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SDC 97

WATCHING BRIEF AND EXCAVATIONS

IN

FINKLE STREET AND MICKLEGATE,

SELBY,

NORTH YORKSHIRE

FOR

SELBY DISTRICT COUNCIL

VOLUME 6

PARISH 8019
E 471
S 767
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SDC 97

APPENDIX 6

Assessment of the Slag assemblage from Selby, North Yorkshire (SDC 97)

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1 Introduction

The material classed as slags and other residues recovered from the excavation are summarised.

2 Slag Classification

The slags were visually examined and the classification is solely based on morphology. In general slags and residues are divided into two broad groups; diagnostic and non-diagnostic slags. The diagnostic slags, can be attributed to a particular industrial process. These comprise the ironworking slags, i.e. smelting or smithing slags, and the non-ferrous residues, e.g. crucibles. The non-diagnostic residues cannot be directly ascribed to a process, but may be identified with a process by association with diagnostic residues, e.g. clay furnace lining with smelting slag.

2.1 Ferrous Diagnostic Slags and Residues Identified in the Assemblage

Iron Smithing Slags

Hearth Bottom (HB) - a plano-convex accumulation of fayalitic slag formed in the smithing hearth. Total quantity: **2300 g**.

Smithing Slag (SSL) - randomly shaped pieces of fayalitic slag generated by the smithing process. Total quantity: **7744 g**

Hammer Scale (HS) - it occurs in two forms, flake and spheroidal. The former is believed to derived from scaling (oxidation) of the surface of the iron being worked, and would be removed from the metal during hammering and deliberately knocked from the surface prior to insertion in the fire. Spheroidal scale is formed during fire welding. Slag is trapped between the two pieces of iron being welded and is ejected during hammering of the weld which form droplets that freeze in flight. Total quantity: Detected **<1 g**

2.3 Non-Diagnostic Slags and Residues

Furnace/Hearth Lining (FL or HL) - the clay lining of an industrial hearth, furnace or kiln which has been subjected to high temperature oxidising conditions. It is characterised by a vitrified surface inner face. In some cases the tuyere mouth may be preserved. Furnace Lining is considered non-diagnostic, since it cannot be ascribed to a process on grounds other than archaeological association, i.e. there is as yet no diagnostic feature which will distinguish vitrified lining from a smithing hearth from that from an iron smelting furnace. Total quantity: **252g**

Other Material (Other) - which normally comprises fragments of fuel, in this case charcoal, coal, iron objects and bone. Total quantity:- Charcoal: **13.6g**, Coal: **491g**, Iron objects: **180g**, Bone **7.1g**

Table 2.1 Quantities of material from 53 bags

All masses are in grammes. Subscript numbers in brackets indicate number of pieces). See Table 2.2 for Coal

Test Pit	Context []	SSL	HB	HL	Other	Comments
TP 1	3410	167.7 ₍₁₎				
TP 2	3422, 3429(8) 3437	197.2 ₍₁₎				
TP 2(B)	3431 (1 of 2) 3431 (2 of 2)	153.0 ₍₅₎	200.6 ₍₁₎			
TP 3	3450, 3451, 3452, 3455, 3456, 3457 3455 3456 3457	997.7 ₍₁₅₎	274.9 ₍₂₎	58.6 ₍₁₎	Fe obj. 41.5	
T 3	(V4) 3224	114.6 ₍₁₎			Charcoal 7.2 ₍₁₎	
TP 3(B)	3455, 3451, 3457, 3458, 3517	867.9 ₍₁₃₎				
T4	3280, 3327	34.1 ₍₃₎				
TP 4	3696, 3702 3705	347.8 ₍₉₎			Fe obj. 121.5	
Continued overleaf						

Test Pit	Context []	SSL	HB	HL	Other	Comments
TP 5	3566	32.0 ₍₂₎				
TP 7	3532, 3570	475.8 ₍₅₎				
TP 7(B)	3537	720.2 ₍₅₎	588.7 ₍₂₎		Charcoal 6.4 ₍₁₎	
TP 9	3633, 3637, 3639 3637	2174.6 ₍₃₆₎	358.0 ₍₁₎		Bone 7.1, 2 Fe Obj: 17.0	
TP 11	3657, 3666 3659	926.6 ₍₁₎	877.6 ₍₁₎	193.5 ₍₇₎		Hammerscale
TP 11(B)	3657, 3669	534.5 ₍₁₅₎				Hammerscale
TOTALS (g.)		7743.7	2299.8	252.1	200.7	

Table 2.2 'Other' objects Identified (including coal)

Object Type	Context []	Mass	Comments
Fe Obj.	TP 3 [3456], TP 4 [3705], TP 9 [3637]	180.0 ₍₄₎	[3637] includes 1 nail.
Coal	TP 1 TP 1(B) [3410, 3411, 3419], TP 2(B) [3431], TP 3 [3450, 3451], TP 3(B) [3451, 3457], T3 [3226], TP 7 [3532, 3539, 3570], TP 7(B) [3537], TP 9 [3637], TP 11(B) [3659]	491.0 ₍₁₄₎	
Charcoal	T 3 [3226], T7 (B) [3537]	13.6 ₍₂₎	
Bone	TP 9 [3637]	7.1 ₍₁₎	

3 Discussion

The bags examined contained smithing debris in the form of Smithing Slag Lumps and Hearth Bottoms. Bags containing unwashed samples from Test Pits TP 11 & TP 11(B) (Near the River) contained fragments of **hammerscale (spheroidal)**. The coal had been bagged separately. Only one piece of possible hearth lining was seen.

Both the Smithing Slag Lumps and the Hearth Bottoms are very dense, and compact, indicating a high iron oxide content. They appear to be very consistent, suggesting they derive from one period of activity.

Several Smithing slag lumps (such as those found in Test Pits 3, 7 & 9) show evidence of the bright blue mineral 'Vivianite' on their surface. Vivianite ($\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$) is known to occur archaeologically in slightly acid, low oxygen - high phosphate environments that can occur in contexts containing cess and bone (O'Connor 1992, 466). A small fragment of bone (7.1g) has been identified from Test Pit 9.

The quantity of debris from the test pits indicates that this is a significant smithing assemblage. The presence of smithing slag in the market place may derive from a smithy or smithies around the edge of the market place. Detailed analysis of the distribution of the slags, by type, between the test pits shows higher amounts of smithing slag dumping to the north and east heading towards the river Ouse, rising from c. 350g material (TP 4) to more than 2000g nearer to the riverbank (TP 9). This also corresponds to an increase in the occurrence of Hearth Bottoms (HB) in the North Eastern part of the sample area, and perhaps indicating approximate locations of the smithies however historical sources may provide further details.

The dating of the assemblage is important for three reasons:

- Does the slag date from before c 1750? It is thought that this type of slag disappears from the archaeological record, sometime in the 18/19th Centuries. Any dating evidence to refine this date is of great importance.
- The density, compactness and uniformity of the slags is unusual, and this slag may represent a change in technology for which some dating evidence is required.
- The slag is primarily associated with coal. Although coal has been used in smithing since Roman times, the usual fuel was charcoal. Hence dated examples of the use of coal will contribute to the discussion concerning relative importance of charcoal and coal in ironworking in different periods. An examination of one of the few examples of charcoal (By Dr. J.M. Bond, Dept. Archaeological Sciences) indicate the use of young Oak (10-12 year, *Quercus* sp.) possibly indicating the use of coppicing for charcoal supply.

Further research on the composition and mineralogy is important for two reasons.

- Whether firm evidence can be obtained to confirm the use of coal as the fuel.
- The dense compact nature of the slag may indicate a specific smithing technology. Analysis of the slags would determine the composition and mineralogy of the slags so that they can be compared with analyses of smithing slags from other periods.

The presence of hammerscale is significant since it indicates that the full assemblage of smithing debris was dumped rather than preferential selection of larger lumps, e.g. from a slag heap for use as hard-core.

If the full assemblage is present the metal artefacts should be assessed from the presence of bars and blanks, the stock material of the smith. Unfinished artefacts may also indicate the products of the smiths.

If analysis can show that coal was used, some of the hammerscale should be studied, since no hammerscale from (archaeological) coal fired forges has so far been examined.

4 Recommendations

In order of priority.

1. Examination of other artefacts, e.g. fired clay, iron artefacts to seek other smithing debris.
2. Elemental and mineralogical analysis of the slags to determine their composition. This may enable the fuel (charcoal or coal) to be confirmed, (e.g. on sulphur content). It will also seek to explain the apparent high density of the slags.
3. Elemental and chemical analysis of specimens of hammerscale, if coal is confirmed as the fuel. So far only hammerscale from charcoal fuelled forges has been examined.

Reference

O'Connor, S. 1992 'Conservation of the Coppergate Ironwork' in P. Ottaway, *Anglo-Scandinavian Ironwork from 16-22 Coppergate*, pp.466-471. The Archaeology of York volume 17: The Small Finds, York Archaeological Trust (CBA)

Fig. 1: Charcoal recovered from Test Pit TP 7(B) [3537] (transverse and longitudinal views) indicating annual rings from *Quercus* sp. Mass: 6.4g Not to scale.

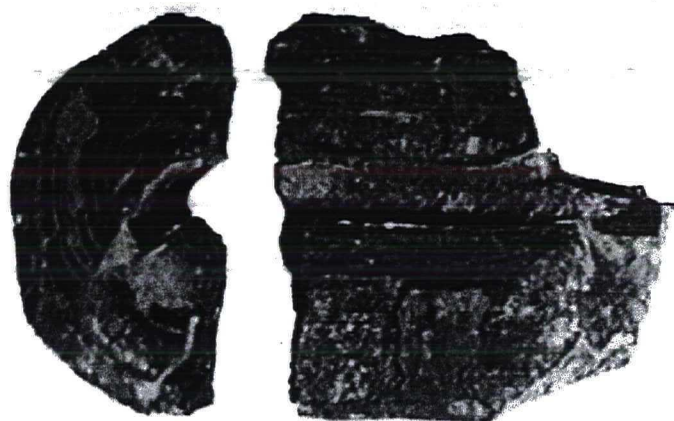


Fig. 2: Smithing slag lump (SSL) from Test Pit TP 3(B) [3517] showing evidence of the bright blue mineral 'Vivianite' on the surface. Vivianite ($\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$) occurs in low oxygen, high phosphate, acidic environments. Width of Field 70 mm.



SDC 97

APPENDIX 7

Iron objects by Ian Goodall.

The iron objects, though few in number, cover a wide range, including as they do knives, various items of structural ironwork and building fittings, among them a taper holder, some buckles and items of horse furniture. Most cannot be dated typologically, but two of the knives, Nos 2 and 3, which incorporate bolsters, are of post-medieval date.

1. Whittle-tang knife, the cutting edge shaped by sharpening. L.152mm. T4 Gully AA 3299.
2. Knife with bolster between whittle tang and broken blade. The tang carries a bone handle which is decorated with lozenge-shaped patterns of punched dots. L.127mm. TP2 (B) 3424.
3. Knife with bolster between whittle tang and blade, both broken. L.97mm. TP2 3430.
4. Single claw from head of claw hammer. L.52mm. TP11 3659.
5. U-shaped staple. L.43mm. TP7 (B) 3577. (Mislabelled bag – should be 3606)
6. Wallhook, the hook bent round and distorted. L.53mm. TP5 3566.
7. Fitting with broken looped end and bent back bifurcated end intended to be set in masonry. L.225mm. TP9 3637.
8. Rectangular staple with broken arms. L.75mm. TP3 (B) 3457.
9. Circular, flat washer. Diam. 41mm. TP11 3659.
10. Strap fragment with shaped terminal. L.37mm. TP9 3636.
11. Hinge pivot, guide arm complete, shank broken. H.45mm. TP5 3566.
12. Timber nails. Four types were recognised, Type A with rounded square or near-square heads, Type B with longer rectangular heads, Type C with square heads developing from substantial shanks, and Type D with L-shaped heads. Twenty six examples of Type A were identified, most with heads between 9 and 13mm in width, complete examples ranging in length from 24 to 53mm. Type B is represented by seven examples, with heads from 10 by 14mm to 16 by 22mm across, and complete examples from 54 to 105mm in length. Six examples of Type C were found, their heads from 7 to 12mm across, and from 64 to 84mm in length, and four examples of Type D, their heads 7 to 9mm in length, and 43 to 47mm long. A number of nail shanks were also found, some with indeterminate fragments of heads. Type A: TP1 3409; TP2 3431; TP3 3458; TP3(B) 3448/9, 3451, 3510; TP4 3701; TP6 3485, 3486; TP6(B) 3486; TP7 3577; TP7(B) 3579; TP9 3634, 3635 (two nails), 3636 (five nails), 3637 (four nails); TP11 3657 (2 nails). Type B: TP1 3409; TP7(B) 3577; TP9 3636, 3637. Type C: TP3 3458, TP4 3701; TP5 3553; TP6 3486; TP7 3574; TP9 3633. Type D: TP4 3705; TP6 3485, 3493; TP9 3639. Nail shanks: T2 3106; T4 Gully W 3266; TP1 3406; TP1(B) 3411; TP2 3424, 3431; TP3 3450, 3458 (two shanks); TP3(B) 3448/9 (three shanks), 3450; TP4 3718, 3720, 3739; TP5 3540; TP6 3486 (two shanks), 3493; TP6(B) 3486 (two shanks); TP7 3525 (three shanks); 3531; TP7(B) 3537; TP8 3646; TP9 3637 (six shanks), 3680; TP11 3646.
- 13-14. Studs with rectangular heads. 13. L.28mm. TP4 3735; 14. L.64mm T3 Micklegate gully S 3226.
15. Clench bolt with diamond-shaped rove. L.56mm. TP3 (B) 3451.
16. Rove. L.20mm. TP3 3514.
17. Spring arm from padlock with central spine and incomplete double-leaf spring. TP11 3662.
18. Taper holder with slender shank and two scrolled arms. L.162mm. TP7 (B) 3577.(Mislabelled bag – should be 3606)
19. Buckle with broken circular frame and wire pin. Diam.15mm. TP9 3637.
20. Buckle frame, sub-rectangular in shape. lacking pin. W.49mm. TP3 3456.

21. Base of cheekpiece of curb bit, with loop for attachment of chain. L.90mm. TP7 3606.

22. Horseshoe. Arm tip with calkin. L.55mm. TP5 3550.

23. Horseshoe nails. No fiddle-key horseshoe nails were found, but three later types, introduced in the later medieval period, were found. All three have heads which expand in side view to a flat top. Type A has marked ears, which are not found on Type B; the head of Type C flares in front view. Type A: TP2 3439, TP4 3735; Type B: TP6 3490; Type C: TP9 3635, 3637 (three nails).

SDC 97

APPENDIX 8

SELBY EXCAVATIONS 1997

NON-FERROUS METAL OBJECTS

Alison Goodall

The non-ferrous metal objects from the 1997 excavations include a medieval decorative fitting of lead alloy and seven pins of medieval or early post-medieval type. A number of the objects display the bright brassy colouring often associated with copper alloy objects from waterlogged conditions.

- 1 Two joining fragments of wire. Found with an iron object, probably a nail.
Finkle Street, T2, context 3106.
- 2 Approximately square lead plaque, slit at the corners to form a crude cross. The centre is raised and the remains of a staple passes through it. The upper surface is decorated with incised triangles infilled with cross-hatching. The plaque could perhaps have been used as a handle escutcheon with the staple forming a loop to suspend the handle.
Micklegate Gully S, T3, context 3226.
- 3 Cast decorative object of lead or pewter consisting of two approximately rectangular plates linked by an integral irregular strip. The plates each have a lozenge motif with a central quatrefoil and the corners of the plates are extended into small trefoils. The object appears to be a decorative fitting although it has no visible means of attachment.
Probably medieval.
TP2, context 3425 (B).
- 4 Pierced disc or washer. Diameter 24mm.
TP2, context 3425 (B).
- 5 Lead musket ball: Diameter 15mm.
Branch of main sewer trench, 1855 or later.
TP4, context 3696.
- 6 Pin, head missing. Length 27.5mm.
TP4, context 3699.
- 7 Pin with head made from a single coil of wire and having a slender shank.
TP4, context 3704.
- 8 Small strap end with a forked spacer between two plates. Plates and spacer are cut to form a small knob; the upper edge has a rounded cut-out with a groove running into it. Fragments of organic material, possibly leather from the strap, survive between the plates. The strap end was secured by two rivets at the upper edge. Strap ends of this type are common medieval finds.
TP4, context 3724
- 9 Fragment of thin lead sheet, possibly part of a lining.
TP5, context 3475.
- 10 Pin with long slender shank and bun-shaped head. Possibly a hair or head-dress pin.
Probably early post-medieval.
TP5, context 3543.
- 11 Thin strip or off-cut of copper alloy.
TP9, context 3635
- 12 Jetton. On one side is a shield bearing the three *flours de Us* (of France?) and on the other is a trefoil with points between the foils and an orb in the centre. The legends on obverse and reverse are not fully legible.
TP9, context 3636.
- 13 Two pins, one with a head made from a coil of fine wire, the other with its head missing but with a flattened end to the shank rather than the distortion which would be expected if the head had been attached by stamping.
TP9, context 3636.
- 14 Pin, head missing; possible white metal plating. Length 36mm.
TP9, context 3637.
- 15 Pin with coiled wire head.
TP9, context 3637.
- 16 Twisted off-cut of lead sheet, length 104mm, and a smaller fragment, length 24mm.
TP9, context 3639

ADDITIONAL DISCUSSION

The 1997 excavations produced sixteen objects of non-ferrous metal, mostly of post-medieval date and including several pins with heads made of copper wire. A simple strap-end, (no. 8) with a forked spacer plate and retaining fragments of the leather strap between the plates, probably dates from the 14th century. A decorative fitting of lead or pewter (no. 3) has ornamentation which places it in the medieval period also.

The jetton (no.12) has on its obverse an orb with a trilobe. Jettons with this motif were found at Southampton and are dated to the second half of the 16th century (M Dolley, 'The coins and jettons' in C Platt and R Coleman-Smith, *Excavations in Medieval Southampton 1953-1969*, 2: *The Finds* (Leicester 1975), 32406, pl 136); they are stated to have originated in Germany.

It is difficult to draw conclusions from such a small and diverse group of find. Pins of late medieval and post-medieval type make up most of the copper alloy objects and are very common finds on all excavations of sites of this period. The remaining objects represent the kind of items which are easily lost, such as the simple medieval strap-end (no. 8), or the jetton (no. 12), or are incomplete fragments such as the decorative fitting (no.3). None of the non-ferrous metal objects can certainly be linked to metalworking or to the manufacture or repair of artefacts, despite the presence of quite large amounts of (possibly ferrous) slag. The objects do not include any indicators of high status, such as good quality ornamental work or objects with gilding or other decorative treatments. But that is not to say that they are derived from a less prosperous area of the town. The sample is probably too small to be of significance and only the more mundane pieces are represented.

SELBY EXCAVATIONS 1997

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The jetton (no.12) is a 'French Shield' type, Nuremberg; dating to c. 1500 -25, *Mitchiner* 1073 (die duplicate). It weighs 2.25g and exhibits moderate wear (identification by Craig Barclay, Yorkshire Museum).

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APPENDIX 9

The Glass from Selby 1997

Hugh Willmott

All the glass from the Selby 1997 excavations is extremely fragmented and often hard to identify precisely. The majority of fragments, twenty one in total, come from wine bottles, there being five mould pressed and one window glass fragments as well. Typologically the glass is of little value, apart from enabling broad dating of the contexts that it has come from. Consequently in this report and catalogue the material is dealt with by context rather than by vessel type or date.

Area TP1 produced four fragments from as many contexts. All the fragments are from wine bottles and although their fragmentary nature makes precise dating hard, it would appear that they can be dated to the late eighteenth and early nineteenth centuries.

Area TP2 contained the greatest number of fragments, only from three contexts. Context TP2 3423 produced six fragments of wine bottles, although three are almost impossible to date. However two fragments of base and one of lower neck would appear to have come from squat cylindrical bottles, dating the context to the second half of the eighteenth century. The unidentifiable body fragments are likely therefore to belong to this period as well. One base of a later mould pressed ink bottle, dating to the second half of the nineteenth century, was also found in this context. A slightly later date can be given to the two fragments from context TP2 B 3422. The first is part of a base from a mechanically produced wine bottle from the first half of the nineteenth century. The second fragment is part of a vertical side from a wine bottle of similar date.

The earliest material comes from TP2 B 3424, with the six fragments from this context all dating to the last quarter of the seventeenth or early eighteenth centuries. There are two different rim and neck fragments from shaft and globe wine bottles, a form usually dating to the second half of the seventeenth century. In addition to these fragments is part of the top of a base push-in, most probably from a similar period of wine bottle. This context also contained two fragments of lower neck, but given that they are tapering suggests that they come from an onion wine bottle of the very late seventeenth or early eighteenth centuries. The final fragment is slightly unusual, but appears to be part of a very narrow neck with a heavy applied horizontal trail. Although the form is uncertain, the nature of the glass would suggest a similar date to the other fragments.

Material derived from TP3 3442 is rather later. There is one large fragment of a shallow domed base from a wine bottle, produced by the vessel being blown into a mould. The second is the thickened rim and upper neck of a soda bottle. Both fragments date from the second half of the nineteenth century.

The glass from the rest of the areas consists of single fragments in each context. T4W 3266 produced the only positively identifiable wine bottle fragment. This is a rounded base from an onion bottle and dates to the first half of the eighteenth century. Similar undiagnostic body fragments from T4 gully AD, TP6 3483 and TP7 3524 are probably all from the eighteenth century. TP3 2443 produced one fragment of a mould pressed bottle, as did T4 gully AB 3305, and these date from the late nineteenth or early twentieth centuries. The only fragment of window glass came from

T4 gully W 3262, but this is undiagnostic and can only be dated to the late post-medieval period.

Catalogue

TP1 3405 1 fragment of the top of a domed push-in, with pontil mark, probably from an onion wine bottle. Very weathered with heavy iridescence. Second half 18th century.

TP1 3406 1 fragment of vertical body from a wine bottle. Light green with little weathering. 18th-19th century.

TP1 3408 2 joining fragments of a pushed-in base with a sand pontil from a tall cylindrical wine bottle. Dark olive with some weathering. Late 18th to early 19th century.

TP1 3409 1 small fragment of body from a wine bottle. Dark green and heavily weathered. 18th-19th century.

TP2 3423 1 fragment of pushed-in base from a squat cylindrical bottle? Olive green and heavily weathered. Second half 18th century.

1 fragment of pushed-in base from a squat cylindrical bottle? Olive green and heavily weathered. Second half 18th century.

1 fragment of lower neck from a squat cylindrical bottle? Olive green and heavily weathered. Second half of the 18th century.

1 small fragment of body from a wine bottle. Olive green and heavily weathered. 18th century?

1 small fragment of body from a wine bottle. Olive green and heavily weathered. 18th century?

1 small fragment of body from a wine bottle. Olive green and heavily weathered. 18th century?

1 complete base and lower side of a two piece mould pressed elongated octagonal bottle. Possibly for ink. Blue/green with some weathering. Second half 19th century.

TP2 B 3422 1 fragment of base from a moulded cylindrical wine bottle with a shallow domed kick from an onion bottle. Olive green and heavily weathered. First half 19th century.

1 fragment of vertical side from a wine bottle. Olive green with quite heavy weathering. late 18th-19th century.

TP2 B 3424 1 complete rim and upper vertical neck from a shaft & globe wine bottle. With a thick applied string cord and sheared off rim. Dark olive, heavily weathered. Second half of the 17th century.

1 complete rim? from a thin necked vessel with a heavily applied circular trail. Form uncertain. Dark olive green, some weathering. Late 17th-18th century?

1 fragment of vertical rim, probably from a small shaft & globe wine bottle. Fine applied string cord and sheared off rim. Dark olive green, very heavily weathered. Second half of the 17th century.

2 fragments of lower tapering neck, probably from an onion wine bottle. Olive green, heavily weathered. Very late 17th or early 18th century.

1 fragment of a domed base push-in, probably from a shaft & globe or onion wine bottle. Olive green with heavy weathering. Second half of the 17th or first half of the 18th century.

TP3 3442 1 large fragment of base from a mould blown wine bottle with a shallow domed kick. Dark olive green with little weathering. Second half of the 19th century.

1 fragment of rim and neck of a soda bottle with thickened rim. Blue green with medium weathering. Late 19th century.

TP3 ³2443 1 fragment of vertical side of a mould pressed bottle. Blue green with little weathering. Late 19th century.

T4 Gully W 1 fragment of thin plain window glass. Green clear, quite heavily weathered.
3262 Post-Medieval.

T4 W 3266 1 fragment of rounded base from an onion wine bottle? dark olive green with very heavy weathering. 1st half of the 18th century?

T4 Gully AB 1 fragment of vertical side from a mould pressed bottle with a seam. Brown with no 3305 weathering. Late 19th-20th century.

T4 Gully AD 1 thick fragment of wine bottle body. olive green with quite heavy weathering. 18th
3326? century?

TP6 3483 1 fragment of thick curved base from a wine bottle. Dark green, quite weathered. 18th century?

TP7 3524 1 fragment of vertical side from a wine bottle. Olive green with some weathering. Second half of the 18th century?

SDC 97

APPENDIX 10

TEXTILE RESEARCH in ARCHAEOLOGY

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Textile and Cordage from Micklegate, Selby, SDC 97

On behalf of Alison Clarke, Archaeological Consultant, Northallerton

Textile TP7 (b) 3537

Fragments of textile were recovered from the 'Tree planting Trench', from a deposit which included pottery ranging in date from the 13th to the 19th century. The textile has proved to be difficult to date, but most probably belongs to the first half of this time-span.

The textile is made from wool and woven in tabby (plain weave); the yarn of warp and weft is different, one being Z-spun and the other S-spun (Z and S indicate the direction in which the spindle has been rotated). There are 9-10 threads per cm in warp and weft, which suggests a medium-coarse fabric, but the cloth has a surprisingly soft handle and drape for a textile with such a low thread-count. A raised nap is visible in patches, indicating that the cloth originally had a finish like modern billiard cloth. Dye analysis has revealed a trace of the red plant dye, madder: this means that the cloth, although now dark brown, was originally red, pink or tan.

Napped wool cloth in tabby weave, with warp and weft spun in opposite directions, was relatively common in England from the mid 14th century onwards. A large collection of textiles from medieval London, shows tabby weave displacing twill for wool clothing fabrics during the course of the century (Crowfoot et al 1992, 27) and similar evidence has been gathered from northern sites (author's unpublished data). By the 16th and 17th centuries, S-spun yarn in warp and weft had become more common (Walton 1981, 1983), but some Z x S fabrics continued in use into the 18th and early 19th centuries. Madder dye was also especially common in the 14th and 15th centuries (Walton 1992), but this too continued in use until the arrival of synthetic dyes in the second half of the 19th century.

The Selby textile can therefore be dated on technical evidence only to somewhere between the mid 14th and early 19th century. The presence of a dense nap and a soft handle is, however, typical of 15th- and 16th-century English broadcloth, which was a good quality napped fabric used as a dressweight material. In the 17th and 18th centuries, wool textiles were still napped, but the process had largely transferred to heavier types of coat and cloak materials (Walton 1983).

To summarise, this textile is difficult to date with confidence, but manufacture somewhere between the late 14th and early 16th century seems likely. It represents a relatively good quality clothing fabric.

Catalogue entry

Tattered fragments of wool textile woven in tabby weave, 9-10/Z x 9-10/S per square cm; teaselled and sheared nap present in places; trace of madder dye detected by absorption spectrophotometry. Largest fragment 100 x 85 mm.

Cordage T4 AA-AB, 3255

Several strands of cordage were recovered from 16th- to 17th-century deposits during the Watching Brief. The cordage is Z-twist and now 4-9 mm diameter, although it may have shrunk during burial and/or conservation.

Microscopy of the fibre shows that the cordage has been made from plant stems. The fibres are still in the bundles in which they would have lain in the stem, although the surrounding tissue has been removed, indicating at least partial processing of the material. The individual fibres have wide central channels ('lumens') and frequent cross-markings; when wetted and dried under a hot lamp they consistently rotate anti-clockwise. These features indicate that they are hemp, from the plant *Cannabis sativa* L. (Catling and Grayson 1982; Textile Institute 1975).

During the medieval period a vast range of fibres were used for rope and cordage — whole flax stems, hair moss and tree bast are just some of the fibres identified in medieval cordage from York, for example (A.R.Hall in Walton 1989, 394; and author's unpublished data). By the 17th century, however, hemp had become the standard fibre, and was to continue so until the 19th century. The Selby example is therefore typical of the post-medieval period.

The cordage was probably originally more flexible than it is now, and would have been suitable for any lightweight industrial or heavy household task.

Catalogue entry

Seven lengths of cordage, single, Z-twist; diameter varies from 4 mm to 9 mm. Microscopy (using a transmitted-light microscope with polarising analyser, at x100 and x400 magnification) and other features indicate partially processed hemp. Longest piece 170 mm.

Penelope Walton Rogers
Textile Research in Archaeology
25 January 1999

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- (i) The author(s) and the business title will be identified above the work;*
- (ii) any editorial changes will be checked with the author; and*
- (iii) proofs will be supplied*

References

Catling, D., Grayson, J., 1982, *Identification of Vegetable Fibres* (London and New York: Chapman & Hall)

Crowfoot, E., Pritchard, F., Staniland, K., 1992, *Textiles and Clothing c.1150-c.1450 (Medieval Finds from Excavations in London 4)*, London

The Textile Institute, 7th edn 1975, *Identification of Textile Materials* (Manchester: The Textile Institute)

Walton, P., 1981, 'The Textiles' in B.Harbottle and M.Ellison 'An excavation in the Castle ditch, Newcastle upon Tyne, 1974-76' *Archaeologia Aeliana* 5th series, vol. 9, pp190-228. [15th-16th century]

Walton, P., 1983, 'The Textiles' in M.Ellison and B.Harbottle 'Excavation of a 17th century bastion in Newcastle upon Tyne' *Archaeologia Aeliana* 5th series, vol.11, pp217-240, 262-3. [17th century]

Walton, P., 1989, *Textiles, Cordage and Raw Fibre from 16-22 Coppergate (The Archaeology of York 17/5)* (London: CBA)

Walton, P., 1992, 'Appendix: the dyes' in E.Crowfoot, F.Pritchard, K.Staniland, *Textiles and Clothing: Medieval Finds from Excavations in London, c.1150-c.1450* (London: HMSO, for The Museum of London), pp199-201