a nipple type and dates from c1840-1910.
TOTALS			20	84	2	106									

5.6 Animal Bones by *Matilda Holmes*

Methodology

Bones were identified using the author's reference collection, and further guidelines from Cohen and Serjeantson (1986), Hillson (1992), Prummel (1988) and Schmid (1972). Due to anatomical similarities between sheep and goat, bones of this type were assigned to the category 'sheep/goat', unless a definite identification using guidelines from Prummel and Frisch (1986) or Payne (1985) could be made. Bones that could not be identified to species were, where possible, categorised according to the relative size of the animal represented (small – rodent /rabbit sized, medium – sheep / pig / dog size, or large – cattle / horse size). Ribs were not identified to species. All fragments were recorded.

Tooth wear and eruption were noted using guidelines from Grant (1982) and Silver (1969), as were bone fusion (Amorosi 1989, Silver 1969), metrical data (von den Driesch 1976), anatomy, side, zone (Serjeantson 1996), pathology, butchery, bone working and condition (Lyman 1994) of the bones.

Taphonomy and Condition

The bones were in a good to fair condition, although they were fragmentary and complete bones relatively uncommon. However, there was little evidence for post depositional movement – only 1% of the assemblage had been recently broken, and only 33 fragments were conjoined to make ten more complete fragments. Other taphonomic factors affecting the material were recorded, of which 1% of the assemblage had been burnt, 2% showed signs of canid gnawing and 9% had butchery marks on them. No articulated deposits were noted.

The absence of sieved samples may lead to a negative bias in the number and variety of small mammals, fish and bird bones recorded in the assemblage.

Species Representation and Diet

A total of 2246 fragments were recorded, of which 37% were identified to species. As Table 10 shows, the bones were assigned to 11-12th, 15-16th or 17-19th-century phases, of which the latter contained the largest and most varied assemblage. There was very little material from 15-16th-century contexts (14 identified fragments), and a small assemblage of just over 100 identified bones was dated to the 11-12th Centuries.

Pigs were the most common species in the 11-12th-century phase, found in 40% of the assemblage. Cattle were present in 30%, and sheep/goat found in relatively small numbers, only 14% of the assemblage, of which no bones were identified positively as either sheep or goat. 2% of the identified bones came from horses, and of the other domestic animals chicken and geese were commonly found (3 and 2% respectively). A number of wild species were also present, including duck, wader, red, fallow and roe deer and rabbit, each of which was present in between 1 and 2% of the assemblage.

Table 10. Species representation (fragment count)

	11-12th	%	15-16th	17-19th	%	Undated	Total
Cattle	32	30	4	216	31	11	
Sheep/Goat	15	14		167	24	6	
Sheep				14	2	1	
Goat				3	0.4		
Pig	42	40	3	71	10	1	
Horse	2	2		4	1		
Dog				32	5		
Cat				1	0.1		
Fowl	3	3	3	39	6	1	
Goose	2	2		13	2		
Duck	2	2		3	0.4		
Crane				1	0.1		
Pigeon				1	0.1		
Swan				2	0.3		
Wader	1	1	1	7	1		
Deer	1	1		4	1		
Red Deer	1	1		5	1		
Fallow Deer	2	2		13	2		
Roe Deer	2	2		1	0.1		
Hare				1	0.1		
Rabbit	1	1		7	1	1	
Fish				13	2		
Snail				10	1		
Whelk				2	0.3		
Mollusc			3	5	1	1	
Oyster				52	8	2	
Total Identified	106		14	687		24	831
Unidentified Bird	3			32		1	
Unidentified Large Mammal	16		20	492		22	
Unidentified Mammal	3		3	179		2	
Unidentified Medium Mammal	113		7	509		9	
Unidentified Small Mammal			1	3			
Total	241		45	1902		58	2246

The very few bones from the 15-16th centuries came from cattle, pig, chicken, mussel and woodcock. The sample size was too small to compare trends with material from the other phases.

The 17-19th centuries were dominated by cattle which were found in 31% of the assemblage from this period. Sheep/goat were the next most common (26%), of which both sheep and goat remains were positively identified. Pigs were identified in 10% of the animal bones. Of the other main domestic mammals dogs were the most commonly found, then horse and cat. Of the large number of bird species domestic fowl and goose were most common, present in 6% and 2% of the assemblage respectively. Of the wild birds waders, duck, swan, pigeon and crane were also found. Deer were also fairly common, of which fallow were present in highest numbers, then red and roe. Rabbit and hare were also found in significant numbers. Other species found include oyster, fish, mussel, whelk and snail.

It is widely recognised that a bias may occur in a straightforward fragment count in favour of larger mammals such as cattle and horse, whose bones are liable to fragment into more pieces, and be better recovered than bones of smaller species such as sheep and pigs. To help reduce this bias two counts have been used – a basic count of all fragments identified to species, which has been considered so far, and a restricted count, where only certain parts of the bone are counted. In this instance, only the epiphyses or ends of bones have been counted, which reduces the uneven fragmentation bias common in the former count (Grant 1984). As Table 11 shows, there are small differences between the counts of larger

and smaller mammals, where sheep are better represented by the restricted count, and horse and cattle less so. The differences are not so great as to affect any apparent trends in the material.

Table 11. Comparison of restricted and fragment counts

	11-12th Centuries				16-17th Centuries			
	Epiphysis	%	Fragment	%	Epiphysis	%	Fragment	%
Cattle	11	31	32	35	83	42	216	43
Sheep/goat	8	23	15	16	76	38	184	36
Pig	16	46	42	46	23	12	71	14
Horse	0	0	2	2	3	2	4	1
Dog	0	0	0	0	14	7	32	6
Total	35		91		199		507	

There is little comparative material from other post-medieval high status sites in the area. However, the species found are not unusual on other, similar sites from around the country, such as Sandal Castle, Wakefield (Griffith et al 1983), Scarborough Castle, North Yorkshire (Weinstock 2002), North Elmham Park, East Anglia (Noddle 1980), Barnard Castle, Durham (Jones et al 1985) and Okehampton, Devon (Maltby 1982).

In terms of diet, beef would have been the most common meat eaten in all periods, although pork would also have been important, especially in the 11-12th centuries, and in the 17-19th centuries lamb would also have been significant. Horses and dogs were probably not eaten, although the diet would have been supplemented by venison and fowl, predominantly chicken, goose and duck, but also wild species, particularly in the 17-19th centuries. In this period, oysters, fish and molluscs such as whelks and mussels were also eaten.

Carcass Utilisation and Butchery

Carcass Representation

The anatomical fragments for cattle and sheep were plotted in order of the frequency that might be expected if complete carcasses were deposited in the area. This takes into account preservation and recovery biases affecting different parts of the bones. For example, mandibles are very dense bones and survive very well, particularly when compared with the proximal end of the humerus, which fuses very late and is easily eroded so is often poorly preserved. The dense phalanges, though relatively better preserved, are often not so easily seen during excavation, and therefore are not always recovered, particularly when deposits are hand excavated.

Fig. 16 and Table 12 show that for both cattle and sheep/goats, mandibles and metapodia were poorly represented, and were present in lower numbers than may be expected if whole carcasses were deposited on the site. There were also fewer cattle pelvises, proximal femur and distal radius fragments, and within the sheep/goat assemblage very few phalanges and proximal femur fragments. Despite the relatively small size of the pig assemblage, there are also fewer mandible and phalange fragments than would normally be expected.

Table 12. Fragments in the order of best preservation. 17-19th centuries (Epiphysis count)

Anatomy	Cattle	Sheep	Pig
Mandible**	1	1	0
Metacarpal P	2	2	2
Metatarsal P	3	4	3
Humerus D	10	5	0
Tibia D	9	8	1
Radius P	10	6	1
Pelvis	1	6	2
Scapula D	7	6	1
Calcaneum	5	7	0
Metacarpal D	2	1	2
Metatarsal D	4	2	3
Femur P	1	2	2
Radius D	1	4	1
Tibia P	7	3	0
Femur D	5	2	3
Humerus P	2	4	0
1st phalange *	4	1	0
2nd phalange *	3	0	0
3rd phalange *	1	0	0
1st Cervical Vertebra	0	6	0
Sacrum*	2	0	0
Zygomaticus	1	2	0
Occipitale*	2	4	2
TOTAL	83	76	23

*bone count adjusted to compensate for frequency of phalanges in relation to other bones

** mandible articular surface

The deposition of bones from certain parts of the carcass was also investigated. As Fig. 17 shows, although all parts of the carcass are represented in the cattle and sheep/goat assemblages, there is a clear predominance in the number of fragments from upper fore and lower fore and hind legs, and lower numbers of head, vertebrae, upper hind, shin and phalange fragments. Differences between species are also seen – most notably there are a lot more vertebrae in the sheep/goat assemblage, and far fewer phalanges than the cattle assemblage.

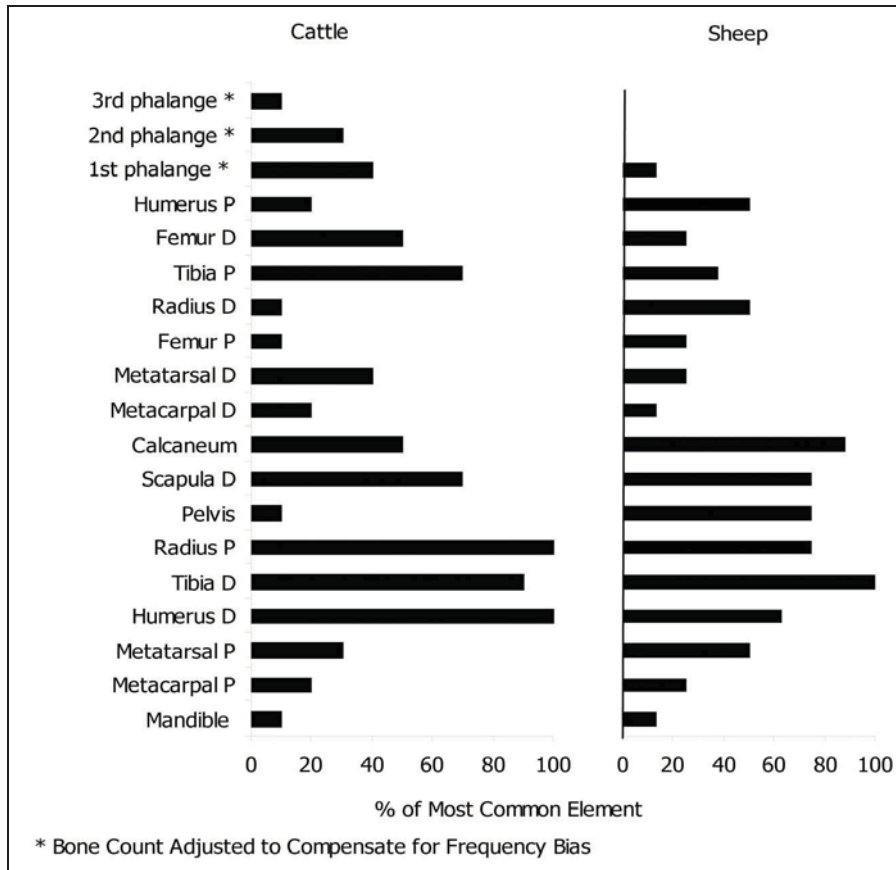


Fig. 16 Fragment representation in order of expected preservation (least common first) 17th – 19th centuries (Epiphysis count)

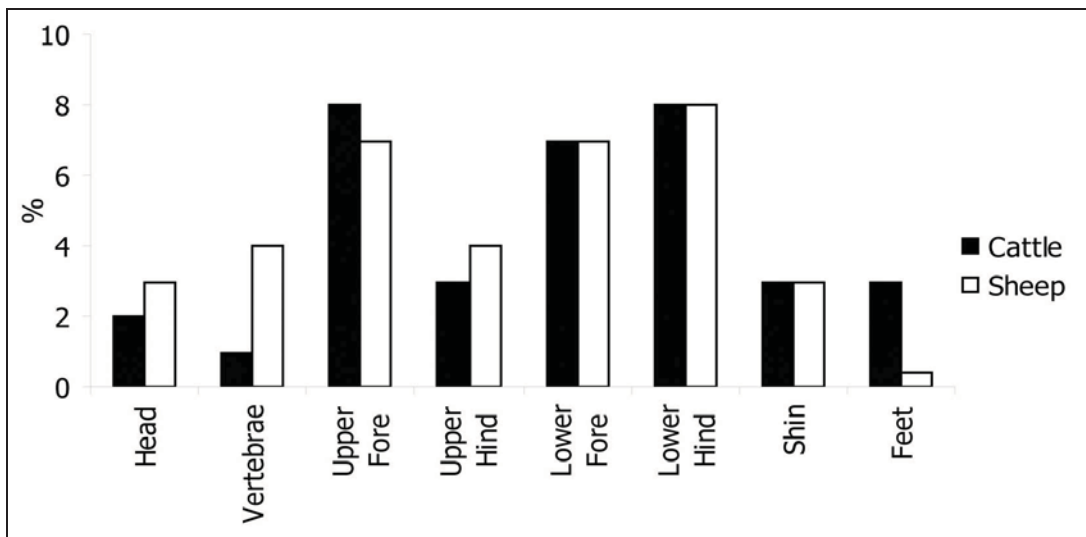


Fig. 17 Carcass part representation 17th – 19th centuries (Epiphysis count)

Butchery

A number of butchery marks were noted on bones from a wide variety of species and anatomies. Physical evidence for butchery techniques was present as knife or chop marks. They were found on bird, deer, rabbit, dog, horse, cattle, sheep/goat and pig bones. Fig. 18 shows the general areas that butchery marks were found on large (cattle and horse) and medium (sheep/goat and pig) mammal bones.

Knife marks were often seen on the smaller carcasses of chicken, geese and rabbit, and on the areas of larger mammal bones where skinning and dismemberment of the joints took place, such as astragali and calcanea. Chop marks were more commonly seen in areas that would have been dismembered when breaking larger bones into manageable sized joints of meat. Transverse chopping of the shaft was commonly found on all long bones, and longitudinal chopping was seen on tibiae, calcanea, scapulae and humeri. No saw marks were noted.

This suggests that meat was brought to the site already cut into joints, rather than as sides of meat, or complete carcasses. The bones found are from the legs and body which would have a high meat yield, that is, more desirable cuts of meat, rather than bones from the lower legs which would have held little meat and were more commonly used for marrow and stock.

Animal Husbandry

Cattle

Cattle were the most common species in all phases, and showed a very slight increase in numbers with time. Because of the lack of mandibles in the assemblage, there was no useful tooth wear data available for ageing the cattle population, although all the loose teeth found were in wear, suggesting that animals between at least 0 and five years were present. More specific age indicators come from the fusion data as shown in Table 20. Although it is a small sample, all bones in the 11-12th century phase were fused, except for an unfused pelvis and distal humerus, indicating the presence of animals that died before reaching ten and 18 months, respectively. Of the two bones recovered from 15-16th century contexts that were useful for fusion data, one indicates the presence of a new born animal.

The 17-19th century period contained a significant amount of fusion data, which also indicates the presence of new born animals (Fig. 19). There were few animals that died before reaching 24 months, when there appears to be a significant cull of cattle between 24 and 36 months of age, when approximately half the population is culled. After this, animals appear to survive for another six months until a larger cull occurs at around 42 months of age, leaving only 30% of the population alive into adulthood.

There were two pathological first phalanges in the cattle assemblage, both of which were from the 17-19th centuries, and showed signs of bony growths consistent with trauma injuries common on animals used for traction (Dobney and Jaques 1997). Only one bone was complete enough for a shoulder height to be calculated, which came to 1.2m (using indices from Fock 1966). Although only one fragment of horn core was present in the assemblage, it is likely that the cattle represented at Tutbury were of the long horn species predominantly found throughout Staffordshire until the 19th Century (Anon 1973).

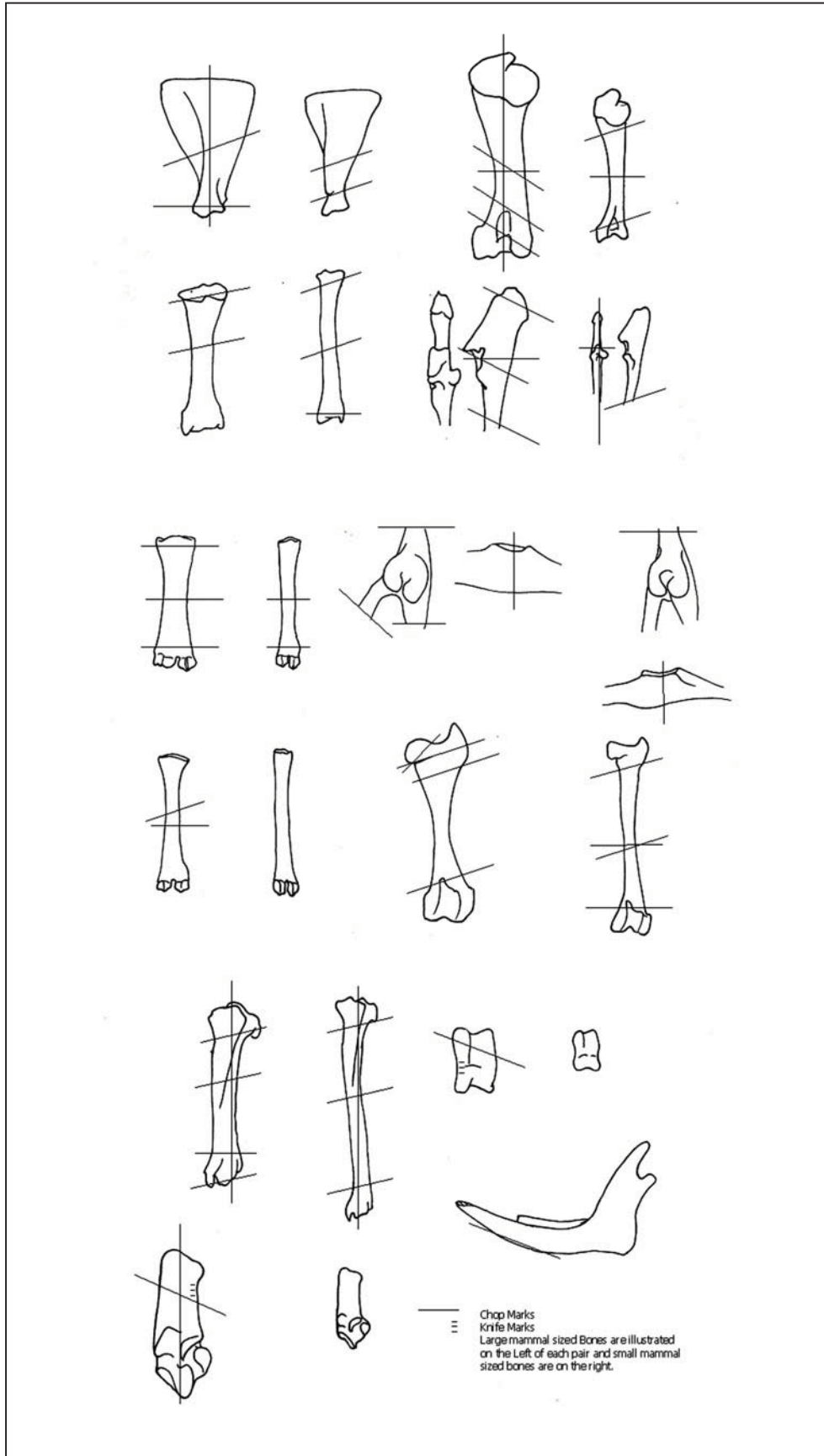


Fig. 18 Sites of common butchery marks on large and medium sized mammal bones

Table 13. Cattle fusion data

	AGE (months)	11-12th C		15-16th C		17-19th C		%
		F	U	F	U	F	U	
Metacarpal P	0					2		100
Metatarsal P	0	1			1	1	2	33
Scapula	7-8					7		100
Pelvis	7-10	1	1			1		100
1st phalange	13-15					7	1	88
Humerus D	15-18		1	1		9	1	90
Radius P	15-18	1				10		100
2nd phalange	18					6		100
Metacarpal D	24-36						2	0
Tibia D	24-30	3				7	2	78
Metatarsal D	27-36					3	1	75
Calcaneum	36-42	1				4	1	80
Ulna	42					1		100
Femur P	42	2				1		100
Humerus P	42-48					1	1	50
Radius D	42-48						1	0
Femur D	42-48					2	3	40
Tibia P	42-48					2	5	29
	Total	9	2	1	1	64	20	

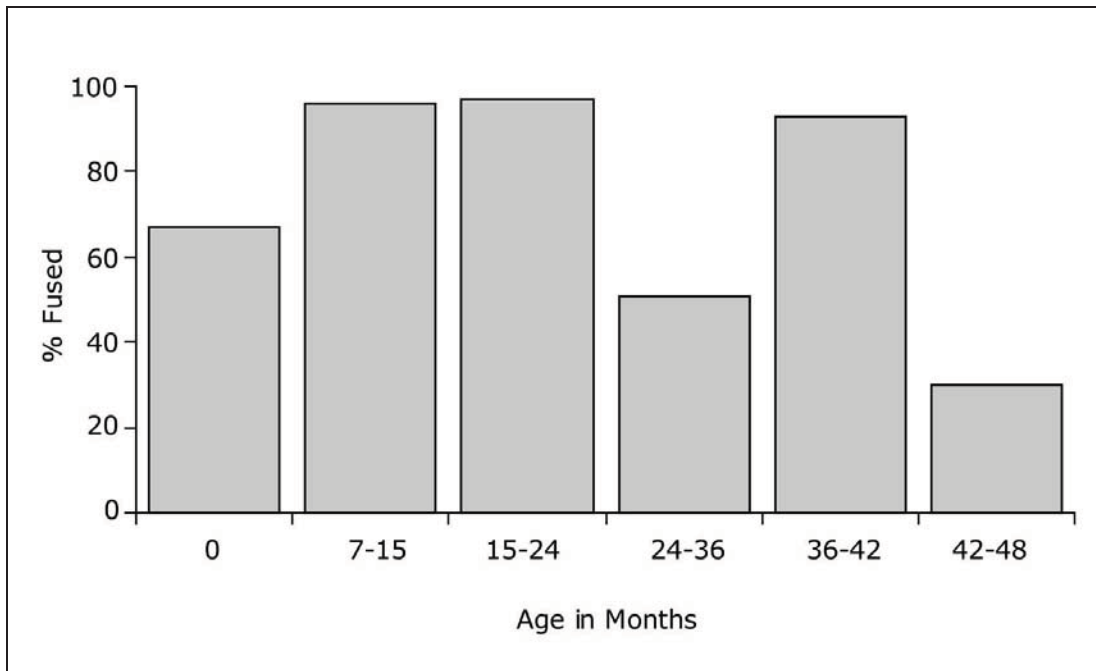


Fig. 19 Cattle fusion data: 17-19th centuries

The data suggest that some cattle were bred specifically for their meat to supply the inhabitants of the castle, as at around two years of age cattle are sufficiently well grown for a good meat yield, yet would not have been strong enough to be used intensively for traction. The presence of older animals suggests that there was a need in the surrounding area for traction or milk. Unfortunately, the absence of metrical data suitable for analysis of sexual dimorphism means that the presence of milking cows cannot be proved. However, historical documents from the time suggest that milk was an important resource (Anon 1973).

Sheep and Goats

The increase in numbers of sheep/goat through time coincides with the drop in pig numbers, and is also seen at Barnard Castle and Sandal Castle, where it is attributed to the growing importance of commercial wool production (Grant 1988). Both sheep and goats were identified in the 17-19th-century assemblage, of which sheep were nearly five times as common. As with the cattle assemblage very little tooth wear data was available, although one mandible was recorded with a tooth wear stage of 44, indicating the presence of an old animal. The fusion data was more abundant, as Table 14 shows.

The 11-12th-century data indicate the presence of an animal which died before reaching 36 months of age, but with this exception all other bones were fused. Only one bone was found in the 15-16th-century period, which indicates an animal that died over 24 months of age. The greatest amount of fusion data came from the 17-19th-century period, which shows that no animals died before reaching 20 months of age, and even though this marks the start of a small, but consistent cull of animals (Fig. 20), the majority of the assemblage were alive as mature adults. There were no neonatal animals in any of the phases.

A tibia with eburnation on the distal articular surface was found, indicative of joint degeneration, and a thoracic vertebra had bony growths on the anterior end, also indicative of degeneration. The pathological bones came from 17-19th-century contexts, as did the two bones which were complete enough for shoulder heights to be calculated (using indices from Teichert in Von Den Driesch and Boessneck 1974), of which a goat was found to be 66cm high, and a sheep 71cm high. There was no evidence for horned caprids, but this may be more a reflection of the absence of skull fragments rather than a definite absence within the sheep/goat population. However, the evidence from historical records indicate that by the 18th century only a native breed and newly introduced Leicester longwool were kept in Staffordshire, both of which were polled (Anon 1973).

The presence of predominantly mature sheep suggests they were important for wool production, a trend reflected in the Barnard Castle material. The lack of very young animals in the assemblage means they were probably not used for intensive dairy production. The presence of a small number of immature animals may be the result of a cull of animals excess to requirements, or supply on demand of better quality meat bearing animals. The absence of new born animals suggests that they were bred away from the castle, in the surrounding area.

Table 14. Sheep/goat fusion data

	AGE (months)	11-12th C		15-16th C		17-19th C		%F
		F	U	F	U	F	U	
Metacarpal P	0					2		100
Metatarsal P	0					4		100
Scapula	6-8	1				6		100
Pelvis	6-10	1				6		100
Humerus D	10	2				5		100
Radius P	10					6		100
1st phalange	13-16					2		100
2nd phalange	13-16							0
Metacarpal D	18-24					1		100
Tibia D	18-24	1				8		100
Metatarsal D	20-28			1		1	1	50
Ulna	30					2		100
Femur P	30-36		1			2		100
Calcaneum	30-36					4	3	57
Radius D	36					1	3	20
Femur D	36-42					2	2	50
Tibia P	36-42					3		100
Humerus P	36-42					3	1	80
Total		5	1	1	0	58	10	

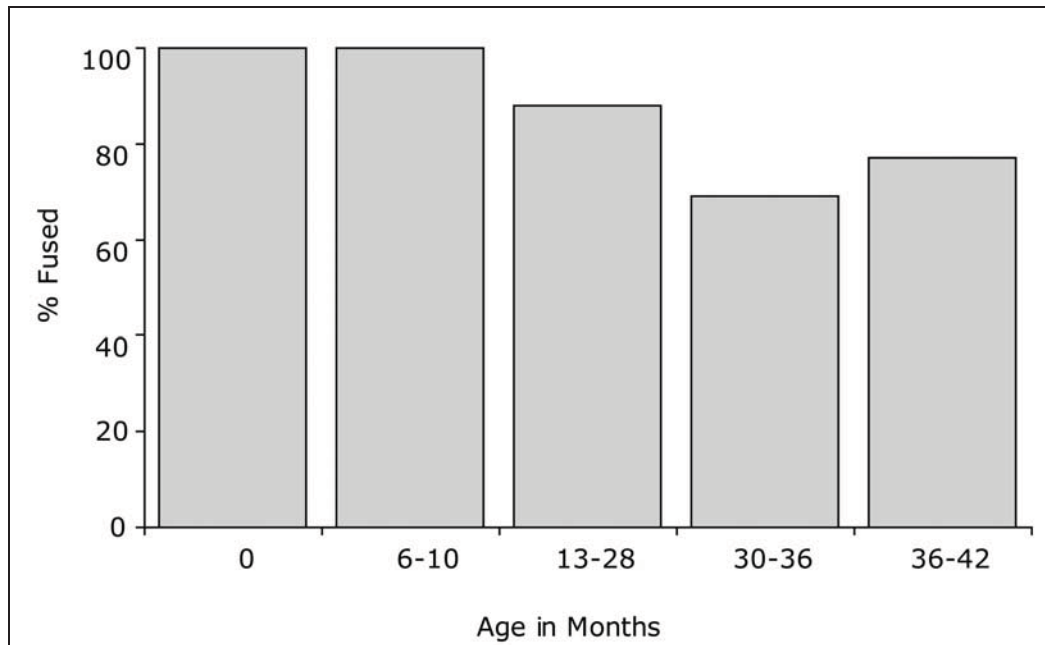


Fig. 20 Sheep/goat fusion data: 17-19th centuries

Pigs

The apparent decline in pig numbers on the site over time is reflected in other castle assemblages, such as Barnard Castle, Sandal Castle and Middleton Stoney (Levitan 1984). Pigs were traditionally kept for their meat, a trend which is implied in all phases at Tutbury castle, where the majority of bones recorded were unfused (Table 15). The fused bones in the 11-12th centuries came from animals under 24 months of age and those of the 17-19th centuries indicate animals less than 27 months old when they died. It is possible that pigs were kept on site in this phase, as the presence of a new born animal suggests, although it was common during the medieval period to allow pigs to forage in the forest (Grant 1988).

As with the other domestic animals, there is very little tooth wear data, although teeth and mandibles recovered from 17-19th-century contexts reveal animals that died around tooth wear stages one, 18 and 23, and from tooth eruption information, pigs which were 18-24 months and around 24 months at death, similar to the fusion data.

A fibula from a 17-19th-century context had been broken but re-healed during the animal's lifetime. Due to the high numbers of juvenile animals, and low numbers of complete bones, there was no metrical data suitable for further analysis.

Table 15. Pig fusion data

	AGE	11-12th C		15-16th C		17-19th C	
	(months)	F	U	F	U	F	U
Metacarpal P	0	2				2	
Metatarsal P	0	2				2	1
Scapula	12		1				1
Pelvis	12					2	
Humerus D	12						
Radius P	12		1		1		1
2nd phalange	12						
1st phalange	24		1				
Metacarpal D	24	2					2
Tibia D	24	2	1				1
Calcaneum	24-30						
Metatarsal D	27		1			2	1
Ulna	36-42		1				4
Humerus P	42						
Radius D	42		1		1		1
Femur D	42						3
Tibia P	42		1				
Femur P	42				1		2
	Total	8	8		2	8	17

Horse

There were very few horse remains recovered from the site, of which only two bones from 17-19th-century contexts were suitable for ageing, a proximal radius and distal humerus were both fused, indicating animals at least 15 months old at death. Although one ulna was recovered with evidence of knife marks on it, it is not likely that horse meat formed part of the diet of the inhabitants of this site.

Dog

All dog remains came from 17-19th-century contexts, and nearly all of these were fused, suggesting that most dogs were mature when they died. However, two unfused fragments were recorded, coming from animals less than six and 15 months old (Table 16).

A humerus from the 17-19th centuries was complete enough to give a shoulder height of 52cm, using indices from Harcourt (1974), this, and other measurements were within the ranges given for the dogs found at Barnard Castle.

Table 16. Dog fusion data

DOG	AGE (months)	17-19th C	
		F	U
Metacarpal P	0		
Metatarsal P	0		
Metatarsal D	5-6		
Metacarpal D	5-6		
1st phalange	5-6	1	
2nd phalange	5-6		
Pelvis	6	1	1
Scapula	6-8	1	
Humerus D	6-8	1	
Radius P	6-8	1	
Humerus P	12-18	1	
Tibia D	14-15	1	
Calcaneus	14-15		1
Ulna	15	1	
Radius D	16-18		
Femur P	18	1	
Femur D	18	1	
Tibia P	18	1	
Total		11	2

Cat

One cat incisor was recovered from a 17-19th-century context, indicating the presence of this species.

Birds

The most common bird found was the domestic fowl, or chicken, which was present in all phases, as were wader species – woodcock and lapwing. Geese and duck were found in 11-12th and 17-19th-century contexts. The latter period also has a greater range of other bird species such as crane, pigeon and swan, all of which would have formed part of the diet. Such high numbers and variety of species has also been noted at Barnard Castle and North Elmham Park.

Chickens, geese and maybe pigeons would have been kept and bred on site, implied by the number of unfused chicken and goose bones indicating that chicks were present. Other species would probably have been hunted in the surrounding rivers and marsh.

Wild Mammals

Red, fallow and roe deer and rabbits were present in similar numbers in 11-12th and 17-19th-century contexts, hare were also found in the later phase. Although not often found in significant quantities on many sites, deer are commonly found in high numbers on castle sites (Jones et al 1985), reflecting one of the popular pastimes of the elite, namely hunting,

which was probably carried out within wooded parts of Needwood Forest, which contained the Tutbury Ward (Underhill undated). The increase in numbers of fallow deer in relation to red is also seen at Barnard Castle.

All deer bones were fused, suggesting that they were from mature animals, a trend that was also noted at Barnard Castle. All antlers identified to species were from fallow deer, and two of the antler fragments were attached to the frontal bone of the skull, indicating they were not just collected as shed antlers, but were butchered from a carcass. Fallow deer were the most common species, as at Sandal Castle and were represented mostly by metapodia, but also phalange, tibia and femur fragments. Red deer were the next most common of the deer species, and were represented by pelvis, femur, tibia and metatarsal fragments. The presence exclusively of hind limb bones in the red deer assemblage is a trend also seen at Barnard Castle and Scarborough Castle. Roe deer remains were in the form of metacarpal and tibia fragments.

Rabbit bones were all fused, although the one hare tibia recovered was unfused, indicating a juvenile leveret. All lagomorph fragments came from limb bones.

Fish and shellfish

All fish and shellfish remains came from the 17-19th centuries, except for three fragments of mollusc shell dated to the 15-16th centuries. Unfortunately, the majority of fish remains were vertebrae or small fragments that were not suitable to be identified to species. Of the shellfish present, oysters were found in greatest numbers, but mussel and whelk were also present.

Status and Economy

Although the assemblage is not exceedingly large, there are a number of factors which point to trends in the status and economy of the site. There is no evidence for deposits of primary butchery or industrial waste on the site and this, coupled with the high percentage of burnt and butchered bones, suggests that the refuse is of a domestic nature, the result of kitchen and table waste, similar to that seen at Scarborough Castle.

Status

The presence of large numbers of pigs in the early medieval phase is an indicator of high status, and they are often seen in the greatest numbers on castle sites (Grant 1988). The large variety of species present, particularly the relatively high numbers of deer and wild fowl in the post-medieval period are also indicative of elite status. Of particular emphasis is the presence of woodcock, swan and crane in the assemblage, which have been linked to prohibitive legislation in Norman times, and consequently became high status foods (Albarella and Thomas 2002, and Sykes 2004).

Another indicator of status of a site comes from the cuts of meat in evidence from the faunal record, which in this case are predominantly from good, high yield meat bearing joints, suggesting the inhabitants could afford to eat the best meat available.

Economy

The presence of very few new born or very young cattle and sheep or goats on the site suggests that they were bred and reared away from the site. Pigs, chicken and geese, however, were represented by new born and very young animals, which implies they were kept within the site. Despite this, however, the economy of the site appears to be one of consumer, rather than producer, whereby animals were probably kept in the surrounding countryside, and used for secondary products as well as, or instead of, being reared only for meat production. This seems to be especially true of sheep, the majority of which were kept into old age, when their meat would have been tougher than when at their prime age of around two years old. This emphasises the importance of wool in the economy of the time. The production of cattle, however, seems to be attempting to balance the use of

animals for secondary products, against their importance for meat, seen in the compromise between younger and mature cattle in the faunal assemblage and is comparable to that seen at Sandal Castle.

Hunting would also have been an apparently important pastime to provide food for the table, and later for market (Jones et al 1985). The presence of deer and crane in particular would probably have been the focus of a day's hunting by the inhabitants of the castle. Fishing and trapping of rabbits and much of the wildfowl would probably have been carried out by servants, or bought in. The presence of these species implies the use of nearby forest and parkland for game.

Summary

The animal bones from Tutbury Castle emphasise the elite status of the site, reinforcing its importance as a consumer site, receiving beef and lamb from the neighbouring area and procuring wild mammals from the estate.

6 CONCLUSIONS AND FUTURE DIRECTIONS *BY MALCOLM HISLOP*

The 2005 season of archaeological work at Tutbury has added to the body of knowledge available from which to reconstruct the castle's form, function, history and economy, in addition to raising a number of questions that will influence the direction of future work on the site.

6.1 Non-Invasive Work

As the topographical survey of the inner and middle wards is now largely complete, it is intended to extend the survey to the rest of the castle over next year's season. That is to say, the outer bailey, the ditch around the inner bailey, the motte, the holloway between the middle and outer baileys, and the slopes of the hill on which the castle stands.

A significant extension to the survey of the castle itself was begun this season in carrying out the topographical survey of the Park Pale, part of more detailed study of the monument being undertaken by Mark Kincey as a separate undertaking to the student training programme. This is the first step in what is hoped to be a more extensive survey of the castle's setting and context. The preliminary results on the Park Pale suggest that there is a good deal of work to be done in interpreting the monument, through dating and the tracing of its full extent. This is unlikely to be achieved without excavation, and opportunities should be taken as they present themselves.

The resistivity survey in the middle bailey revealed three anomalies towards the northwest corner of the enclosure that could repay further investigation, though there are as yet no plans to follow them up. Resistivity has now been completed, as far as is currently possible, in the inner and middle baileys, and GPR in the inner bailey. The plans for next season, then, are resistivity in the outer bailey and GPR in the middle and outer baileys.

6.2 The Excavation

Area 1

The 2005 excavation indicated the potential for a high degree of medieval survival, the stone-lined gully, associated pavement, and adjacent deposits, which appear to date from this period, suggesting that the archaeological deposits are likely to be significant. The gully lies west of and parallel with a ditch, the east side of which was excavated during the 2004 season (Barratt and Hislop 2004). Investigations at that time revealed a 1m thick layer of compact clay and cobbles to the east of the ditch as far as the North Tower, quite different from anything that was uncovered in 2005 to the west of the ditch. The inference to be drawn is that the ditch provided a demarcation barrier between areas fulfilling quite

different functions. Unfortunately, the presence of an electrical cable prevented a straightforward extension of the 2004 trench to uncover the west side of the ditch and the adjacent stratigraphy, so that it has not yet been possible to firmly establish the relationship between the two areas of excavation. This is something that must be addressed before bringing the investigation of this area to a conclusion.

Proposals for future season, then, are likely to include opening up a larger area at the north end of Trench 1 in order to examine this potential area of relatively undisturbed medieval deposits, including further work on the gully and associated pavement, and linkage between the 2004 and 2005 trenches.

The foundations uncovered close to the supposed site of Queen Mary's lodging produced evidence for mid-17th-century demolition activity probably to be associated with the Civil War period. In general, both the clay pipes and the post-medieval pottery recovered from the 2005 excavations point to a period of dense occupation during the middle years of the 17th century, which includes the Civil War years, when it is known that Tutbury underwent a siege, after which the castle was slighted. The recovery of musket balls, and indications of shot production in the form of casting runners and solidified puddles of lead, provide further indications of Civil War activity. Civil War period finds were also prevalent in the 1980s excavations at the castle, and the indications from the archaeological evidence are that the siege marks an important hiatus in the occupation of Tutbury. This is entirely consistent with the historical record, which indicates that Tutbury never recovered its status as an occasional royal residence after the Civil War. So far, much of the 17th-century evidence is in the form of finds, and no structural phases have been recorded during the excavation, though it is worth noting that the King's Lodging of 1631-5, built against the medieval south curtain, represented a major architectural addition to the castle, indicating that during the mid-17th-century, quite apart from the Civil War years, Tutbury was far from moribund and may have contained other 17th-century developments.

Area 2

The large, apparently early, waterlogged feature discovered in Area 2 has the potential for a radical reinterpretation of the early castle. As its nature can only be speculated upon from the limited evidence it was possible to recover this season, it is clearly a candidate for further investigation, and it is intended that this will be another focus of the 2006 season.

Area 3

The most exciting aspect of the excavation on the motte (Area 3) was the uncovering in both trenches of the remains of substantial stone features, possibly representing a single structure. Motte-sited stone structures fall within a small range of categories, the most common of which is the shell keep, the replication in stone of the wooden palisade that almost invariably surrounded the summit of the motte in timber castles. Variations can be seen at Farnham, Surrey and Berkeley, Gloucestershire, where the motte itself is encased in a stone revetment, which is then carried up above the summit of the motte as a shell keep. Shell keeps are polygonal, circular or sub-circular in plan, but never rectangular, though some had rectangular towers projecting from them (e.g. Arundel and Tamworth). The earliest shell keeps probably date from the later 11th century, but most belong to the 12th century. Some, if not all, were tightly packed with buildings. At Windsor, the walls were lined with timber-framed apartments in the 14th-century, and Tamworth retains a 13th-century stone accommodation range and a 15th-century timber-framed hall (Meeson 1984)

The second principal category is the great tower, a type of building that has been associated with mottes since the 11th century, notably at Doué-la-Fontaine, Maine et Loire (Boüard 1975) one of the earliest of stone-built great towers, which had a motte added to it. In England too there are several instances of rectangular stone towers being encased in

mottes, Farnham in Surrey (Thompson 1960) and Okehampton in Devon (Higham 1977) being two 12th-century examples where the stratigraphical sequence seems to have been tower followed by motte. From the later 12th century through to the end of the 14th century, however, many an existing motte, previously devoid of a stone great tower, had one added to it (Hislop forthcoming)

Whereas the early examples had been rectangular in plan, the late 12th-century towers at Tickhill in Yorkshire, Richard's Castle in Shropshire, and Briquebec in Normandy, were polygonal, and the motte-sited great towers at Chartley in Staffordshire and Longtown in Herefordshire, both probably early 13th century, are cylindrical. Throughout the 13th century the circle-derived plan predominated, new towers being built, for example, on the mottes of York (1245-70) Winchester (1259-60), Hawarden (c. 1282) and Cambridge (1288). In southern England the trend continued into the 14th century with the construction of the great tower of Southampton Castle (1378), but in the Midlands the towers raised on the mottes of Dudley (between 1264 and 1320) and Stafford (1348) were given rectangular main blocks, albeit with corner turrets of cylindrical plan at Dudley and of octagonal plan at Stafford. These buildings were followed at Warkworth in Northumberland (c. 1395) by the most elaborate of all keeps to be built on top of a motte, this with a square plan with rectangular turrets projecting from all four faces.

What little archaeological evidence we have at Tutbury, tends to suggest a rectangular building. On the other hand, there are clear indications in the documentary sources that the motte was at one time surmounted by a cylindrical tower, the remains of which Somerville seems to have uncovered during his excavations on the motte in the 1950s, and that this tower was surround by a polygonal shell keep (pers. comm. Dr Gareth Williams). Clearly, here too, more work needs to be done, including a judiciously placed trench to locate Somerville's round tower, and the extension of Trench 3a towards the north in order to try and recover the full extent of the foundations uncovered in 1913 and relate them to the structures excavated in 2005, and. However, this season, the considerable post-medieval build up on top of the motte, together with the presence of the 18th-century tower, resulted in deep and restricted excavations from which it was possible to glean only limited information. For this reason, consolidation of the work on the motte may be best served by investigation of a less restricted area with a lesser degree of post-medieval overburden. It is hoped to continue the examination of the motte in an area on the south side which appears to fulfil these criteria.

6.3 Other Future Work

So far, little detailed work has been carried out on the standing buildings. Next year it is intended to begin an intensive programme of recording using a combination of laser scanning, reflectorless EDM survey and hand measurement, and to review the building recording carried out in the 1980s. A provisional assessment was undertaken by Steve Dean of Staffordshire County Council, who reported that the quality of the many large-scale drawings of the curtain wall and other buildings was variable. Whilst some were apparently detailed and accurate records, others seemed to be less reliable. A more comprehensive review is needed for the purpose of ascertaining the feasibility of using the 1980s records to contribute to the output of the current programme.

While this report was in preparation, an archive of unpublished notes and photographs relating to the excavations in the 1950s was discovered in the archives of the Duchy of Lancaster, together with a small number of objects from the excavations. The notes are fragmentary, and while this material has been used to inform the interpretation of the 2005 excavations as far as possible, more work is required to make sense of exactly what was uncovered in the 1950s. A detailed survey will therefore be made of this material prior to the next season of fieldwork, so that the findings from the 1950s excavations can be integrated more effectively into the current programme.

Within this archive, a number of areas can be identified in which excavations took place between 1955 and 1960 apart from those already mentioned. These include the chapel, the interior of the South Tower, a structure to the west of the chapel, a series of small trenches following the line of a stone causeway running north-south across the inner ward, and trenches towards the southern end of the inner ward, which uncovered structural remains in an area in which various phases of building are documented. The intention is to re-excavate these more fully in future seasons.

7 ACKNOWLEDGEMENTS

The Tutbury Castle research project was instigated by Mrs Lesley Smith, the castle's lessee and is under the direction of Dr Gareth Williams of the British Museum. The 2005 season was funded jointly by the British Museum and the University of Birmingham. Dr Malcolm Hislop directed the archaeological programme and Helen Martin-Bacon supervised the excavation assisted by Phil Mann of Birmingham Archaeology, Dr Gareth Williams and Richard Kelleher (on behalf of the British Museum) and Richard Bacon. Mark Kincey supervised the topographical and resistivity surveys, and Kate Bain the GPR survey. Twenty-nine students from Birmingham University took part in the training programme, which was monitored by Dr Chris Callow, Dr Mary Harlow and Dr Sally Crawford of the Institute of Archaeology and Antiquity. In addition, a number of volunteers took part in the excavation at various times, the majority being supplied to us and supported by the *Support Into Work* organisation of Derby. We are grateful to them and to the staff of Tutbury Castle for their interest and support. Ian George monitored the project for English Heritage and Ian Wykes for Staffordshire County Council.

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