

Ancient Monuments Laboratory
Report 175/87

THE IRONWORKING RESIDUES FROM
TANNER ROW, YORK.

J G McDonnell BTech PhD MIFA

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Summary

The residues recovered from excavations in Tanner Row, York were identified as having derived from the iron smithing process, except for one piece of iron smelting slag. The residues were widely distributed and are regarded as background levels of slag.

Author's address :-

Department of Mechanical & Production Engineering
University of Aston
Aston Triangle
Birmingham
B4 7ET

021 359 3611 x4314

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The material termed 'slag' was classified, using morphological criteria, into six types: smithing slag, hearth bottoms, smelting slag, cinder, hearth lining and fuel ash slag. The first three types are the diagnostic slags which are derived solely from the ironworking process. The last three are the non-diagnostic slags which may derive from any pyrotechnological process, although cinder is normally derived from an ironworking process.

A total of 5.5kg of slag was recovered from the Tanner Row Site. A listing of the quantities of each slag type by Trench, Period and Context Number is given in Appendix 1 (weight in grammes). Appendix 2 is a summary of the slag by Period, and Appendix 3 gives the date ranges of the Periods.

The smelting slag was a small piece of tap slag (Context 1060, weight 40gm) and was intrusive, and is of no significance. The smithing slag and hearth bottoms (plano-convex accumulations of smithing slag) were cindery in appearance, indicating a lower than average iron oxide to silica ratio. The weight of cinder in proportion to the diagnostic slags was high. These two factors suggest that the slag classed as cinder did derive from the ironworking process, rather than from any other process. The quantity of hearth lining in proportion to the diagnostic slags was also high, noting that the overall density of hearth lining is considerably lower than that of the diagnostic slags. The fuel ash slag may also have derived from the iron working process, but the amount is not significant.

Therefore, the residues derived from the iron smithing

process (the manufacture and repair of artefacts), rather than from the smelting process (the extraction of the metal from the ore). The residues occurred as a number of small deposits rather than in concentrated areas, the largest deposits being in Trench 3 during Phase 2 (0.530 kg) and Phase 4 (0.580 kg) of Period 3. These quantities of slag are considered to be background levels, i.e. small amounts brought onto the site by accident or on purpose e.g. as hard core or in-filling material.

Conclusion

The slags recovered from the Tanner Row Site can be ascribed to the smithing process, except for a single piece of smelting tap slag. The evidence does not indicate that smithing was practiced on the site, but that they represent background levels of slags.

APPENDIX 1

TANNER ROW SLAG LISTING BY TRENCH, PERIOD, PHASE
AND CONTEXT NUMBER

HEADINGS

Context - Context Number
 Period - Period (1 - 13, see Appendix 3)
 Phase - Sub-division of Periods
 Smith - Quantity of smithing slag and hearth bottoms
 Smelt - " " smelting slag
 HL - " " hearth lining
 Cin - " " cinder
 FAS - " " fuel ash slag
 (All weights in grammes)

* TOTAL IN TRENCH: 0 (NOT LOCATED)

CONTEXT	PERIOD	PHASE	SMITH	SMELT	HL	CIN	FAS
0			40	0	0	20	0
1383	5	2	40	0	0	0	0
1336	6		50	0	0	0	0
** Subtotal **			130	0	0	20	0

* TOTAL IN TRENCH: 1

CONTEXT	PERIOD	PHASE	SMITH	SMELT	HL	CIN	FAS
1403	4	0	0	0	110	0	0
1406	4	0	275	0	20	20	0
1363	5	2	0	0	80	0	20
1389	5	2	130	0	0	0	20
1391	5	2	130	0	0	0	0
1392	5	2	0	0	0	70	0
1396	5	2	0	0	0	30	0
1398	5	2	0	0	30	20	0
1194	7	1	0	0	100	0	0
1119	10	0	0	0	50	0	0
1053	11	0	20	0	0	0	5
1057	11	0	0	0	0	15	0
1060	11	0	0	40	0	0	0
1091	11	0	0	0	0	0	5
1529	99	99	0	0	0	0	10
** Subtotal **			555	40	390	155	60

APPENDIX 1 CONTINUED

* TOTAL IN TRENCH: 2

CONTEXT	PERIOD	PHASE	SMITH	SMELT	HL	CIN	FAS
2485	2	1	0	0	0	5	0
2457	3	2	60	0	0	0	0
4225	3	3	30	0	0	30	0
2345	3	4	0	0	0	0	5
2386	3	4	0	0	0	5	0
2427	3	4	0	0	30	10	0
2260	4		0	0	0	0	10
2265	4		0	0	10	0	0
2318	4	0	475	0	60	295	51
2369	4		0	0	30	0	0
2414	4		25	0	0	0	10
2415	4		0	0	0	340	0
2208	5	1	0	0	0	0	5
2241	5	1	0	0	0	20	0
2341	5	1	0	0	10	0	0
2188	5	2	0	0	5	0	0
2202	5	2	5	0	0	0	0
2148	6		200	0	0	0	0
2070	8	1	0	0	0	0	5
2006	11	0	0	0	0	0	10
3020	11	0	0	0	0	20	0
3037	11	0	5	0	0	0	15
2005	12	0	0	0	0	0	5
2486	99	99	0	0	0	0	5
** Subtotal **			800	0	145	725	121

* TOTAL IN TRENCH: 3

CONTEXT	PERIOD	PHASE	SMITH	SMELT	HL	CIN	FAS
3383	2	2	0	0	0	10	0
3362	2	3	0	0	225	180	0
3379	2	3	0	0	0	0	1
3343	3	2	140	0	0	50	0
3361	3	2	160	0	20	0	0
3393	3	2	230	0	0	0	0
3292	3	3	0	0	40	0	0
3239	3	4	0	0	40	0	0
3057	8	2	0	0	0	0	5
3109	8	2	0	0	80	0	0
3017	11	0	0	0	0	0	1
3024	11	0	0	0	0	0	5
3001	12	0	0	0	0	0	5
3005	12	0	10	0	0	0	0
3408	12	0	5	0	0	0	0
** Subtotal **			545	0	405	240	17

APPENDIX 1 CONTINUED

* TOTAL IN TRENCH: 4				SMITH	SMELT	HL	CIN	FAS
CONTEXT	PERIOD	PHASE						
4277	3	1		0	0	50	0	0
4215	3	3		0	0	0	30	0
4220	3	3		30	0	0	0	0
4171	3	4		0	0	0	30	0
4201	3	4		580	0	0	0	0
4202	3	4		0	0	0	0	50
2420	4			25	0	0	0	0
4155	7	1		0	0	0	40	0
4156	7	1		0	0	0	250	0
4161	7	1		0	0	10	40	0
4087	11	0		0	0	0	0	10
** Subtotal **				635	0	60	390	60
** Total **				2665	40	1000	1530	258

APPENDIX 2

TANNER ROW SLAG LISTING BY PERIOD

PERIOD	SMITH	HB	SMELT	HL	FAS	CIN
UNPHASED	40	0	0	0	15	20
2	0	0	0	225	1	195
3	420	810	0	180	55	155
4	50	750	0	230	71	655
5	305	0	0	125	45	140
6	250	0	0	0	0	0
7	0	0	0	110	0	330
8	0	0	0	80	10	0
10	0	0	0	50	0	0
11	25	0	40	0	51	35
12	15	0	0	0	10	0
TOTAL	1105	1560	40	1000	258	1530

APPENDIX 3 DATE RANGES OF PERIODS

PERIOD	DATE
1	Pre-occupation
2	Second Century
3	" "
4	Late Second - Early Third Centuries
5	" " " " "
6	" " " " "
7	Early Third Century
8	Fourth Century
9	Eleventh - Twelfth Centuries
10	Twelfth - Early Thirteenth Centuries
11	Twelfth - Thirteenth Centuries
12	Early Thirteenth Century
13	Modern