



**WELSHBURY WOOD, FOREST OF DEAN, GLOUCESTERSHIRE
WORK CARRIED OUT BETWEEN 25 AUGUST 2017 AND 5 NOVEMBER 2017**

DEAN ARCHAEOLOGICAL GROUP

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1.0 SUMMARY

1.1 A small scale exploratory excavation was undertaken in 2017 by the Dean Archaeological Group (DAG) on two platforms identified on the north facing slope of Welshbury wood in the Forest of Dean, Gloucestershire.

1.2 Four trenches revealed evidence of a Romano-British iron smelting site dating from the late 3rd-4th century. No features or furnace bases were identified, only the waste products of that activity. Finds included both tap and furnace iron slag, furnace lining, charcoal, pottery and a substantial part of a lower rotary quern stone of Roman type. In close proximity to the site, two charcoal platforms were identified and a circular hollow (6m diameter and a maximum depth of 1.75m) probably used for the extraction of stone. None of these ancillary features could be dated.

1.3 The pottery assemblage consisted entirely of Romano-British coarse ware: Severn Valley, Dorset Black-burnished, a local Micaceous grey ware, handmade slab-built Malvernian ware and Imitation Black-burnished ware. The Malvernian sherds likely came from a Romano-British pre-fabricated oven.

2.0 INTRODUCTION

Site location

2.1 The site is located at NGR 367990 215760 on a moderate north facing slope of Welshbury Wood, approximately 180m from the north-east corner of Welshbury hillfort (Scheduled Monument). It lies on Forestry Commission land outside of the Scheduled Monument designated area, at approximately 135m AOD (Figs.1, 2 & 3).

2.2 Two roughly circular platforms separated by a drop of approximately 4m lie within an area of open deciduous woodland: predominantly young Birch and Small-leaved lime, but with mature trees also present. Undergrowth cover consisted largely of bracken and bramble together with a number of fallen trees. The platforms were largely clear of any vegetation, although the exact boundaries of the two platforms were difficult to determine. The upper platform was the larger of the two and its north-eastern quarter accommodated an abandoned badger sett with nine visible entrance holes. Five of these were located on the break of slope above the lower platform and the up-cast from the two entrances at the western end of that line contained iron slag. The slope itself had been much altered by up-cast from the Badger sett and a number of recent tree falls. The lower platform was smaller and its boundaries more discernible than its larger neighbour (Figs. 4, 5 & 6).

2.3 The underlying bedrock geology of the area is mapped as Lower Devonian Rocks (undifferentiated) - Sandstone and Conglomerate, Interbedded. Sedimentary Bedrock formed approximately 398 to 416 million years ago in the Devonian Period. Local environment previously dominated by rivers and alluvial fans (BGS on-line Viewer, 2018).

Site history

2.4 The Historic England List Scheduled Monument List entry (Number: 1018158) states that:

'The final form of Welshbury hillfort is consistent with a 'developed' hillfort dating to the Middle Iron Age period from c.300 BC, although some elements of the entrance construction have been paralleled with later Iron Age examples, c.100 BC - 50 AD. Welshbury hillfort and associated earthworks have been subject to a detailed survey by the Royal Commission on the Historical Monuments of England (RCHME) [1995] which has identified a sequence of landscape features dating from at least the Bronze Age to the beginning of the Roman period ...'

2.5 Immediately to the north-east of the hillfort (Glos. HER 5161) lidar has identified terraces and low banks that may have formed large rectilinear enclosures, potentially prehistoric or Roman in date (Glos. HER 43394). If so, these may be associated with a hillfort field system. The two platforms lie within the area covered by Glos. HER 43394.

2.6 In 2015-16 a small scale exploratory excavation within Welshbury Hill Fort was undertaken by Dean Archaeological Group. One trench revealed a shallow u-shaped ditch but with no Iron Age artefacts or evidence of ditch infill from that period. However, both Roman (mid-3rd to late-4th century AD) and medieval (mid-13th to mid-14th century AD) pottery fragments were recovered from the lower layers of the ditch soil infill (DAG, 2017).

3.0 OBJECTIVES

3.1 To understand and date any activity at this location through the identification of features and the recovery of datable artefacts.

4.0 METHODOLOGY

4.1 All trenches were hand dug and all finds recorded. Excavation was undertaken stratigraphically and planned to be taken down to bedrock. Written and drawn records were kept and a photographic record was maintained throughout. No palaeoenvironmental samples were taken; DAG does not have the resource to undertake such work.

4.2 Four trenches were excavated. Trench 1 (6m long by 1m wide) was opened at the southern end of the upper platform along a NNE- SSW axis to a variable depth of between 0.15m and 0.25m. The trench was extended by a further 1m at the northern end to a depth of 0.31m and then again by a further 1m, plus two 1m by 1m lateral extensions to form a final 'T' shape. The head of the trench was located just above the break of slope with the lower platform and between the two badger sett entrances that had iron slag in the up cast material (Fig. 7).

4.3 Trench 2 (1m by 1m) was excavated in the centre of the lower platform, then extended by 1m to the north and 1m to the west to form an 'L' shape. Trench 3 (also 1m by 1m) was excavated at the eastern edge of the lower platform.

4.4 Approximately 20m south-west of the upper platform a circular hollow was located on the north facing slope with up-cast to a height of 1.75m on the downward side. The feature measured approximately 6m in diameter and 1.75m at its greatest depth. A break in the up-cast on the western side suggested an entrance way. Trench 4 (1m by 1m) was excavated in the centre of the hollow.

4.5 The site archive (including artefacts) will be deposited with the Dean Heritage Centre.

5.0 RESULTS

Fieldwork

5.1 The excavation commenced on 25 August 2017 and completed on 5 November 2017. The work was not continuous and was carried out mainly at weekends dependent on weather and availability of personnel. No features were identified in any of the trenches. Summaries of the recorded contexts, finds and trenches are at Appendices 1, 2 and 3 respectively.

5.2 A scattering of iron slag on the surface of the upper platform suggested activity connected with iron smelting. Although a few small pieces of iron slag were present on the surface of the lower platform it was observed that the majority of these were likely to have rolled down the slope from the upper platform as part of the up-cast from the badger sett. Two charcoal platforms (each approximately 4m in diameter) were identified near to the upper platform (south-east and south-west respectively) but were not investigated further.

5.3 Before excavation began one small sherd of Dorset Black-burnished ware, a small piece of struck flint and a broken metal knife blade were found on the upper platform surface. The blade was found close to one of the badger sett entrances and may have been deposited from the up-cast.

Trench 1

5.4 The latest deposit encountered (generally 0.03m thick) was a loose mid-brownish brown silty loam topsoil with occasional flat angular limestone fragments (100). This layer yielded tap slag, furnace slag and one small fragment of fired clay, later interpreted as furnace lining. Sealed by the topsoil was a deposit of dumped material (102) at the northern end of the trench, and a subsoil (101) consisting of a compact mid-orangey orange silty clay with flat angular limestone fragments in the rest of the trench. Excavated to a depth of between 0.15m-0.40m context 101 contained Romano-British coarse ware pottery, tap and furnace slag, charcoal, and one small struck flint. Dump 102 (approximately 1.5m in diameter and 0.25m thick) comprised of Romano-British coarse ware pottery, iron slag, fragments of furnace lining and a large quantity of medium-large unburnt angular limestone fragments. The position of the dump is marked on the site plan (Fig. 4). The stratigraphic

division between 101 and the natural substrate could not be clearly determined. Consequently, the composition of the natural substrate (103) was recorded as per 101. No finds were recorded from 103 which was identified 0.43m below the current ground level. The assemblage from trench 1 is consistent with the waste products of bloomery iron smelting.

Trench 2

5.5 The topsoil (approximately 0.19m thick) consisted of a moderately compact light brownish brown silty loam containing flat angular limestone fragments (200). This layer produced Severn Valley ware, tap slag, a quantity of unburnt angular limestone fragments and a substantial part of a lower rotary quern stone of Roman type (Fig 8). This sealed a subsoil consisting of a moderately compact mid-orangey orange silty clay with flat angular limestone fragments (201). Excavated to a depth of 0.04m no finds were recovered and it was concluded that this subsoil was the natural substrate.

Trench 3

5.6 The topsoil was a moderately compact light brownish brown silty loam with flat limestone angular stones (300). Excavated to a depth of 0.15m it contained three sherds of Severn Valley ware, three of Dorset Black-burnished ware, tap slag and one small fragment of charcoal. All of the finds were recovered near the top of 300 and it was decided, partly due to time constraints, not to excavate further.

Trench 4

5.7 The topsoil composed loose mid-brownish brown silty loam with small flat angular limestone fragments, excavated to a depth of 0.20m (400). No finds were recorded but a triangular shaped broken limestone slab (0.54m x 0.40m x 0.22m) was uncovered and when lifted revealed a small pocket of clean small stones in the soil. It is not clear if this was a natural deposit. Due to time constraints, no further excavation was undertaken. The hollow was probably used for the extraction of stone. No dating evidence was found but given its close proximity to the platforms it may have been associated with the process of iron smelting during the Roman period.

The Finds

Pottery

5.8 The assemblage consisted of 233 sherds weighing 2213g, giving an average sherd weight of 9.5g (see Appendix 4). The condition was generally poor with abraded surfaces and rounded worn edges. All of the pottery recovered was identified as Roman-British coarse ware, dated to the late 3rd-4th century and made up of five fabrics:

- Dorset Black-burnished ware (DORBB1)
- Severn Valley ware (SVWOX)
- Micaceous greyware (MICGW)

- Malvernian handmade (MALREAs)
- Imitation Black-burnished ware (BBIM)

5.9 SVWOX sherds were recovered from trenches 1, 2 & 3, DORBB1 from trench 1 and 3, and the remaining three fabrics from trench 1 only.

5.10 Rim and base sherds were recovered of which the most notable was a complete 0.14m diameter SVWOX storage jar base made up of four sherds. Two SVWOX rim sherds were also found to be from another single vessel. Three DORBB1 body sherds were from the same vessel (bowl) and thirteen sherds had obtuse hatching decoration.

5.11 The MALREAs sherds were identified as Worcestershire fabric 3.1 – *Handmade slab-built Malvernian ware* (late 3rd to 4th century) and likely to have been part of a Romano-British pre-fabricated oven.

5.12 The nine BBIM sherds found in trench 1 are, possibly, Gloucestershire fabric TF11c provisionally dated to the 4th century and of local production. The sherds are very similar to Worcestershire fabric 149 - *Worcestershire imitation Black-Burnished ware* dated to the late 4th century but analysis has shown that the inclusions do not match.

Other Finds

5.13 A substantial fragment (diameter 0.38m, maximum thickness 0.09m) of a lower rotary quern stone of Roman type was recovered from context 200. Made from Upper Old Red sandstone with quartz conglomerate the grinding surface was worn with no pecking or grooves visible (Fig. 9).

5.14 On the surface of the upper platform a fragment of a single bladed corroded metal knife (0.11m long, maximum width 0.02m) was found together with a small piece of struck flint (diameter approximately 0.02m). A second struck flint (diameter approximately 0.02m) was recorded in context 101. A large quantity of flat angular limestones fragments were also recovered; none showed any sign of burning.

Iron Slag

5.15 A total of 379.65 kg of iron slag was recovered from the site made up of tap slag (357.85 kg) and furnace bottom slag (21.8 kg). The tap slag also included approximately 20 fragments of slag runners (all from trench 1) ranging from 0.07m – 0.200m in length and 0.02m- 0.03m deep. It was difficult to determine the cross-section of the tapping channel from these fragments, but some indicated a U-shaped profile. All of the furnace bottom slag was recovered from context 101 (Appendix 5 and example at Fig.10).

Furnace Lining

5.16 Fragments of baked clay, identified as bloomery furnace lining material, were recovered from trench 1, mainly oxidised red but two pieces were a reduced grey colour. Two fragments (one oxidised and one reduced) had iron slag fused to them.

Charcoal

5.17 A small quantity was recovered from contexts 101 and 300.

6.0 CONCLUSIONS

6.1 The site consisted of two platforms separated by a drop of approximately 4m, with two identified charcoal platforms and a small stone quarry in close proximity. All of these features can be associated with the production of bloomery iron smelting. However, no artefacts were found to date the construction of any of these five elements and it cannot be determined if any of them were used concurrently.

6.2 Similarly, it is not possible to state if the two platforms were built for the purpose of iron smelting or were adapted from an earlier field system associated with the neighbouring hillfort. The upper platform in particular sits on a relatively level area of the hillside and may be a natural feature; the edges are indistinct and the cleared area could have been much larger in antiquity.

6.3 The finds recovered from the dump of material found in trench 1 were interpreted as waste products from the operation of one or more bloomery iron smelting furnaces. Moreover, some of the ceramic sherds were found to belong to the same vessels indicating that the material may have been deposited in a single event. The ceramic assemblage dated the deposit to the late 3rd-4th century; a date consistent with that attributed to nine sherds (all from the same vessel) of an Oxford colour coated fabric excavated from the infill of one of the Welshbury hillfort ditches (Izzard, 2017).

6.4 Only two Roman coarse ware fabrics were recovered from the lower platform together with a broken lower rotary quern stone of Roman type. The two fabrics were DORBB1 and SVWOX providing a date range from mid-1st-4th century. Consequently we cannot be certain that the two platforms were used together during the Roman period.

6.5 The composition of the finds recovered from trench 1 are evidence of bloomery iron smelting somewhere close by. The waste material was deposited at the northern, and lower, edge of the upper platform so it is reasonable to assume that the hearth, or hearths, lie towards the southern end of the platform if for no other reason that is it is easier to transport waste material downhill. The amount of iron slag (but no ceramics) found in the up-cast from two of the Badger sett entrances immediately adjacent to trench 1 may suggest that there are other waste dumps in the vicinity.

6.6 All of the ceramic material recovered was associated with cooking and the storage of food and it is likely that any built structures to support that activity also lie towards the southern end of the platform.

6.7 Based on the evidence, our interpretation is that this is a late 3rd-4th century Romano-British bloomery smelting site.

7.0 ACKNOWLEDGEMENTS

7.1 Dean Archaeological Group would like to thank the West England Forest District, Forestry Commission for allowing us to excavate the site. We would also like to acknowledge the time, advice and assistance given by Jon Hoyle, Anna Morris and James Tongue, Gloucestershire County Council Archaeology Service and Andy Walsh and Rob Hedge at Worcestershire Archaeology.

7.2. The excavation was directed by Phil Riches and this report was written by John Izzard. Phil Riches also produced the photographic record and the excavators were: Phil Riches, Ken Eames, Stuart Cox, Ian Dean, Adela Arga, Marlene Wilkinson and John Izzard.

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Appendix 1: Context Register

Trench 1	
100	Topsoil. Loose mid-brownish brown silty loam, occasional flat angular limestone fragments. Iron slag, furnace lining. 0.03m thick.
101	Subsoil. Compact mid-orangey orange silty clay, flat angular limestone fragments. Pottery, iron slag, furnace lining, charcoal, struck flint. Excavated to a depth of between 0.15m-0.40m.
102	Dump of material. Romano-British coarse ware pottery, iron slag, fragments of furnace lining, medium-large unburnt angular limestone fragments. Approximately 1.5m in diameter and 0.25m thick.
103	Natural Substrate. Compact mid-orangey orange silty clay, flat angular limestone fragments.
Trench 2	
200	Topsoil. Moderately compact light brownish brown silty loam, flat angular limestone fragments. Pottery, quern stone, iron slag. 0.19m thick.
201	Natural substrate. Moderately compact mid-orangey orange silty clay, flat angular limestone fragments. Excavated to a depth of 0.04m.
Trench 3	
300	Topsoil. Moderately compact light brownish brown silty loam, flat angular limestone fragments. Pottery, iron slag. Excavated to a depth of 0.15m.
Trench 4	
400	Topsoil. Loose mid-brownish brown silty loam, flat angular limestone fragments. Excavated to a depth of 0.20m.

Appendix 2: Finds List

Context	Category	Count	Weight(g)	Date
Surface	Romano-British pottery: coarse ware	1	7	Roman
	Struck flint	1	5	
	Knife blade	1	34	
100	Furnace lining	1	6	
	Metallurgical residues: smelting slags	-	14.6kg	
101	Romano-British pottery: coarse ware	5	32	Roman
	Struck flint	1	7	
	Charcoal	31	24	
	Metallurgical residues: smelting slags	-	1.4kg	
102	Romano-British pottery: coarse ware	207	2091	Roman
	Furnace lining	41	215	
	Metallurgical residues: smelting slags	-	355.6kg	
103	Nil			
200	Romano-British pottery: coarse ware	14	36	Roman
	Part of lower rotary quern stone	1	-	
	Metallurgical residues: smelting slags	-	1.25kg	
201	Nil	-	-	
300	Romano-British pottery: coarse ware	6	47	Roman
	Charcoal	1	1	
	Metallurgical residues: smelting slags	-	6.8kg	
400	Nil	-	-	

Appendix 3: Trench list

Trench	Description
01	(NGR 67967 15746) (NNE- SSW orientation) 8.5m long by 1m wide. Expanded at NNE end with two 1m by 1m lateral extensions to form a 'T' shape. 0.43m max depth.
02	(NGR 67986 15756) (NNE- SSW orientation) 2m long by 1m wide. Expanded west at northern end with a one 1m by 1m lateral extension to form an 'L' shape. 0.23m max depth.
03	(NGR 67988 15755) 1m by 1m. 0.15m max depth.
04	(NGR 67947 15744) 1m by 1m. 0.20m max depth.

Appendix 4: PotteryTotal for excavation

	Fabric	Description	Wt.(g)	%	No.	%
Regional	DORBB1	Dorset Black-burnished ware	322	14	59	25
Local	SVWOX	Severn Valley ware	1452	66	136	58
	MICGW	Micaceous greyware	102	5	8	4
	MALREAs	Malvernian handmade	265	12	21	9
	BBIM	Imitation Black-burnished ware	72	3	9	4
Total			2213		233	

Surface find

	Fabric	Description	Wt.(g)	No.
Regional	DORBB1	Dorset Black-burnished ware	7	1

Total for context (101)

	Fabric	Description	Wt.(g)	No.
Regional	DORBB1	Dorset Black-burnished ware	12	2
Local	SVWOX	Severn Valley ware	20	3
Total			32	5

Total for context (102)

	Fabric	Description	Wt.(g)	No.
Regional	DORBB1	Dorset Black-burnished ware	263	53
Local	SVWOX	Severn Valley ware	1389	116
	MICGW	Micaceous greyware	102	8
	MALREAs	Malvernian handmade	265	21
	BBIM	Imitation Black-burnished ware	72	9
Total			2091	207

Total for context (200)

	Fabric	Description	Wt.(g)	No.
Local	SVWOX	Severn Valley ware	36	14

Appendix 4: Pottery (continued)Total for context (300)

	Fabric	Description	Wt.(g)	No.
Regional	DORBB1	Dorset Black-burnished ware	40	3
Local	SVWOX	Severn Valley ware	7	3
Total			47	6

Rims

Fabric	Diameter (m)	Form	Vessel
DORBB1	1 x 0.12, 1 x 0.16,	Everted	Storage Jar
DORBB1	1 x 0.12	Cavetto	Storage Jar
SVWOX	1 x 0.10, 1 x 0.12	A.1 ⁽¹⁾	Storage Jar
MALREAs	1 x 0.20	-	Pre-fab. oven
BBIM	1 x 0.10 (approx.)	-	Not known

Note:

(1) Webster, P., *Trans BGAS94* (1976), 18-46.Bases

Fabric	Diameter (m)	Vessel
SVWOX	1 x 0.14 ⁽¹⁾	Storage Jar
MICGW	1 x 0.10 ⁽²⁾	Storage Jar

Note:

(1) One complete base of four sherds.

(2) Two sherds – may be from two 100mm diameter vessels.

Appendix 5: Iron Smelting Slag – Furnace BottomContext (101)

Dimension (Approx.) (m)	Maximum depth(m)	Weight (kg)
0.27 x 0.17	0.07	4.2
0.22 x 0.16	0.07	3.4
0.17 x 0.10	0.08	3.1
0.25 x 0.14	0.10	5.8
0.28 x 0.20	0.08	5.3
		Total: 21.8

Note:

- (1) All of these fragments had a concave profile but none were complete.