

Note on the registered finds and bulk nails and leather from the 257 Crossrail Central Broadgate ticket hall evaluation (XSM10 batch 1)

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1.1 Introduction

The first batch of finds from XSM10 includes both bulk and accessioned material summarised in table 1. The assemblage is discussed below by period followed by a catalogue of the finds. More material has been recovered from the site but will be dealt with separately and as such the conclusions made here may need to be extended or modified accordingly in light of future work. The accessioned glass, clay tobacco pipes and building material is reported on separately.

A small number of finds is also undergoing conservation work which are not yet discussed here. These are <4>, [3] a copper-alloy token, two tortoise shell objects <3>, [20], <50>, [3], two ivory objects <51>, [3] and <2>, [20] and two bone/iron composite objects <1>, [20] and <52>, [3]. This material is included in the summary totals below and will be added to this document after it has been examined.

Material	Roman	Medieval	Post Medieval	Unknown	Material total
Iron	5	0	1	1	7
Copper-alloy	2	0	0	2	4
Lead	0	0	0	1	1
Silver	1	0	0	0	1
Bone	0	2	43	1	46
Ivory	0	0	3	0	3
Tortoiseshell	0	0	2	0	2
Composite	0	0	2	0	2
Ceramic	0	0	1	0	1
Period total	8	2	52	4	67

Table 1 Summary of batch 1 accessioned finds excluding post Roman coins, glass, clay tobacco pipes, stamps and building material

Context	Period	No nails
227	Unknown	3
239	Unknown	1
300	Roman	32
Total		35

Table 2 Number of bulk iron nails from XSM10batch 1 by context and period

Context	Period	Fragments
309	Unknown	1

Table 3 Number of bulk leather fragments from XSM10 batch 1 by context and period

1.2 Discussion

1.2.1 Roman

A small group of Roman finds were recovered from the excavation, all of which seem to be concentrated in context [300] which has a useful *terminus post quem* in the form of a silver denarius of Severus Alexander <85> dating AD 228-31 which may help to refine or support any associated pottery dates.

Three iron styli came from this group: two examples of Manning type 2/3 <91> and <92> and <88> a decorated example of Manning type 4 (1985, 85.) These provide evidence of literacy in the area. The remainder of the iron is structural. <90> is probably a type 2 nail and <93> was a double spiked loop. 35 iron nails were also recovered from this context in a variety of sizes. The lengths of the measurable examples are recorded in table 4 below.

Two copper-alloy objects were also recovered from this context. The first is a strip perforated at each end with a wire loop end threaded through one perforation <86>. Its function is obscure but it is possible it could have been some sort of tie or binding. The more interesting of the two <87>, [300] is a flat plate consisting of two perforated circles joined by a lozenge shaped panel. No exact parallel for this object is known although the style of concentric circle decoration is well known in the Roman period. Arguably this is not a single object at all but two unfinished circular mounts joined by a fragment of the sprue and trimmed off a larger run of studs. They were presumably discarded when it was noticed that one of the two is not well formed. If this is accepted it provides evidence for sheet metalworking in the area.

Length of Nail in mm	Number of nails
40	1
46	1
52	4
54	1
55	2
56	1
60	1
61	1
63	1
65	2
67	1
69	1
79	1
90	4
92	2
101	1

Table 4 Approximate lengths of measurable Roman nails from Context [300]

1.2.2 Medieval

There are only two probable medieval finds from the site, two bone skates <70> and <71> come from the same context [230] and are of the same basic form. Both are made from cattle bones, although they are of different elements and clearly do not form a pair. These objects cannot be closely dated, ranging in period from the Bronze Age to the 19th century in some parts of Northern Europe (MacGregor 1985, 141-4), however they do not tend to be found in Roman contexts in this country and the most common range for dated examples from England is the 8th to 13th century (MacGregor 1976.) This is the most likely date range for these examples, subject to confirmation from their stratigraphic relationships and associations.

1.2.3 Post-medieval

The post-medieval material is overwhelmingly dominated by waste from the manufacture of artefacts of bone and other skeletal materials (see table 2 below). The presence of this material is not surprising as the eastern part of the late medieval and post-medieval city is a known focus for leather, bone, ivory and horn working (Yeomans 2007.)

The raw material used is overwhelmingly cattle long bones, specifically metatarsals, although individual fragments of cattle metacarpal <39>, [4], elephant ivory <18>, [1], antler <26>, [20] and sheep or goat metatarsal <29>, [20] are also known as well. It is unlikely that this reflects the true usage of raw material at the site as the different types of waste produced and attempts to work more economically in imported materials like ivory will have skewed the relative proportions. No long bone epiphyses are present and sawn marks on only one face of many of the offcuts suggests these were sawn off, presumably at an earlier stage of processing and possibly in a different location. A plentiful source of bones in this condition would be the tanneries in London and Southwark where metatarsals and metacarpals with sawn off ends are a characteristic waste product (Yeomans 2007, 110-12)

Most waste appears to come from the working of metatarsals on a lathe. The most frequent waste product is ring-like transverse off cuts from the ends of the bones objects between and after stages of working. The bones were roughly scrapped with a coarse file before being more finally scrapped and shaped with a flat bladed instrument like a knife. The bones were then turned on the lathe. The relative order of these processes are visible on offcuts and semicomplete objects such as <28>, [20], <36>, [4] and <62>, [3] where the earlier stages survive only on the ends as they are obliterated by succeeding finishes. These unfinished terminals are the probable source of most of the offcuts which generally show file marks, knife cuts or both and were trimmed off either with a very fine saw or as it sometimes demonstrable a chisel on the lathe (see table 5)

A second common class of waste is blocks, predominantly of cattle long bone wall, created by sawing off a section transversely at either end and then splitting it longitudinally. The range of intended products can not be determined but threaded discs such as <20>, [20] are a possibility and a coarse bone disc <27>, [20] could be an unfinished example. <25>, [20] a long peg or dowel is more puzzling and its function or intended product is unclear. <73>, [216] a polished strip of bone with a bevelled end could be a broken artefact of some sort rather than waste. Its function too is unclear.

Accession	Context	Max L in mm	Species	Element	Turned interior	Turned exterior	File	Knife
17	1	10.5	Cow	Metatarsal		Y	Y	
53	3	10	Cow	Metatarsal	Y			Y
54	3	9.5	?cow	?metatarsal	Y		Y	
55	3	11.6	Cow	Metatarsal	H	H		
56	3	14.5	Cow	Metatarsal				Y
57	3	6	Cow	Metatarsal				
58	3	19	Cow	Metatarsal	H		Y	Y
59	3	4.5	Cow	Metatarsal				
60	3	20.5	Cow	metatarsal	H	H		
30	4	9.5	Cow	Metatarsal	H	Y		
31	4	13.5	Bone	Longbone		Y		
32	4	16.5	Cow	Metatarsal	H	?		Y
33	4	15	?Cow	Metatarsal	H			Y
34	4	17.5	Cow	Metatarsal	H		Y	
35	4	12.5	Cow	Metatarsal	?H		Y	
37	4	12.5	Cow	Metatarsal			Y	
37	4	12	Cow	Metatarsal			Y	
38	4	8	?cow	?metatarsal	Y			Y
39	4	11	Cow	metacarpal		H		
40	4	6	Cow	Metatarsal		Y		
40	4	7	Cow	Metatarsal			Y	
40	4	5.5	Cow	Metatarsal			Y	
41	4	5.5	Cow	Metatarsal			Y	
41	4	10	Cow	Metatarsal			Y	
41	4	6.5	Cow	Metatarsal				
42	4	17.5	Cow	Metatarsal	H	H		Y
43	4	9.5	Cow	Metatarsal	H		Y	
44	4	8.5	Cow	Metatarsal			Y	
44	4	6.5	Cow	Metatarsal			Y	
45	4	13	Bone	Longbone	Y	Y		
22	20	13	?	Metatarsal		Y		
26	20	6	?Deer	?Antler		Y		
74	216	12	Cow	Metatarsal	H	?		

Table 5 Bone working waste group 1: 'ring offcuts' from lathe working.

Tool mark summaries are based on a preliminary examination Y denotes presence and H denotes extension of turning over only part of the length of the object. Accession numbers are repeated when multiple fragments are included

Accession	Context	Animal	Element	L	W	Th
16	1	?Cattle	metatarsal	40	29.5	10.5
18	1	Elephant	Tusk	53	28	6.5
19	1	Cow/Horse	?humerus	20	37	10.5
21	20	Cow/Horse	Long bone	36	34	7.5
23	20	Cow/horse	Long bone	30	44.5	13
24	20	Cattle	metatarsal	60	32	16
61	3	Cattle	metatarsal	35	16	12

Table 6 Bone-working waste group 2: blocks and slabs

<28>, [20], and <36>, [4] are two partially complete objects, both lathe worked decorative bone cylinders. It is impossible to be certain of their function, however while they could be bone handles, the presence of a threaded disc <20>, [20] of approximately the right diameter to fit their interior and an appropriately counter sunk end on <28>, [20] suggests that closed cylindrical containers such as needle-cases were amongst the products being made. The remainder of the post-medieval finds comprise a ceramic wig curler of later 18th century date <9>, [20], probably c 1740-1800 and an iron washer <7>, [20].

Several undated objects came from probable post-medieval contexts: a fragment of a decorated copper-alloy object <5>, [20], a copper-alloy pin with a spherical head <72>, [216], part of a bone pin shaft <69>, [230] and an oval piece of lead <6>, [20] probably waste. A highly corroded iron object <68>, [3] cannot be identified at present. None of these objects are intrinsically datable and while all could be of post-medieval date from their contexts, they contribute little to our understanding of the date and character of the site.

1.2.4 Undated bulk finds

There are four bulk iron nails from currently undated contexts. Three came from [227]. Two are joined by a piece of mineral preserved wood and both measure 68mm, the third measures 61mm but is incomplete and was probably the same size. One came from [239] and measure 51.5mm.

A piece of bulk leather comes from [309]. It is a small scrap with one cut edge but no signs of stitching.

1.3 Catalogue of the registered finds and bulk nails and leather from the 257 Crossrail Central Broadgate ticket hall evaluation (XSM10 batch 1)

Please note: the lathe offcuts from the post-medieval bone working waste assemblage were not catalogued in detail as they were very repetitive, sometimes containing several examples in a bag and it was not clear which specific features were most significant at this point in analysis. Their dimensions, material and main features are summarised in table 5 above.

1.3.1 Roman

1.3.1.1 Silver

Silver coin

<85>, [300]

Silver denarius of Severus Alexander. RIC 226. AD 228-31

Obverse: Laureate bust right. IMP.SEVA[LE.]XAND.AVG

Reverse: Emperor in military dress looking left with foot on helmet holding a globe in his right hand and a spear in his left. VIRTVS.AVG

1.3.1.2 Copper-alloy

Copper-alloy strip

<86>, [300]

Incomplete; surviving L 64mm, W 13mm, Th 1mm. Fragment of copper-alloy strip, broken across a large circular perforation at one end and bent before a smaller circular perforation at the other through which a small wire loop passes. Possibly a binding.

Copper-alloy mount / waste

<87>, [300]

?Complete; L 59mm, Diam of individual mounts 24.5mm, max Th 1.5mm. Copper-alloy mount made up of two circular plates with concentric circle decoration, each perforated by a central hole punched through from the decorated face and joined by a lozenge panel of undecorated metal, crudely cut at two corners. The mounts are poorly finished and it is possible that the lozenge panel is actually part of a sprue from casting a larger group of mounts.

1.3.1.3 Iron

Iron stylus

<88>, [300]

Mostly complete but bent; L 104mm. max W of eraser 8mm. Iron stylus, slightly bent and with damage to the rather thin eraser. Possibly decorated shaft with bands just above the point but will need x-ray and conservation to determine. Roman. Probably Manning type 4

Iron stylus

<91>, [300]

Mostly complete but bent; L 75.5mm, estimated original L 127mm. Iron stylus, bent back on itself and damaged at the point, with distinct point and expanded shoulder

narrowing along the circular sectioned shaft to flattened narrowing eraser. Manning type 2/3

Iron stylus

<92>, [300]

Complete but bent; L 113.5mm, max W of eraser 8mm, L of point 23mm. Iron stylus, slightly bent, with distinct point and expanded shoulder narrowing along the shaft to a flattened expanding eraser. Manning type 2/3

Iron double-spiked loop

<93>, [300]

Complete; L 94.5mm, L of timber perforated c 50mm, max W of loop 34mm. Iron double spiked loop. The tip of one is bent over where it cleared the timber, the other has clearly been bent post-depositionally.

Iron ?nail

<90>, [300]

Complete? 83.5mm. Iron ?nail, with flattened expanded head and square sectioned shank, bent at 90 degrees before the tip. This ID is uncertain and will require examination of X-rays to confirm.

1.3.2 Medieval

1.3.2.1 Bone

Bone skate

<70>, [230]

Near complete; L 190mm, max W 51.5mm, max Th 20.5mm. Bone skate, made from a cow metacarpal and slightly damaged at one end. Ends are unperforated but on the underside have the remains of cut marks designed to flatten the terminals to improve the skating surface. The shaft has is flattened on its lower face with a glossy polish from use. Judging by its size this skate was for a small adult. Not closely datable but most likely 8th-13th century (MacGregor 1976)

Bone skate

<71>, [230]

Near complete; L 170mm, max W 32.5mm, max Th 22mm. Bone skate made from a cow metatarsal, damaged at both ends. Ends are unperforated but both have cut marks on the upper face of the terminals to flatten the foot platform. The underside is flattened and has a glossy polish from use. Judging by its size this skate was for a child or small women. Not closely datable but most likely 8th-13th century (MacGregor 1976)

1.3.3 Post-medieval

1.3.3.1 Ceramic

Ceramic wig-curler

<9>, [20]

Complete; L 64.5mm, max Diam 13.5. Ceramic wig-curler, dumbbell shaped with slightly bevelled ends with flattened tips. The tip are stamped 'W[...]' Post medieval, later 18th century type (Le Cheminant 1978)

1.3.3.2 Iron

Iron washer

<7>, [20]

Near complete; Diameter 21mm, Th 2mm. Iron washer, damaged at one edge, circular with central perforation and bevelled edge. Post-medieval – modern.

1.3.3.3 Bone

1.3.3.3.1 PART FINISHED OBJECTS

Bone waste (needle case or handle?)

<20>, [20]

Incomplete?; Diam 25mm, Th 3.5mm. Component of a bone box, a disc with a threaded edge, possibly from a needle case or a similar cylindrical bone container.

Bone waste

<25>, [20]

Complete; L 113mm, max W 13.5. Bone waste/part finished object. An elongated peg or dowel made of horse or cow metatarsal or metacarpal. Tapers along its length.

Sawn at either end, knife cut surfaces.

Made on a lathe

Bone waste (needle case?)

<27>, [20]

Complete; Diam 34.5mm, Th 7.5mm. Bone waste. Disc with rough file grooves on the edges and one very uneven face. Possibly a blank for a disc similar to <20>.

Bone waste (needle case?)

<28>, [20]

Complete but unfinished; L 79.5mm. Max Diam 26mm. Bone blank or unfinished object, probably for a cylindrical box, perhaps a needle case. The chaîne opératoire involved in producing the object and many of the fragments of waste from the site is clear on this piece and the cow metatarsal was obviously roughly cut filed to reduce it to roughly the appropriate size and shape leaving vertical striations. These seem to have been partially smoothed by knife cuts. This outer layer of working was then stripped away by lathe based techniques to create a finer finish, in this case a slightly rilled surface with decorative grooves below the mouth.

The reason that this piece was not finished is unclear and the damage to the mouth appears to be fresh/modern.

Bone waste

<62>, [3]

Incomplete and unfinished; L 58mm, max Diam 25.5mm. Bone blank for a cylindrical object made from a cow metatarsal. It finely sawn transversely at either end, roughly

filed and then more finally finished with knife cut facets. This appears to have led to a piece of the wall splitting off and the abandonment of the piece.

Bone waste?

<73>, [216]

Incomplete and broken; L 61.5mm, W 8mm, Th 2.5mm. Bone object, possibly a mount of appliqué. Rectangular strip with highly polished upper face, bevelled at one end and broken at the other. The reverse face is coarsely scored, possibly keyed for gluing.

1.3.3.3.2 BLOCKS

Ivory waste

<18>, [1]

Complete but broken; L 53mm, W 28mm, max Th 6.5mm. Ivory waste, blank or offcut/triangular sectioned block from near the base of the tusk.

Bone waste

<16>, [1]

Complete; L 40mm, W 29.5mm, max Th 10.5mm. Bone waste. A block from a ?cow metatarsal sawn transversely at either end then split longitudinally with a knife or chisel.

Bone waste

<21>, [20]

Complete; L 36mm, W 34mm, Th 7.5mm. Bone waste. A block from a cow or horse longbone, mid shaft, sawn transversely at either end and with marks from a large knife or chisel on the surfaces.

Bone waste

<24>, [20]

Complete?; L 60mm, W 32mm, Th 16mm. Bone waste. A section of cow metatarsal, that has been split longitudinally down the centre line. Sawn on either end with chisel or knife cuts on the outer surface.

Bone waste

<19>, [1]

Complete; L 20mm, W 37mm, max Th 10.5mm. Bone waste, blank or off cut, block of cow or horse long bone, probably the humerus. Sawn transversely then split longitudinally.

Bone waste

<23>, [20]

Complete; L 30mm, W 44.5mm, max Th 13mm. Bone waste, blank or off cut, block of cow or horse long bone, probably the humerus. Sawn transversely then split longitudinally.

Bone waste

<61>, [3]

Complete; L 35mm, max w 16mm, max Th 12mm. Bone waste, blank or offcut, block of cow metatarsal, sawn transversely then split longitudinally.

Bone waste

<29>, [20]

Incomplete; surviving L 35.5mm. Bone waste. Portion of sheep/goat metacarpal knife cut facets on exterior and lathe turned at one end. Snapped/broken at the other.

1.3.4 Unknown date

1.3.4.1 Copper-alloy

Copper-alloy ?strap end

<5>, [20]

Incomplete; surviving L 28mm, max Th 4.5mm. Copper-alloy object, broken and obscured by corrosion, probably original circular or semi-circular and open at one side. Perhaps part of a strap end or chape. There are clear signs of decoration or an inscription on one face. Will require investigative conservation.

Copper-alloy pin

<72>, [216]

Complete but broken; L 55.5mm. Copper-alloy pin, broken in two, with spherical head over a straight circular sectioned shaft which tapers at the tip. This simple form is found in Roman, Medieval and Post Medieval contexts. However it was found with Post Medieval material.

1.3.4.2 Iron

Iron object

<68>, [3]

Complete?; L 84mm. Badly corroded iron object, possibly a square sectioned rod bent 90 degrees at one end. Needs x-rayed before ID.

1.3.4.3 Lead

Lead ?waste

<6>, [20]

Complete; L 37mm, W 33.5mm, Th 6.5mm. Lead object sub oval in plan, it is rather regular in form but is probably a solidified pool of molten lead waste. It is too irregular to be a weight. Found in a probable post-medieval context.

1.3.4.4 Bone

Bone pin

<69>, [230]

Incomplete; surviving L 32mm. Fragment of bone pin shaft, missing both head and tip, tapering along its length.

1.4 Bibliography

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