

Broadway Centre, Bradford
West Yorkshire

The Clay Tobacco Pipes

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Report No. 1800



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I am grateful to David Higgins for the twice life size illustration of the Windle mark.

1 Introduction

The clay tobacco pipes discussed in this report were recovered by a team from Archaeological Services WYAS during excavations at Bradford Broadway Centre in 2005. The site code used for this work was BCE05Site Location and Topography

2 Methodology and Treatment of the Material

The pipe fragments from the excavations have been individually examined and details of each fragment logged on an Excel spreadsheet. The layout of the spreadsheet has been based on the draft pipe recording system, which has been developed at the University of Liverpool (Higgins and Davey 1994). Copies of the spreadsheet and the draft recording system have been deposited as part of the site archive. A Context Summary is presented as Appendix A of this report. Stem-bores for the bowl fragments and marked stems have been measured to the nearest 64th of an inch using a ruler. In the case of the plain stems, only the surface treatment and a count have been given, i.e., the bores of plain stems have not been measured. Plaster casts have been made of all the stamped marks and entered into the National Clay Tobacco Pipe Stamp Catalogue (NCTPSC), which is held by the National Clay Tobacco Pipe Archive (NCTPA) at the University of Liverpool.

As none of the fragments was marked with a site code, or context number, the context number and a letter (A, B, C etc) has been pencilled on to the bowl fragments so that individual pieces can be linked back to the spreadsheet. Bowl forms have been dated according to local styles of mark and decoration and with reference to the following published typologies: York (Lawrence 1979), Hull (Watkins 1979) and London (Atkinson and Oswald 1969). These typologies place the bowls within a twenty to forty year date range. In the case of marked bowls or stems, where the maker is known from documentary sources, a more accurate date is sometimes possible.

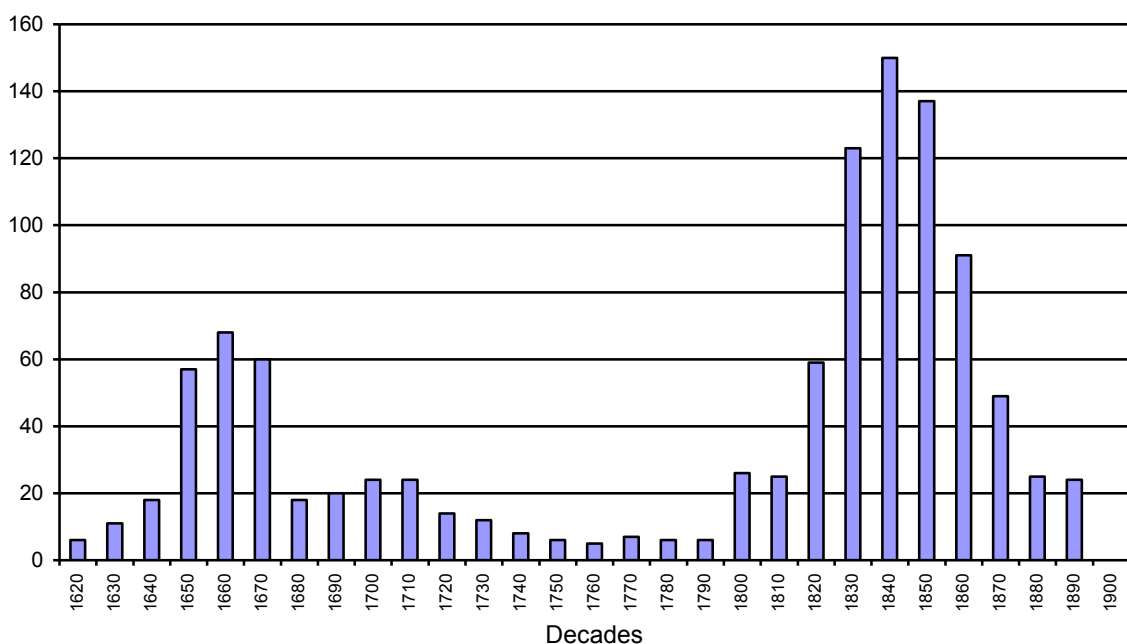
3 The Clay Tobacco Pipes in Context

Clay tobacco pipes are probably the most useful dating tools for archaeological deposits of post-medieval date. They are found almost everywhere, were short-lived and were subject to rapid change in both size and shape. They can often be tied to a specific production site or, at the very least, to a regional centre. Subtle differences in their style and quality enable them to be used as indicators of social status as well as a means by which trade patterns can be studied.

A total of 1844 clay tobacco pipes were recovered from the site comprising 256 bowls, 1511 stems and 77 mouthpiece fragments from a total of 99 different stratified contexts and one unstratified deposit.

In order to give an indication of the chronological distribution of the pipes from the site, the number of occurrences, per decade, of the datable pipe bowls and marked stem fragments, were plotted onto a bar chart (see below). In order to do this, each pipe fragment was examined and one unit was entered for each decade of its likely date range. For example, if a fragment was dated from 1740-1760, the decades 1740 and 1750 were each marked once. This method has the effect of smoothing out the curve created by the graph since it spreads the information out over each decade rather than creating marked steps and plateaux, as in the case when broad typological date ranges are used, for example 1610-1640 or 1640-1660 etc. The result is a much more realistic picture of the main periods of activity on the site.

It is clear from the data plotted that the clay tobacco pipes represent two principal phases of activity on the site. The first main period of activity dates from around 1650-1670, when large numbers of pipes were being deposited. Many of these appear to have been burnt or discoloured and the fragments are often well broken, with the stems averaging around 3cm in length. This suggests that some particular type of activity was taking place on the site which caused the pipes to be broken up and burnt in this way. There are a few context groups from the site that produced pipes of late 17th century to early 18th-century date but pipes dating from the main part of the 18th century and the early 19th century are poorly represented in this assemblage. The next main phase of activity appears to have taken place around 1830-1870, when many of the pipe-bearing deposits were laid down. These deposits are characterised by decorated bowls, many including flutes and/or Masonic motifs, and the use of glazed tips to the pipes.



Of the total 99 different stratified groups, 63 contain ten fragments or fewer, therefore in the following discussion only the larger groups (i.e. those with 100 fragments or more) or the good consistent looking groups are considered in detail. In the following descriptions, which are in context number order, the total number of pipe fragments recovered from each context is given in brackets where the first three figures represent the number of bowls, stems and mouthpiece fragments respectively, followed by the total number of fragments recovered as a whole. For example (1/2/3=6) represents one bowl, two stems and three mouthpieces, totalling six fragments. This is followed by the most likely date of deposition, based on the latest and most diagnostic fragments within each context group, which is given in square brackets.

278 (0/48/4=52) [1850-1880]

This context is included in the detailed discussion not because it is a particularly consistent looking group, nor because of its size, but because of the interest in the way in which this particular deposit may have been formed. This is an unusual group in that despite its size there are no bowl fragments. Many of the stems are large and 'fresh' looking and of a very consistent looking date. There are four mouthpieces; one nipple type dating from after c.1850 and the rest cut. Two of the cut mouthpieces are glazed with a yellowish/brown glaze and a further nine stems have traces of this glaze. One stem has a moulded mark on one side of the stem reading '...LL.LEEDS'. This is almost certainly a member of the Tunstall family, recorded there from 1807-1861, although there was also a maker called Connell in 1853 (Oswald 1975). Similar assemblages (i.e. without any bowls) have been found from beneath wooden floors, where only the stems have been able to fall through gaps. See also context 1028, below.

1022 (22/104/16=142) [1840-1880]

This context produced a total of 142 clay tobacco pipe fragments comprising 22 bowls, 104 stems and sixteen mouthpieces. The overall date range for this group is c.1790-1910, but the most likely date of deposition based on the latest diagnostic fragments present is c.1840-1880. This is a large and very consistent looking group of 19th-century pipes with stem fragments of up to 177mm surviving. The majority of the stem fragments are plain, but there are three fragments with parts of EC KEIGHLEY marks moulded on them. Most of the bowl fragments are plain but there are three with leaf seams and one with flutes and Masonic motifs. There is a large number of yellow/brown glazed mouthpieces (sixteen) and a further twelve stems with traces of this glaze. In addition there is one piece of red clay stem with glaze on it, which appears a light brown from the body beneath. This piece is probably from a short-stemmed 'cutty' style pipe, as is one other piece in white clay. It is a good looking deposit of c.1840-80, probably contemporary with context 1021.

1026 (10/34/1=45) [1650-1670]

This context produced a total of 45 clay tobacco pipe fragments comprising ten bowls, 34 stems and a single mouthpiece. This is a large and very consistent group from the 17th century. The overall date range is *c.*1610-1710, but the most likely date of deposition is *c.*1650-1670. Most of the fragments appear to be badly burnt and the material is fairly fragmented but all the bowl forms are very similar and all date from *c.*1650-70, giving a tight dating for this deposit.

1028 (0/34/1=35) [1830-1870]

This is another odd group in that it is all stems. There is one residual 17th-century stem but all the rest are 19th-century including one mouthpiece glazed with a yellowish/brown glaze. Ten of the stems also have traces of a yellow/brown glaze on them. Two stems have relief moulded EC KEIGHLEY marks. This particular group may be another example of a deposit that has accumulated beneath wooden floor boards (see context 278 above).

1054 (2/99/5=106) [1830-1870]

Although this is a particularly large group it is dominated by stems with only two bowl and five mouthpiece fragments. Although there appears to be a couple of residual stem fragments, the majority are 19th-century types. The overall date range for the whole group is *c.*1680-1900 but the most likely date of deposition based on the latest diagnostic fragments is *c.*1830-1870. All five are coated in yellow/brown glaze and there are also twenty stems with traces of glaze. In addition, five stems have a pale green glaze and one with a matt grey coating (? failed glaze). A few of the fragments in this group are abraded, as if scuffed from being embedded in a surface.

1089 (10/134/10=160) [1830-1850]

This is the largest group to be recovered from the site and comprises ten bowl fragments, 134 stems and ten mouthpiece fragments. This is a very homogeneous group, with all the bowls fitting within a *c.*1820-60 range, and with deposition most likely to have been around 1830-50. A number of the bowls decorated with Masonic motifs in this group appear to have come from the same mould. What is interesting is that the mould shows alteration, which in turn shows that the finds from this context were probably deposited over a period of time. Three of the five bowls have the spur surviving. One of these has a rather fine spur with a leaf on it, which is missing from two other examples (Figure 55). These two seem to have slightly thicker spurs and this area seems to have been reworked on the mould. All ten mouthpieces are glazed; seven with yellow/brown glaze and three with a pale green glaze. A further 35 stems have traces of yellow/brown glaze on them and three with pale green. Some long stem fragments survive to lengths of up to 120mm suggesting that this is a fresh deposit.

1152 (2/10/0=12) [1680-1720]

This context produced one of the small groups of pipes with just two bowls and ten stems. Although the overall date range for this group is given as *c.*1610-1720 it is most likely to

have been deposited *c.* 1680-1720. The two bowl fragments are transitional period forms, one of which has a stamped heel mark with the initials IW (Figure 37). One of the stems is also marked with an IW stamp (Figure 40).

1208 (6/50/1=57) [1650-1670]

Context 1208 produced just six bowls, 50 stems and a single mouthpiece fragment. It appears to be a very good and consistent group of 17th-century fragments that can be closely dated to *c.* 1650-70 based on all six of the bowl fragments. The group is also important since four of the heels are marked, all with different dies and representing three different makers. One of the bowls has its stem ground smooth and very short (15mm). The stems seem rather fragmented and a number are discoloured or burnt.

1214 (18/85/1=104) [1650-1670 & 1680-1720]

This context produced eighteen bowl fragments, 85 stems and a single mouthpiece. Although the actual number of bowl fragments examined was eighteen, five of these joined to make the larger part of a bowl, broken during excavation and two other freshly broken fragments jointed to make another. Therefore only thirteen individual bowls are actually represented by this group. Similarly, some of the 90 stem fragments that were present have fresh breaks suggesting that originally there would only have been 85 fragments in the ground. The pipes themselves are mostly of mid-17th-century date with the majority of the bowls dating to *c.* 1650-1670. Most of these fragments are badly battered and burnt but a number of them are marked, including two different IG dies, AI and IW. In addition, there are two later IW marks of *c.* 1680-1720, both from different dies again. There are a few stems that are probably contemporary with these later IW marks and so the deposit seems to include two elements. There is a large assemblage of *c.* 1650-1670 fragments, many burnt, and then a smaller element of *c.* 1680-1720 pipes, representing the final deposition of this group.

1245 (6/15/0=21) [1640-1660]

This context group produced six bowls and fifteen stems, but no mouthpiece fragments were recovered. Although this is a relatively small group, it is a very consistent looking group with all the bowls dating from *c.* 1640-1660. All are heel types but none is marked. One of the interesting features of this particular group is the presence of a stem that has had a notch cut through to the bore after firing, perhaps to make a flute. There is a similar fragment from context 1241.

4 The Pipes Themselves

Just under 82% of the entire clay tobacco pipe assemblage is made up of plain stems and therefore extremely difficult to date accurately. However, the general appearance of the stem fragment and the size of the bore can give an indication of the likely century in which it was

produced. Stem dates should always be used with caution since they are much more general and less reliable than the dates that can be determined from the more diagnostic fragments such as the bowls or marked fragments. None of the stems from Bradford Broadway appears to be from short-stemmed ‘cutty’ style pipes of the later 19th and early 20th centuries, although there are at least two bowl fragments from this type of pipe within the assemblage.

In the following sections the pipes themselves are discussed under the following four main headings; The Plain Bowls; The Marked Pipes; The Mould Decorated Pipes and The Modified Stems.

The Plain Bowls (Figures 1-22 and 43-44)

The site at Bradford Broadway produced a total of 162 plain bowl forms. The following table provides a summary by century.

Period	Quantity
17th century	75
Transitional Period (c.1690-1730)	13
18th century	10
19th century	64
Total:	162

From the inception of pipe smoking in England at the end of the 16th century until about 1640, it was London that set the fashion throughout the rest of the country. Pipes from almost anywhere in England during the period c.1580-1610 are virtually indistinguishable from those produced in London. Pipes from this period are extremely rare with only ten examples known from the whole of Yorkshire. There are no pipes of this date from Bradford Broadway.

Prior to the outbreak of the Civil War, bowl forms throughout England were fairly uniform in terms of size and shape and Yorkshire bowl forms of this period follow the same basic trends as those from other sites in England. The period 1610-1640 is dominated by heel forms (Figures 1 and 2).

The Civil War marked a turning point in English history and saw an unprecedented level of upheaval and disruption to all aspects of life, including pipe production. It was during the Civil War years that the beginnings of regional diversity in the bowl form were seen. As with earlier periods, heel types dominate the bowl forms of the Civil War period in all parts of Yorkshire and in some regions within the county this trend continues throughout the remaining years of the 17th century, including the north-east of the county (Figures 3-9).

By the period 1660-1690 the first truly regional bowl form in Yorkshire emerges – the ‘Yorkshire bulbous’. There are hints of the origins of a bulbous form during the Civil War period but it is not until the period 1650-1670 when a true bulbous form appears. The actual height of these bowls has changed very little from the earlier Civil War period bowls, but the actual body of the bowl is much fuller giving the ‘bulbous’ appearance. The most pronounced ‘bulbous’ forms of the period 1660-1690 can be found in York and Hull, although the form does occur in centres throughout the county at this period. Typical of this form is the large round heel suitable for the application of a round stamped mark, which is also typical of the county. The bowls of this period from Bradford are slightly less bulbous than their counterparts from York and Hull (Figures 10-22). However, by the period 1660-1690 even the Bradford area appears to be producing bulbous forms with large circular heel marks typical of other production centres in the county at this date (Figures 23-20).

The end of the 17th century saw a dramatic change in the form of some of the pipes produced in Yorkshire with the heavy bulbous forms of the period 1660-1690 being replaced with an elongated, forward leaning form of the Transitional Period (1690-1720). In the east of the county, particularly around Hull, this forward lean became very pronounced and by the early 1700s the bowl forms become more upright.

Very few 18th-century pipe bowls survive in the archaeological record, which may be due to two major factors. First is the fact that the bowl walls are much thinner than had previously been the case with the result that they often break into small fragments making them difficult to recover. The second factor is the introduction of snuff as the preferred method of taking tobacco in the 18th century. In a recent survey of clay tobacco pipes from Yorkshire only 12% of some 7000 bowls recorded in the county dated to the 18th century.

By the 19th century plain bowl forms are once again fairly uniform throughout England but there are still hints at regional styles and spur forms become much more common. Typical of parts of Yorkshire, particularly the south of the county, is a pinched waist that exaggerates the ‘egg’ shaped bowls (Figure 44).

The Marked Pipes (Figures 23-41, 45-46 and 66)

The excavations in Bradford Broadway produced a total of 52 marked pipes comprising five stamped stem marks and sixteen stamped heel marks from the 17th and 18th centuries, and a total of 31 19th-century moulded marks. These marks are discussed in more detail below under two main headings: Stamped Marks and Moulded Marks.

Stamped Marks This type of mark was applied to the bowl or stem by the means of a die after the moulding of the pipe and prior to its firing. Stamped heel marks were the earliest form of marking, dating from the end of the 16th century and continuing through into the 18th century. In some production centres however, and in particular centres on the continent such as Holland, stamped heel marks continued into the 19th century.

In the period 1600-1640 stamped initial marks were very rare in most of Yorkshire. The majority of the marks of this period were symbol marks such as stars, the Tudor rose or various forms of wheel marks. There are one or two exceptions and pipes with a single initial stamped on the heel are known from Thorne in South Yorkshire and Wood Hall Moated Manor.

During the Civil War Period (c.1640-1660) there is a drop in the number of marked to unmarked heels, which may be a result of the upheaval caused by the Civil War, although some initial marks and symbol marks were being produced in West Yorkshire and also in and around York.

In the period 1660-1690 Yorkshire bowl forms underwent a dramatic change with the emergence of the 'Yorkshire Bulbous' form with its large circular heel. In response to this change the stamped marks of this period are also large and circular and almost exclusively initials.

There is yet another change in bowl form at the end of the 17th century and into the early 18th century that prompted another change in the form of heel stamp. At this time a much smaller and simpler stamped mark was introduced comprising nothing more than a set of initials in a simple border. Also at this time the fashion of applying a mark across the top of the stem was also introduced, sometimes in addition to the stamped heel mark.

Roll stamped stem marks appear in the 18th century and fall into quite distinctive regional schools, the most elaborate of which were produced at Chester (Rutter and Davey 1980). Roll stamps are a phenomenon that appears to have been used principally in the Midlands and the north of England. The examples recovered from Chester are almost entirely decorative and hardly any contain lettering or the maker's name, although the word CHESTER sometimes occurs. Those roll-stamped stem marks found in Yorkshire and parts of the North-east, however, are usually name marks that are sometimes associated with decorative borders.

The excavations at Bradford Broadway produced sixteen heel stamped marks and five stem stamps including a single roll-stamp stem mark. A summary of each of these marks is given in the table below followed by a discussion of the marks themselves in alphabetical order.

Ctxt	Ref	Date	Cname	Sname	Other	Fig	Comments
U/S	B	1660-1680	I	C		23	Heel mark
1122	B	1660-1680	I/T?	E/L?		32	Heel mark has a central device and a plain border but only the lower parts of the letters survive.
1214	D	1660-1680	I	G		24	Heel mark.
1214	E	1660-1680	I	G		31	Heel mark.
1208	F	1660-1680	A	I		29	Heel mark.
1214	A	1660-1680	A	I		28	Two joining fragments. Heel mark.
1056		1680-1730	W	I		42	An interesting bowl of c.1680-1730 with a stamp reading WI inverted across the stem.

1041		1680-1740	I	W		39	A large (100mm) fragment of burnished stem with an IW stamp across it.
1128		1680-1740	I	W		41	IW across the stem.
1152	A	1680-1720	I	W	Crowned	37	Heel mark.
1152		1660-1720	I	W		40	IW across the stem.
1154	C	1660-1680	I	W		27	Heel mark.
1208	B	1660-1680	I	W		25	Heel mark.
1208	D	1660-1680	I	W		26	Heel mark.
1214	L	1680-1720	I	W		34	Heel mark.
1214	F	1650-1670	I	W		35	Heel mark.
1214	M	1680-1720	I	W		38	Heel mark.
186		1680-1720	I	W		36	Complete transitional bowl with a finely burnished surface and initials IW stamped on heel.
U/S	D	1690-1720	I	W		33	Heel mark.
1160		1700-1740		WINDLE		66	Roll-stamp stem mark.
1208	A	1660-1680			Unidentified symbol	30	Heel mark.

Cname = Christian name, *Sname* = Surname

IC (Figure 23) A single bowl with a heel stamp mark reading IC was recovered from an unstratified deposit. This bowl dates to *c.* 1660-1680 and has a damaged heel so only half the mark is visible. The mark has a serrated border that is reminiscent of the marks found around Pontefract. There are currently no known makers with the initials IC working in or around either Pontefract or Bradford at this date. Therefore this mark may represent a previously unrecorded maker.

IG (Figures 24 and 31) The excavations yielded two IG marks, both on bowls dating to *c.* 1650-1670 and both from context 1214. The first IG stamp (Figure 24) is a partial mark and appears to comprise the initials IG either side of a stylised tobacco plant motif. This motif was particularly popular with the makers from Hull and York. The second mark also has the initials IG this time with an even more debased form of tobacco plant at the centre of the mark. A number of IG marks have been previously recorded in Yorkshire from Huddersfield, Wood Hall Moated Manor and Pontefract as well as Warrington (White 2004, 95). It is possible that these marks, together with the examples from Bradford, can be attributed to members of the Gill family who were working at Potovens near Wakefield at the end of the 17th and early 18th centuries.

AI (Figures 28 and 29) Two pipe bowls with an AI mark and dating *c.* 1650-1670 were recovered from the excavations. The first, and most complete bowl consisting of two joining fragments, came from context 1214. The mark on this bowl comprises the initials AI within a simple border with a small semi-circular motif below the letters. The second example, from context 1208, is a heel fragment only but was clearly burnished. In this instance the heel mark has the initials AI at the centre flanked by two small semi-circular motifs. Above and below the initials there is a small star motif. Only two other AI stamps are known from

Yorkshire, one from Ilkley, in the Manor House Museum Collection (Accession No. A11.81.14), and the other from Leeds, in the Abbey House Museum Collection. Neither of these previously recorded marks matches the example found in Bradford but given that the only known find spots for these pipes cluster around the Leeds/Bradford area they are likely to represent a previously unrecorded local maker.

IW (WI) (Figures 25-27 and 33-42) By far the largest group of marked pipes recovered from the site are those with the initials IW and comprises ten bowl marks and three stem marks. They appear on a range of bowl forms from the late 17th century through into the early 18th century. At least 39 other IW heel stamps have been recorded from all over Yorkshire including finds spots in Halifax, Leeds, Ilkley, Pontefract, Ripon and York. Only detailed analysis of all of these marks, together with the recent finds from Bradford, will make it possible to determine whether they were produced by the same die, and therefore the same workshop, but the sheer number of new examples from Bradford would point to at least some of these IW marks being the products of a local Bradford maker.

WINDLE (Figure 66). A single roll stamped stem mark was recovered from the excavations at Bradford Broadway. This is a stem fragment recovered from context 1160 and dates to c.1700-1740. This particular stem stamp is quite elaborate with decorative borders above and below a central panel containing the lettering WINDLE. These borders are most closely paralleled by examples from Chester dating from c.1690-1715 (Rutter and Davey Border Types 18, 52 and 53). It is possible that there should also be a Christian name initial but it appears to be missing on this example. The top left hand corner of the border above the lettering is quite deeply impressed with a clearly defined left-hand edge, which is missing adjacent to the surname itself as if part of the lettering had been cut away. It is possible that a Christian name initial has been removed when it passed on to another member of the family. This particular stem stamp has not been recorded before and represents an interesting adoption of Chester-influenced style in Yorkshire.

There are four recorded pipemakers with the name Windle (White 2004, 183-184). Three of these are known to have been working in Halifax. The first was John Windle (1) who appears to have been dead by 1757 when his house ‘now used as a pipe shop...’ was left to his son, also called John. The second was John Windle (2) who was almost certainly the son of John Windle (1) and who took out a Sun Assurance policy in 1763. Finally Joseph Windle, also of Halifax, who appears in the apprentice books for 1744, 1748 and 1749 and was said to be the ‘most ingenious tobacco pipemaker in England’ (Denison Lamb 1938). The only other known maker by the name of I (or J) Windle was working in Leeds around c.1748-1775 (Oswald 1975, 202).

Based on the evidence that exists for a maker by the name of Windle, and the date of the stem fragment itself, based on typological grounds, it would seem most likely that the stem stamp from Bradford is either that of John Windle (1) or Joseph Windle both of Halifax.

Unidentified Symbol and Initial Marks

(Figures 30 and 32) In addition to those stamped marks discussed above the site at Bradford Broadway also produced two unidentified marks. The first is a symbol mark from context 1208 which appears on a bowl dating to c.1650-1670 (Figure 30). The second is a partial heel mark on a bowl c.1650-1680 from context 1122. This particular bowl has a very clear heel stamp that appears to comprise a set of initials flanking a central motif, possibly a stylised tobacco plant. It is difficult to determine what the initials may be but the Christian name initial is likely to be either I or T with the surname initial either E or L (Figure 32).

It is interesting to note that of the 21 stamped pipe fragments seventeen are also burnished. It should be noted that of the remaining four pipes, two were so badly burned that it was impossible to say if they had been burnished originally. The process of burnishing was carried out once the pipes had been trimmed and prior to firing. This was done using a rod or 'pencil' of glass or agate and resulted in very fine lines over the surface of the pipe, if done well the individual lines are very difficult to see. In the illustrations in this report a burnishing is depicted with a series of broken lines over the surface of the pipe. Burnishing was a time consuming part of the manufacturing process and resulted in a more expensive pipe. In some areas the presence of high numbers of burnished pipes could be an indication of a high status site but equally it may also indicate that burnished pipes were the norm and had nothing to do with status. In Shropshire, for example, almost all pipes are burnished from the 17th century right through to the 19th century. In contrast, pipes produced in East Anglia are almost exclusively unburnished. Studies in Yorkshire suggest that production sites in the south and west of the county were more likely to burnish their pipes in the period c.1660-1720. There also appears to be a correlation between those pipes that are burnished and those that are marked. Although there is clearly a drop in the number of marked pipes that were burnished during the Civil War period this increases in the latter years of the 17th century and early 18th century. In general terms it would appear that if a pipe was worthy of burnishing it was also worthy of having a stamped mark.

Moulded Marks

The application of a moulded mark was introduced in the 18th century and continued in use into the 20th century. Unlike stamped marks, which were applied to the pipe after they had been moulded but prior to firing, as a separate exercise, moulded marks were cut into the mould and therefore produced as part of the moulding process. Pipes produced in this way could therefore be marked much more quickly and efficiently than before.

The most common type of moulded mark was either the maker's initials moulded on either side of the heel or spur, or abstract symbol marks such as flowers, stars and dots. During the course of the later 18th and 19th centuries more elaborate moulded marks were introduced with the makers' initials appearing on the main body of the bowl either on the sides of the bowl, or either side of the seam facing the smoker. Occasionally the name of the maker and

sometimes the place of manufacture itself appear as part of the decorative scheme either on the sides of the bowl, in scrolls as part of the design, or around the rim.

All the moulded marks from Bradford Broadway appear to be from the 19th century and comprise twelve symbol marks moulded on to the sides of the spur, one set of initial marks on the sides of the spur, twelve marks moulded along the line of the stem, and six moulded bowl marks (four either side of the seam facing the smoker and two on sides of the bowl). A summary of each of these marks is given in the table below followed by a discussion in alphabetical order by surname initial, and then by symbol.

Ctxt	SF	Ref	Date	Cname	Sname	Other	Fig	Comments
1020		F	1830-1860	I	B			Moulded initials facing the smoker - the surname initial B is reversed. Flutes and rose bowl.
U/S		H	1820-1850	R?	B?		53	RB moulded either side of the seam facing the smoker. Flutes and Masonic motif bowl.
1021		F	1830-1860	E	C	KEIGHLEY		EC Keighley along the side of the stem with a ring and dot motif on sides of spur.
1022			1830-1860	E	C	KEIGHLEY		EC Keighley along the side of the stem.
1022			1830-1860	E	C	KEIGHLEY		EC Keighley along the side of the stem.
1022			1830-1860	E	C	KEIGHLEY		EC Keighley along the side of the stem.
1105		C	1830-1870	E	C	KEIGHLEY		EC Keighley along the side the stem and a ring motif on spur.
1130			1830-1870	E	C	KEIGHLEY		EC Keighley along the side of the stem.
1019		A	1840-1870	E	C	KEIGHLEY	50	EC Keighley along the side of the stem with a ring and dot motif on the sides of the spur. Composite drawing with the stem from Context 1037.
1028			1840-1870	E	C	KEIGHLEY		EC Keighley along the side of the stem.
1028			1840-1870	E	C	KEIGHLEY		EC Keighley along the side of the stem.
1104			1840-1870	E	C	KEIGHLEY		EC Keighley along the side of the stem.
1020			1830-1870	E?	C?	KEIGHLEY?		Stem with a possibly deleted mark. May originally have had EC Keighley moulded along the stem.
1037			1830-1870	E?	C?	KEIGHLEY?	50	Spur now missing but traces of a moulded mark on the sides of the spur visible. Composite drawing with the bowl from Context 1019.
1089		H	1820-1860	I	D		58	The initials ID on both sides of the bowl. Can possibly be attributed to either Joseph Dodson, or his son John Dodson of Birstall.
1089		G	1820-1860		D?		47	Appears to have a moulded letter D on the right hand side of the seam facing the smoker.
1095			1830-1870	I?				Either a moulded initial I on the sides of the seam facing the smoker or a mould flaw. Same mould as Bowl C (1130).
1130		C	1830-1870	I?			48	Either a moulded initial I on the sides of the seam facing the smoker or a mould flaw. Same mould as bowl from 1095
278	18		1800-1900	LL	LEEDS		The stem has a moulded mark on one side of the stem reading '....LL.LEEDS'. This is almost certainly one of the Tunstall family, recorded there from 1807-1861, although there was also a maker called Connell in 1853 (Oswald

								1975).
1020		B	1830-1860			Dot	46	Moulded spur mark.
1086		C	1830-1870			Double ring		Moulded spur mark.
1021		D	1830-1860			Flower		Moulded spur mark.
1098		F	1830-1870			Flower		Moulded spur mark.
1022		O	1840-1880			Flower ?		Moulded spur mark.
1022		C	1840-1880			Flower?	45	Moulded spur mark.
1089		A	1820-1860			Leaf	55	Moulded spur mark.
1022		A	1840-1880			Ring	49	Moulded spur mark.
1020		G	1830-1860			Ring & dot		Moulded spur mark.
1098		A	1830-1870			Ring & dot		Moulded spur mark.
1098		E	1830-1870			Ring & dot		Moulded spur mark.
1098		B	1830-1870			Unident		Moulded spur mark.

Cname = Christian name, Sname = Surname

IB (not illustrated) A single bowl with the moulded initials IB was recovered from context 1020 and dates to *c.*1830-1860. The bold, but quite crudely executed initials appear either side of the seam facing the smoker. The surname initial B has been reversed. The bowl is damaged on the seam away from the smoker but there appears to be a second initial B on what survives. In this instance the B is depicted correctly. There are currently no known makers with the initials IB working in or around Bradford at this date, therefore this fragment appears to represent a previously unrecorded maker.

RB (Figure 53) A single bowl with the moulded initials RB was recovered from an unstratified deposit from Bradford Broadway and dates to *c.*1820-1850. The initials appear on either side of the seam facing the smoker. The initials appear to have been impressed twice as there are clearly traces of a repeated initial in both cases. There are currently no known makers with the initials RB working in or around Bradford at this date, therefore this fragment appears to represent a previously unrecorded maker.

EC KEIGHLEY (Figure 50) By far the largest group of moulded marks to be recovered from the site is made up of twelve bowl and stem fragments marked EC KEIGHLEY. The bowl fragments bearing this mark also have a moulded ring mark on the sides of the spur and all would appear to date to within the period *c.*1830-1870. It is most likely that the EC represents the Christian name and surname initials of the maker and the Keighley is the place of manufacture rather than a surname. There are currently no known makers with these initials working in Keighley in the mid- 19th century.

ID (Figure 58) Context 1089 yielded a single bowl dating to *c.*1820-1860 with flutes on the lower half of the bowl and a floral motif above flanked by the rather bold letters ID (Figure 58). An almost identical bowl was recorded at Batley Museum in the 1960s by Hilary Brook

(*in litt.* 12.03.1990) and can be attributed to either Joseph Dodson or his son John Dodson of Birstall, both of whom were working from at least 1841-1871 (Brook 1989).

?D (Figure 47) Context 1089 yielded a single bowl dating to *c.* 1820-1860, with leaf decorated seams but that also appears to have a moulded initial next to the seam facing the smoker. There appears to be a rather poorly moulded letter beside the seam on the smoker's right, which would usually correspond with a surname initial. The bowl is damaged on the smoker's left so it is impossible to tell if there would have been a corresponding Christian name initial. The moulding is rather poor and incomplete so it is difficult to tell if the letter portrayed is a lower case d or an upper case D in retrograde (i.e. reversed). The placing of this relief moulded initial is a little unusual and almost appears to be an afterthought. Had it not been for the resemblance of the mark to an identifiable letter, it could be argued that it was simply a mould flaw.

Unidentified Surname (including I?,LL LEEDS) (Figure 48) There are three fragments that fall into this category, two bowls, from the same mould, and a single stem fragment.

The two bowls, one from context 1095 and one from 1130 (Figure 48), were clearly produced in the same mould. Both have crudely executed leaf decoration on both seams and both bowls date to *c.* 1830-1870. On the left hand side of the seam facing the smoker is what appears to be an initial I. As with the ?D bowl above (Figure 47) the position of this apparent Christian name initial is rather unusual, particularly given that there does not appear to be a corresponding surname initial on the other side of the seam. It is quite possible that this mark is simply a rather pronounced mould flaw.

The stem in this Unidentified Surname group, has a moulded mark on one side of the stem reading '...LL.LEEDS'. It was recovered from context 278 (SF. 18) and dates to *c.* 1800-1900. This particular fragment is almost certainly one of the Tunstall family, recorded in Leeds from 1807-1861, although there was also a maker called Connell in 1853 (Oswald 1975), who cannot be ruled out as another possible candidate.

Symbol Marks (including Dot, Double Ring, Flower, Leaf, Ring, Ring and Dot, and unidentified) (Figures 45, 46, 49, 50 and 55) A total of twelve pipe bowls from the 19th century were recovered from the site with a range of symbol marks moulded on to the sides of the spur. These include simple dots (Figure 46), rings (Figures 49 and 50) and simple leaves (Figure 55).

The Mould Decorated Pipes

Of the 256 bowl fragments recovered from the excavations at Bradford Broadway only 64 were mould decorated. In two instances not enough of the pipe survives to be able to identify the decorative scheme. Their original design therefore remains unidentified. In addition, there was one rather unusual mould-decorated and glazed stem from context 1188, which is discussed at the end of this section.

There are only three basic design elements that are found on the mould-decorated bowls from the site – flutes, leaf decorated seams, and Masonic motifs. Every mould-decorated bowl fragment in the assemblage has at least one of these three main elements, each of which is discussed in alphabetical order below.

Flutes (including plain flutes/flute and dots (with leaf decorated seams)/flutes and Masonic motifs (with and without leaf decorated seams)/flutes with a rose/flutes and leaf decorated seams) (Figures 51-53 and 56-58) One of the most common forms of decoration on the bowls of the late 18th and 19th centuries was flutes. Broader flutes, or scallops, which were thicker at the top tapering to a pointed tail, were common at the end of the 18th century. These were sometimes enclosed within a row of dots or a loop. In contrast, narrow flutes tended to be of a more uniform thickness and became more common during the course of the 19th century.

Moulded flutes could occur with other decorative motifs. The excavations at Bradford Broadway yielded a total of 26 bowl fragments, accounting for 21 individual bowls with various combinations of fluted decoration. This decoration takes the form of simple moulded flutes; flutes with rows of dots in between; bowls with flutes on the lower part of the bowl and Masonic motifs or roses on the upper part as well as fluted bowls that also have leaf decorated seams. The details of different types of fluted bowls are presented in the table below followed by a more detailed discussion.

Ctxt	Ref	Date	Cname	Sname	Other	Decoration	Fig	Comments
1086	C	1830-1870			Double ring	Flutes		Spur fragment only, but clearly has traces of moulded flutes.
1089	I	1820-1860				Flutes		Spur fragment only
1020	H	1830-1860				Flutes & dots and leaf decorated seams		Possible same design as Bowls I and J (1020); Bowls B, E and F (1120); Bowl A (1111) and Bowl B (1120).
1020	I	1830-1860				Flutes & dots and leaf decorated seams		Possible same design as Bowls H and J (1020); Bowls B, E and F (1120); Bowl A (1111) and Bowl B (1120). Possibly with traces of moulded lettering around the rim - now illegible.
1020	J	1830-1860				Flutes & dots and leaf decorated seams		Possible same design as Bowls H and I (1020); Bowls B, E and F (1120); Bowl A (1111) and Bowl B (1120).
1089	F	1820-1860				Flutes & dots with leaf decorated seams		Three joining fragments. Possibly the same mould as Bowl B (1104).
1104	B	1820-1860				Flutes & dots with leaf decorated		Possibly the same mould as Bowl F (1089).

						seams		
1111	A	1820-1860				Flutes & dots with leaf decorated seams		Possible the same mould as Bowls B, E and F (1120) and Bowls H, I and J (1020).
1120	B	1820-1850				Flutes & dots with leaf decorated seams	51	Possible the same mould as Bowls E and F (1120); Bowls H, I and J (1020) and Bowl A (1111)
1120	E	1820-1850				Flutes & dots with leaf decorated seams		Possible the same mould as Bowls B and F from this context; Bowls H, I and J (1020); Bowl A (1111).
1120	F	1820-1850				Flutes & dots with leaf decorated seams		Possible the same mould as Bowls B and E(1120); Bowls H, I and J (1020) and Bowl A (1111)
1120	D	1820-1850				Flutes & Masonic motifs		
1197	A	1820-1850				Flutes & Masonic motifs	57	Appears to be the same mould as the Bowl B (1197).
1197	B	1820-1850				Flutes & Masonic motifs		Appears to be the same mould as Bowl A (1197).
U/S	H	1820-1850	R?	B?		Flutes & Masonic motifs with leaf and dot decorated seams.	53	
1020	E	1830-1860				Flutes & Masonic motifs with leaf decorated seams	52	Two joining fragments; spur now missing. Same mould as Bowl C (1022). Very similar to Bowl B (1105) but clearly from a different mould.
1022	E	1840-1880				Flutes & Masonic motifs with leaf decorated seams		Two joining fragments. Same mould as Bowl E (1020).
1105	B	1830-1870				Flutes & Masonic motifs with leaf decorated seams		Bowl flaw on the smoker's right suggests that the mould may have been broken, then repaired. Design very similar to Bowl E (1020) but clearly from a different mould.
1020	F	1830-1860	I?	B		Flutes & rose with leaf decorated seams.		Moulded initials facing the smoker - the surname initial B is reversed.
1089	H	1820-1860	I	D		Flutes with leaf decorated seams	58	Attributed to either Joseph Dodson, or his son John Dodson of Birstall.
1197	D	1820-1850				Flutes with leaf decorated seams		Flutes on lower part of the bowl only; almost certainly had a mould decorated element on the upper part of the bowl, but nothing survives.

Cname = Christian name, Sname = Surname

Plain Flutes (not illustrated) The excavations produced just two possible bowls with just simple narrow flutes but in both cases these are only spur fragments so only part of the decorative scheme survives.

Flutes and Dots (with leaf decorated seams) (Figure 51) A total of eleven bowl fragments accounting for nine individual bowls with flutes, dots and leaf decorated seams were recovered from the excavations. These eleven individual bowls represent just two different mould types. The first mould type (Figure 51) represents seven of the bowls (three from context 1020; three from context 1120 and one from context 1111). On each side of the bowl are seven narrow flutes in between which are a series of dots. Both seams are decorated with crudely executed leaves. There are traces of some form of decoration around the rim. It is unclear if this is intended to be lettering or simply a band of inter-linked circles, as it appears to be in the illustrated example. The other mould type (not illustrated) represents just two individual bowls (one from context 1104 and one from context 1089). In this instance each side of the bowl has five narrow flutes with a number of dots in between. As with the first mould type, the leaves decorating both seams are crudely executed. Around the rim is a row of crosses.

Flutes with Masonic Motifs (with and without leaf-decorated seams) (Figures 52, 53 and 57) A total of nine bowl fragments, representing seven individual bowls decorated with flutes and Masonic motifs were recovered from the excavations at Bradford Broadway. Three of these individual bowls have leaf decorated seams and one, Figure 53, also has dots along the seams. One of these bowls also has the moulded initials RB either side of the seam facing the smoker (Figure 53). The Christian name initial, R, appears to have been moulded twice as there is clearly a faint trace of two letter Rs, one above the other. There are currently no known makers from Bradford with the initials RB so this may represent a previously unrecorded maker.

Flutes with rose (with leaf-decorated seams) (not illustrated) A single example of a bowl decorated with flutes, a rose and leaf decorated seams was recovered from context 1020 (Bowl F), dating to c.1830-1860. Either side of the seam facing the smoker are the moulded relief initials IB, interestingly the surname initial B has been reversed. Again, there are no known makers from Bradford with these initials, so this may represent another previously unrecorded maker.

Flutes and leaf decorated seams (Figure 58) The excavations produced just two bowl fragments decorated with flutes and leaf decorated seams. The first is the lower part of a spur bowl from context 1197 and dates to c.1820-1860. In this instance the narrow flutes are clearly only intended to cover the lower half of the bowl. The upper part would almost certainly have had moulded decoration, but nothing survives. The second bowl was recovered from context 1089 (Bowl H) and also dates to c.1820-1860. In this case the flutes also only cover the lower part of the bowl. There are well executed leaves on both seams. On both sides of the upper part of the bowl there is a central floral motif flanked by the relief

moulded lettering ID. This particular pipe can be attributed to either Joseph Dodson or his son John Dodson of Birstall (Brook 1989, 3) (see above for a discussion of the marked pipes).

Leaf Decorated Seams (Figures 47-50)

The excavations at Bradford Broadway produced a total of 28 bowl fragments with leaf, or leaf and dot, decorated seams, accounting for 26 individual bowls. The details of each of these 26 individual bowls are presented in the table below.

Of the 26 individual bowls with leaf decorated seams, just two also have a row of dots – a spur fragment from context 1089 and a rim fragment from context 1130. All the other bowls in this group have simple leaves on both seams that appear to take one of two forms. The first is a simple and rather crudely executed leaf, for example Figures 47 and 48. The other is a more elaborate leaf with a serrated edge and central vein detail, for example Figures 49 and 50.

Ctxt	Ref	Date	Cname	Sname	Other	Decoration	Fig	Comments
1089	M	1820-1860				Leaf & dot decorated seams.		Spur fragment only.
1130	D	1830-1870				Leaf & dot decorated seams.		Rim fragment only.
1022	A	1840-1880			Ring	Leaf decorated seams	49	
1019	A	1840-1870	E	C	KEIGHLEY	Leaf decorated seams.	50	Ring and dot motif on the spur
1020	D	1830-1860				Leaf decorated seams.		Spur now missing. Possibly from the same mould as bowl A (1021).
1020	J	1830-1860				Leaf decorated seams.		Rim fragment only.
1020	N	1830-1860				Leaf decorated seams.		Rim fragment only.
1021	A	1830-1860				Leaf decorated seams.		Possible from the same mould as bowl D (1020).
1021	B	1830-1860				Leaf decorated seams.		
1022		1800-1900				Leaf decorated seams.		Very small splinters of bowl fragment with leaf decorated seams.
1022	B	1840-1880				Leaf decorated seams.	44	
1022	D	1840-1880				Leaf decorated seams.		From the same mould as bowls D (1020) and A (1021). Mould line around the rim suggests the mould has been repaired at some point in its lifetime.
1022	F	1840-1880				Leaf decorated seams.		Very similar to Bowls D (1020) and A (1021) but appears to be from a different mould. Mould line around

								the rim suggests the mould has been repaired.
1037		1830-1870	?	?		Leaf decorated seams.	50	Spur now missing but traces of a moulded mark on the sides of the spur visible.
1054	B	1830-1870				Leaf decorated seams.		
1078	B	1830-1870				Leaf decorated seams.		Rim fragment only.
1086	B	1830-1870				Leaf decorated seams.		Traces of a mould line around the rim suggest that the mould has been repaired at some point during its life.
1089	G	1820-1860		D?		Leaf decorated seams.	47	Appears to have a moulded letter D on the right hand side of the seam facing the smoker.
1089	J	1820-1860				Leaf decorated seams.		Very faint leaf decorated seams.
1093	B	1830-1870				Leaf decorated seams.		
1095		1830-1870	I?			Leaf decorated seams.		Two joining fragments. Same mould as Bowl C (1130).
1098	B	1830-1870			Unidentified	Leaf decorated seams.		
1098	D	1830-1870				Leaf decorated seams.		Bowl fragment only
1098	F	1830-1870			Flower	Leaf decorated seams.		Spur fragment only
1104	C	1820-1860				Leaf decorated seams.		
1130	C	1830-1870	I?			Leaf decorated seams.	48	Same mould as the bowl from 1095.

Cname = Christian name, Sname = Surname

Masonic Motifs (Figures 54-56) In addition to the fluted bowls with Masonic motifs discussed above, the site produced a total of eleven bowls decorated entirely with Masonic motifs. There would appear to be six different mould types represented in this assemblage. Details of each individual bowl are presented in the table below followed by a more detailed discussion.

Ctxt	Ref	Date	Cname	Sname	Other	Decoration	Fig	Comments
1089	A	1820-1860			Leaf	Masonic motifs with leaf and dot decorated seams.	55	Joining bowl and stem fragment. From the same mould as Bowls B, C and D (1089) but with the addition of a moulded leaf on the spur, therefore mould has been modified. Mould line visible.

1089	C	1820-1860				Masonic motifs with leaf and dot decorated seams.	54	From the same mould as Bowls A, B and D (1089) but this bowl and bowls B and D do not have the moulded leaf motif on the sides of the spur that appears on Bowl A.
1089	E	1820-1860				Masonic motifs with leaf and dot decorated seams.	56	Same mould as Bowl C (1120)
1197	E	1820-1850				Masonic motifs with leaf and dot decorated seams.		Mould line around the rim suggests the mould has been repaired at some point during its life.
1078	A	1830-1870				Masonic motifs with leaf decorated seams.		
1089	B	1820-1860				Masonic motifs with leaf and dot decorated seams.		From the same mould as Bowls A, C and D (1089) but this bowl and bowls C and D do not have the moulded leaf motif on the sides of the spur that appears on Bowl A. Mould line visible. This example has been overfired.
1089	D	1820-1860				Masonic motifs with leaf decorated seams.		From the same mould as Bowls A, B, and C (1089). Rim fragment only.
1107		1820-1860				Masonic motifs with leaf decorated seams.		
1120	C	1820-1850				Masonic motifs with leaf decorated seams.		Same mould as Bowl E (1089)
1120	G	1820-1850				Masonic motifs with leaf decorated seams.		Mould line around the rim suggests the mould has been repaired at some point during its life. Same decorative scheme on both sides of the bowl (cf. figure 54).
1089	K	1820-1860				Masonic motifs.		Rim fragment only, possible same as Bowls A - D (1089).

Context 1089 produced five individual Masonic bowls that appear to have come from the same mould (Bowls A (Figure 55), B, C (Figure 54), D and K). Both seams are decorated with leaves and dots. On the smoker's right there are two scrolls enclosing three towers, above which is the sun. On the smoker's left are cross square and compasses at the centre flanked by a pair of columns, above which is another representation of the sun.

This particular group of Masonic bowls is interesting in that it illustrates at least two major alterations to the mould that produced them. The first is indicated by a faint mould line near the rim as can clearly be seen in Figures 54 and 55. This suggests that the mould has been repaired at some point during its lifetime. During the manufacturing process a knife was pushed across the top of the pipe, whilst it was still in the mould, in a slot specially designed for this purpose. This process gave the pipe its clean-cut rim, but the continual action of the knife in the slot itself eventually caused the mould to become slightly dished at this point. This wear was repaired by inserting a new piece of metal into the mould, but the new insert left a tell-tale line around the top of any pipes that were subsequently produced from it.

The second alteration is in the form of a moulded spur mark, in this instance a leaf that has been added to the mould. Mould flaws and details within the design make it clear that all five of these Masonic bowls were produced in the same mould. In addition to all the other distinguishing features of this particular design Bowl A (Figure 55) also has a moulded symbol mark on the sides of the spur. What this appears to represent is a modified mould that gives some chronological separation to the pipes within this individual mould group. The mould appears to have been used to produce Bowls B, C, D and K, by which stage it had already undergone repair to the knife slot, but prior to the production of Bowl A it had undergone further modification with the addition of a moulded spur mark.

The second mould group is represented by just two bowls – Bowl E from context 1089 (Figure 56) and Bowl C from context 1120. The basic decorative scheme of this mould group is very similar to the previous group in terms of the elements that make up the design. In this second mould group, however, those elements are much more boldly executed and the fine leaves and dot along the seams have been replaced with simple, rather crudely executed leaves.

For the remaining four mould groups there is only one example of each present in the pipe assemblage from Bradford Broadway.

Mould-decorated Stem (Figure 65) One of the more unusual mould-decorated fragments to have been recovered from the site is a stem from context 1188. This is an extremely unusual piece since it appears to come from the mid-section of a long-stemmed pipe but it is completely covered with a pale green glaze. Furthermore, there is a band of crudely moulded decoration under the glaze, perhaps in imitation of a stem twist. If the fully glazed surface is intentional, then it is extremely rare nationally and the only known example with a green glazed surface.

The Modified Stems (*Figures 60-64*)

Five modified stems were recovered from the excavations at Bradford Broadway, all dating from the 17th or early 18th century.

The modification of stems can take a number of forms but usually occurs for one of two main reasons. Firstly the grinding or scraping of the stem for reuse after the original mouthpiece has been broken off. This type of modification is characterised by even grinding round the end of the stem and, occasionally, by the appearance of tooth wear on the stem. None of the examples from Bradford Broadway exhibits this type of modification.

The second type of modification is when the stem has been used as a medium with which to draw or write graffiti resulting in the formation of distinct facets on one, or both, ends of the stem. Three of the stems from Bradford Broadway fall into this second group. Two examples have been ground at both ends and facets are clearly visible (Figures 61 and 62). The third example has been broken but facets are clearly visible on the surviving end.

Two of the modified stems recovered from Bradford Broadway, however, are quite different (Figures 63 and 64). In both cases a notch has been cut out of the stem right down to the bore itself. It is unclear quite what these notches are for but it is possible that it may have been done to make simple flutes out of the pipes.

5 Summary and Conclusion

This pipe assemblage from Bradford Broadway makes a significant contribution to our understanding of pipe production and consumption, not only within Yorkshire as a whole, but in particular in Bradford. Until the excavation of this material Bradford was one of the few towns in Yorkshire where there was virtually no pipe evidence especially for the 17th and 18th centuries.

The assemblages includes a good range of locally marked pipes from the 17th, 18th and 19th centuries, many of which may well represent previously unrecorded makers. These marks, together with the bowl forms, suggest that Bradford had a thriving local pipemaking industry from the mid- 17th century onwards.

This assemblage will provide a valuable point of reference for future pipe research not just in Bradford, but in Yorkshire as a whole.

6 Illustration Catalogue

With the exception of the Windle die detail, which is by David Higgins, all the illustrations are by the author. The bowl and stem fragments are at life size (1:1) with stamp details at twice life size (2:1).

- 1 Heel type bowl *c.*1610-1640. Not burnished; no internal bowl cross; rim bottered and milled on all the surviving rim; unable to measure stem bore. (Context: 1269, Bowl Ref. A)
- 2 Heel type bowl *c.*1610-1640. Not burnished; no internal bowl cross; rim bottered and with a groove around the rim but no milling as such; stem bore 8/64". (Context: 1240, Bowl Ref. A)
- 3 Heel type bowl *c.*1630-1650. Not burnished; no internal bowl cross; rim bottered and half milled; stem bore 7/64". (Context: 1282, Bowl Ref. A)
- 4 Heel type bowl *c.*1640-1660. Not burnished; no internal bowl cross; rim bottered and fully milled; stem bore 7/64". Quite crudely finished. (Context: 1241, Bowl Ref. A)
- 5 Heel type bowl *c.*1640-1660. Not burnished; no internal bowl cross; rim bottered but not milled; stem bore 6/64". (Context: 1245, Bowl Ref. F)
- 6 Heel type bowl *c.*1640-1660. Not burnished; no internal bowl cross; rim bottered and fully milled; stem bore 6/64". (Context: 1154, Bowl Ref. A)
- 7 Heel type bowl *c.*1640-1660. Not burnished; no internal bowl cross; rim bottered and fully milled; stem bore 7/64". (Context: 1245, Bowl Ref. A)
- 8 Heel type bowl *c.*1640-1660. Not burnished; no internal bowl cross; rim bottered and fully milled; stem bore 6/64". (Context: 1282, Bowl Ref. B)
- 9 Heel type bowl *c.*1640-1660. Not burnished; no internal bowl cross; rim bottered and fully milled; unable to measure stem bore. (Context: 1154, Bowl Ref. B)
- 10 Heel type bowl *c.*1650-1670. Not burnished; no internal bowl cross; rim bottered milled³; stem bore 6/64". (Context: 1245, Bowl Ref. C)
- 11 Heel type bowl *c.*1650-1670. Not burnished; no internal bowl cross; rim bottered and fully milled; stem bore 6/64". (Context: 1245, Bowl Ref. B)
- 12 Heel type bowl *c.*1650-1670. Not burnished; no internal bowl cross; rim bottered and fully milled; stem bore 7/64". (Context: 1245, Bowl Ref. D)
- 13 Heel type bowl *c.*1650-1670. Not burnished; no internal bowl cross; rim bottered but not milled; stem bore 6/64". (Context: 1026, Bowl Ref. A)
- 14 Heel type bowl *c.*1650-1670. Not burnished; no internal bowl cross; rim bottered and half milled; stem bore 6/64". (Context: 1282, Bowl Ref. E)
- 15 Heel type bowl *c.*1650-1670. Not burnished; no internal bowl cross; rim bottered milled³; stem bore 7/64". (Context: 1254, Bowl Ref. A)
- 16 Heel type bowl *c.*1650-1670. Not burnished; no internal bowl cross; rim bottered but not milled; stem bore 7/64". Broken stem end has been ground. (Context: 1208, Bowl Ref. C)

- 17 Heel type bowl *c.* 1650-1670. Not burnished; no internal bowl cross; rim bottered and fully milled; stem bore 6/64". (Context: 1282, Bowl Ref. F)
- 18 Heel type bowl *c.* 1650-1670. Not burnished; no internal bowl cross; rim bottered milled1; stem bore 7/64". (Context: 238; Trench: 17;)
- 19 Heel type bowl *c.* 1650-1670. Not burnished; no internal bowl cross; rim bottered but not milled; stem bore 7/64". (Context: 1026, Bowl Ref. F)
- 20 Heel type bowl *c.* 1650-1670. Not burnished; no internal bowl cross; rim bottered and fully milled; stem bore 7/64". (Context: 1026, Bowl Ref. D)
- 21 Heel type bowl *c.* 1650-1670. Not burnished; no internal bowl cross; rim bottered but not milled; stem bore 6/64". (U/S, Bowl Ref. C)
- 22 Heel type bowl *c.* 1650-1670. Not burnished; no internal bowl cross; rim bottered and three-quarters milled. (Context: 1214, Bowl Ref. C)
- 23 Heel type bowl *c.* 1660-1680. Not burnished; no internal bowl cross; rim bottered and half milled; stem bore 7/64". Marked with the initials IC on the heel. (U/S, Bowl Ref. B)
- 24 Heel type bowl *c.* 1660-1680. Not burnished; no internal bowl cross; rim bottered and half milled. Marked with the initials IG on the heel. (Context: 1214, Bowl Ref. D)
- 25 Heel type bowl *c.* 1660-1680. Not burnished; no internal bowl cross; rim internally trimmed and bottered but not milled; stem bore 7/64". Marked with the initials IW on the heel. (Context: 1208, Bowl Ref. B)
- 26 Heel type bowl *c.* 1660-1680. Not burnished; no internal bowl cross; rim internally trimmed and bottered and half milled; stem bore 7/64". Marked with the initials IW on the heel. (Context: 1208, Bowl Ref. D)
- 27 Heel type bowl *c.* 1660-1680. Not burnished; no internal bowl cross; no surviving rim; stem bore 6/64". Marked with initials IW on the heel. Heel fragment only. (Context: 1154, Bowl Ref. C)
- 28 Heel type bowl *c.* 1660-1680. Not burnished; no internal bowl cross; rim bottered and milled on all the surviving rim. Marked with the initials AI on the heel. Two joining fragments. (Context: 1214, Bowl Ref. A)
- 29 Heel type bowl *c.* 1660-1670. Not burnished; no internal bowl cross; no surviving rim; stem bore 7/64". Marked with the initials AI on the heel. Heel fragment only. (Context: 1208, Bowl Ref. F)
- 30 Heel type bowl *c.* 1660-1680. Not burnished; no internal bowl cross; rim bottered but not milled; stem bore 7/64". Marked with a symbol mark on the heel. (Context: 1208, Bowl Ref. A)
- 31 Heel type bowl *c.* 1660-1680. Not burnished; no internal bowl cross; no surviving rim. Marked with the initials IG on the heel. (Context: 1214, Bowl Ref. E)
- 32 Heel type bowl *c.* 1660-1680. Not burnished; no internal bowl cross; no surviving rim; stem bore 8/64". The heel is stamped with an initial mark but only part of each letter survives. The Christian name initial is likely to be I or T, while the surname initial could be E or L. (Context: 1122, Bowl Ref. B)

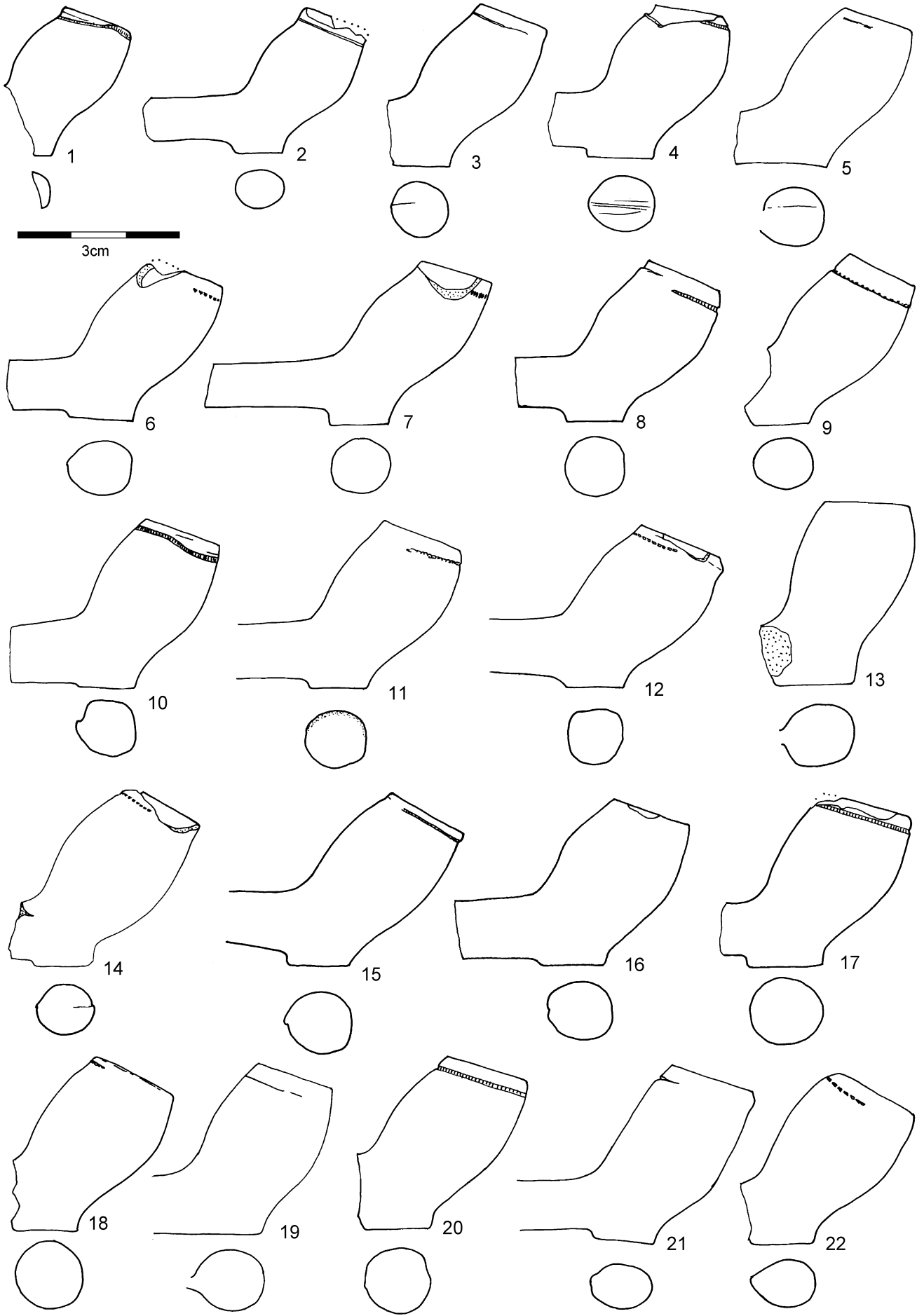
- 33 Heel type bowl *c.* 1690-1720. Not burnished; no internal bowl cross; rim bottered and half milled; stem bore 7/64". Marked with the initials IW on the heel. (U/S, Bowl Ref. D)
- 34 Heel type bowl *c.* 1680-1720. Not burnished; no internal bowl cross; rim bottered and half milled. Marked with initials IW on the heel. (Context: 1214, Bowl Ref. L)
- 35 Heel type bowl *c.* 1650-1670. Not burnished; no internal bowl cross; no surviving rim; the stem bore is unmeasurable. Marked with initials IW on the heel. (Context: 1214, Bowl Ref. F)
- 36 Heel type bowl *c.* 1680-1720. Not burnished; no internal bowl cross; rim bottered and half milled; stem bore 7/64". Marked with initials IW on the heel. (Context: 186; Trench: 4)
- 37 Heel type bowl *c.* 1680-1720. Not burnished; no internal bowl cross; rim- milled0; stem bore 6/64". Marked with the crowned initials IW on the heel. (Context: 1152, Bowl Ref. A)
- 38 Heel type bowl *c.* 1680-1720. Not burnished; no internal bowl cross; rim bottered and milled on all the surviving rim. Marked with the initials IW on the heel. (Context: 1214, Bowl Ref. M)
- 39 A large (100mm) fragment of burnished stem with the initials IW stamped across it *c.* 1680-1740; stem bore 5/64. (Context: 1041)
- 40 A fragment of stem with the initials IW stamped cross it, *c.* 1660-1720. Not burnished; stem bore 5/64". (Context: 1152)
- 41 A fragment of stem with the initials IW stamped across it, *c.* 1680-1740. Not burnished; bowl; stem bore 6/64". (Context: 1128)
- 42 Heel type bowl *c.* 1680-1730. Not burnished; no internal bowl cross; rim bottered but not milled; stem bore 6/64". Marked with a stamp reading WI inverted across the stem. (Context: 1056)
- 43 Heel type bowl *c.* 1690-1740. Not burnished; no internal bowl cross; rim bottered but not milled; stem bore 6/64". (Context: 1209)
- 44 Spur type bowl *c.* 1840-1880. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Leaf decorated seams. (Context: 1022, Bowl Ref. B)
- 45 Spur type bowl *c.* 1840-1880. Not burnished; no internal bowl cross; rim cut and not milled. Marked with a moulded flower motif on the sides of the spur. Traces of a mould line around the rim suggesting the mould has been repaired at some stage in its lifetime. (Context: 1022, Bowl Ref. C)
- 46 Spur type bowl *c.* 1830-1860. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Marked with a moulded dot motif on the sides of the spur. Plain bowl with traces of a mould line around the rim suggesting the bowl has been repaired during its lifetime. (Context: 1020, Bowl Ref. B)
- 47 Spur type bowl *c.* 1820-1860. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Leaf decorated seams. This bowl appears to have a moulded letter D on the right hand side of the seam facing the smoker. (Context: 1089, Bowl Ref. G)

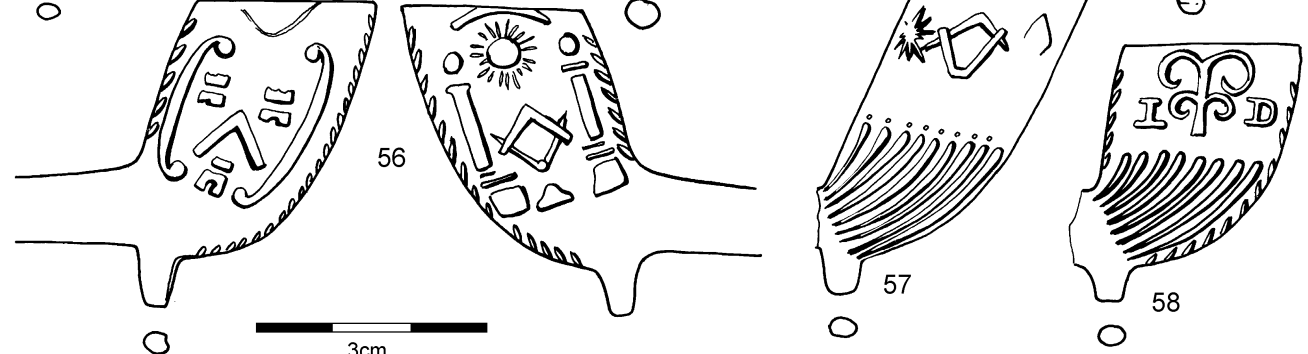
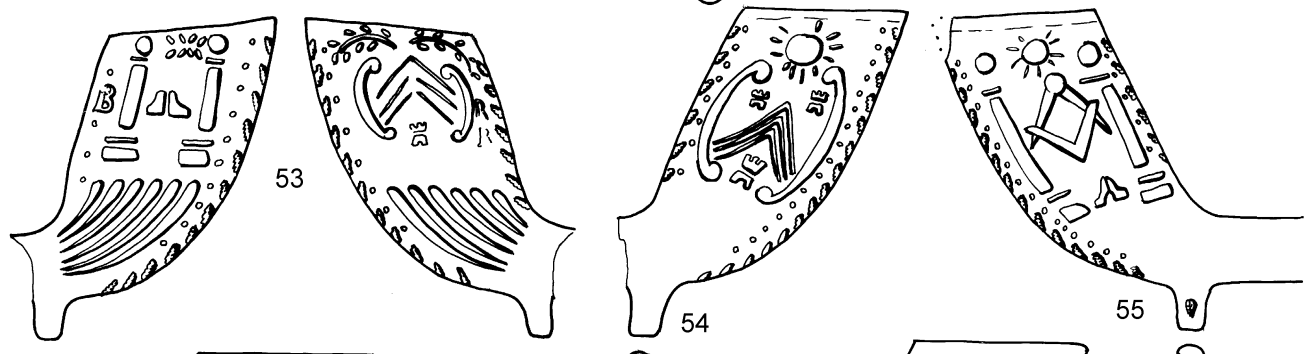
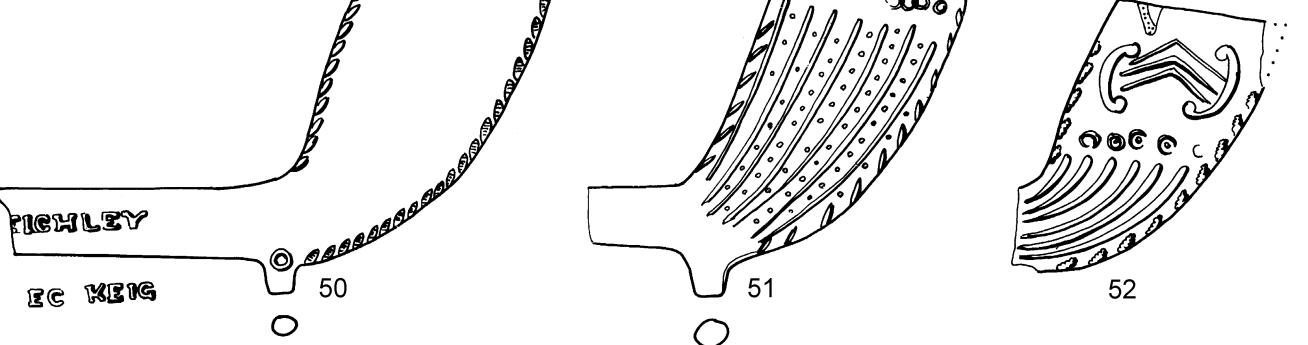
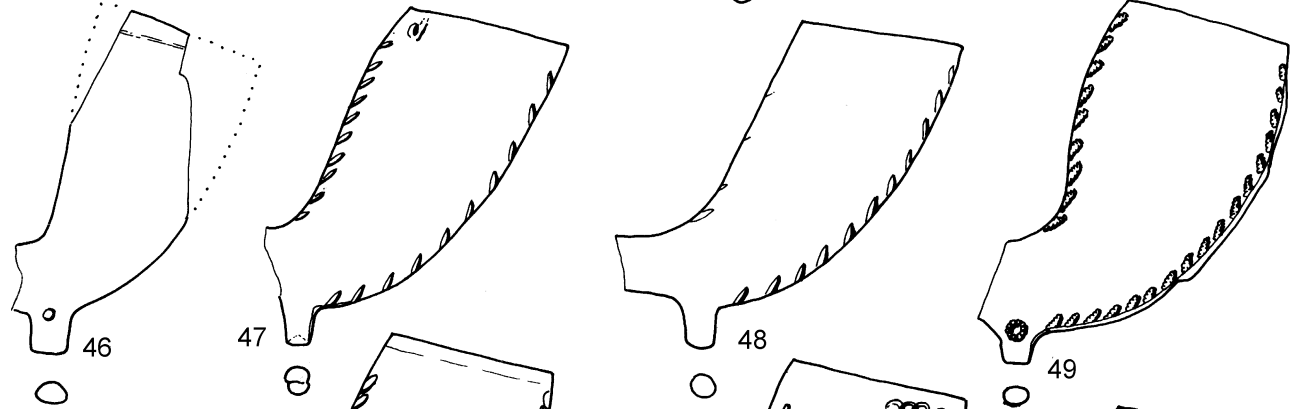
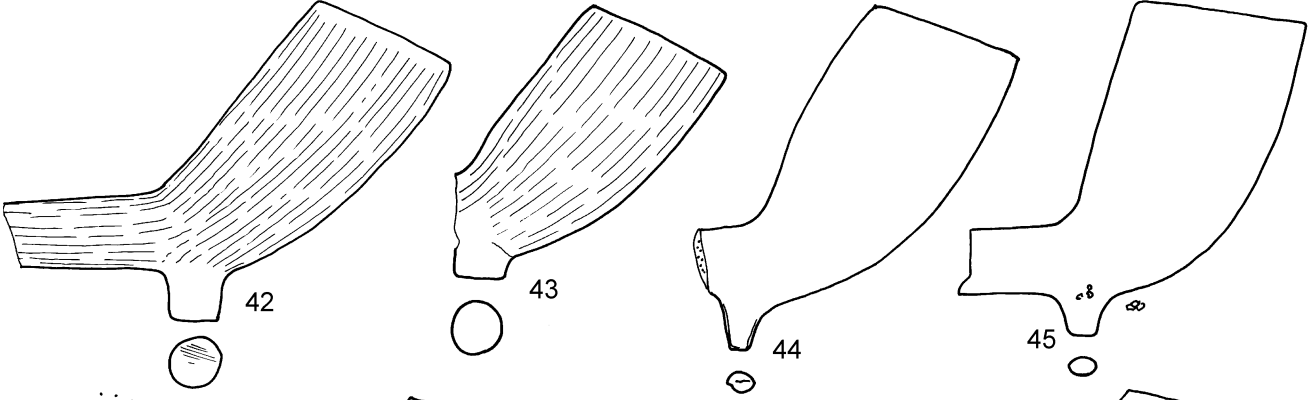
- 48 Spur type bowl *c.* 1830-1870. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 6/64". Leaf decorated seams. This bowl appears to have a moulded letter I on the left hand side of the seam facing the smoker. (Context: 1130, Bowl Ref. C)
- 49 Spur type bowl *c.* 1840-1880. Not burnished; no internal bowl cross; rim cut and not milled. (Context: 1022, Bowl Ref. A)
- 50 Spur type bowl *c.* 1840-1870. Not burnished; no internal bowl cross; no surviving rim; stem bore 5/64". Marked with moulded relief lettering EC KEIGHLEY on the sides of the stem. Leaf decorated seams and ring and dot motif on the spur. (Context: 1019, Bowl Ref. A)
- 51 Spur type bowl *c.* 1820-1850. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Flutes and dots with leaf decorated seams. (Context: 1120, Bowl Ref. B)
- 52 Spur type bowl (spur now missing) *c.* 1830-1860. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Leaf decorated seams; flutes and Masonic motifs. Two joining fragments. From the same mould as bowl C from context 1022. (Context: 1020, Bowl Ref. E)
- 53 Spur type bowl *c.* 1820-1850. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Mould decorated with flutes and Masonic motifs. (U/S, Bowl Ref. H)
- 54 Spur type bowl *c.* 1820-1860. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Mould decorated with Masonic motifs. From the same mould as Bowls A, B and D from this group. This illustration shows the decorative scheme on the smoker's right. For the details on the smoker's left see Figure 55. (Context: 1089, Bowl Ref. C)
- 55 Spur type bowl *c.* 1820-1860. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Mould decorated with Masonic motifs. Joining bowl and stem fragment. From the same mould as Bowls B, C and D from this group. This illustration shows the decorative scheme on the smoker's left. For the details on smoker's right see Figure 54. (Context: 1089, Bowl Ref. A)
- 56 Spur type bowl *c.* 1820-1860. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 4/64". Masonic motifs. (Context: 1089, Bowl Ref. E)
- 57 Spur type bowl *c.* 1820-1850. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Mould decorated with flutes and Masonic motifs. Appears to be the same mould as the bowl fragment (B) from this group. (Context: 1197, Bowl Ref. A)
- 58 Spur type bowl *c.* 1820-1860. Not burnished; no internal bowl cross; rim cut and not milled; stem bore 5/64". Marked with the moulded initials ID on the sides of the bowl. Moulded flutes on the lower half of the bowl and leaf decorated seams. (Context: 1089, Bowl Ref. H)
- 59 Stem fragment *c.* 1640-1720 with traces of spiral milling. Not burnished. (Context: 1116)
- 60 Stem fragment *c.* 1650-1750 with a ground end. Not burnished. (Context: 1178)

- 61 Stem fragment *c.* 1610-1700 with ground ends. Not burnished. (Context: 1282)
- 62 Stem fragment *c.* 1610-1700 with ground ends. Not burnished. (Context: 1254)
- 63 Stem fragment *c.* 1650-1730 with a notch cut through to the bore, perhaps to make a flute from the pipe. Not burnished; stem bore $7/64''$. (Context: 1157)
- 64 Stem fragment *c.* 1610-1720 with a notch cut through to the bore after firing. Not burnished; bowl; stem bore $6/64$ (Context: 1245)
- 65 Stem fragment *c.* 1830-1870; stem bore $6/64''$. This is an extremely unusual piece since it appears to come from the mid-section of a long-stemmed pipe but it is completely covered with a pale green glaze. Furthermore, there is a band of crudely moulded decoration under the glaze, perhaps in imitation of a stem twist. (Context: 1188)
- 66 Stem fragment *c.* 1700-1740, stem bore $5/64''$. Elaborate roll stamped stem mark reading WINDLE. (Context: 1160)

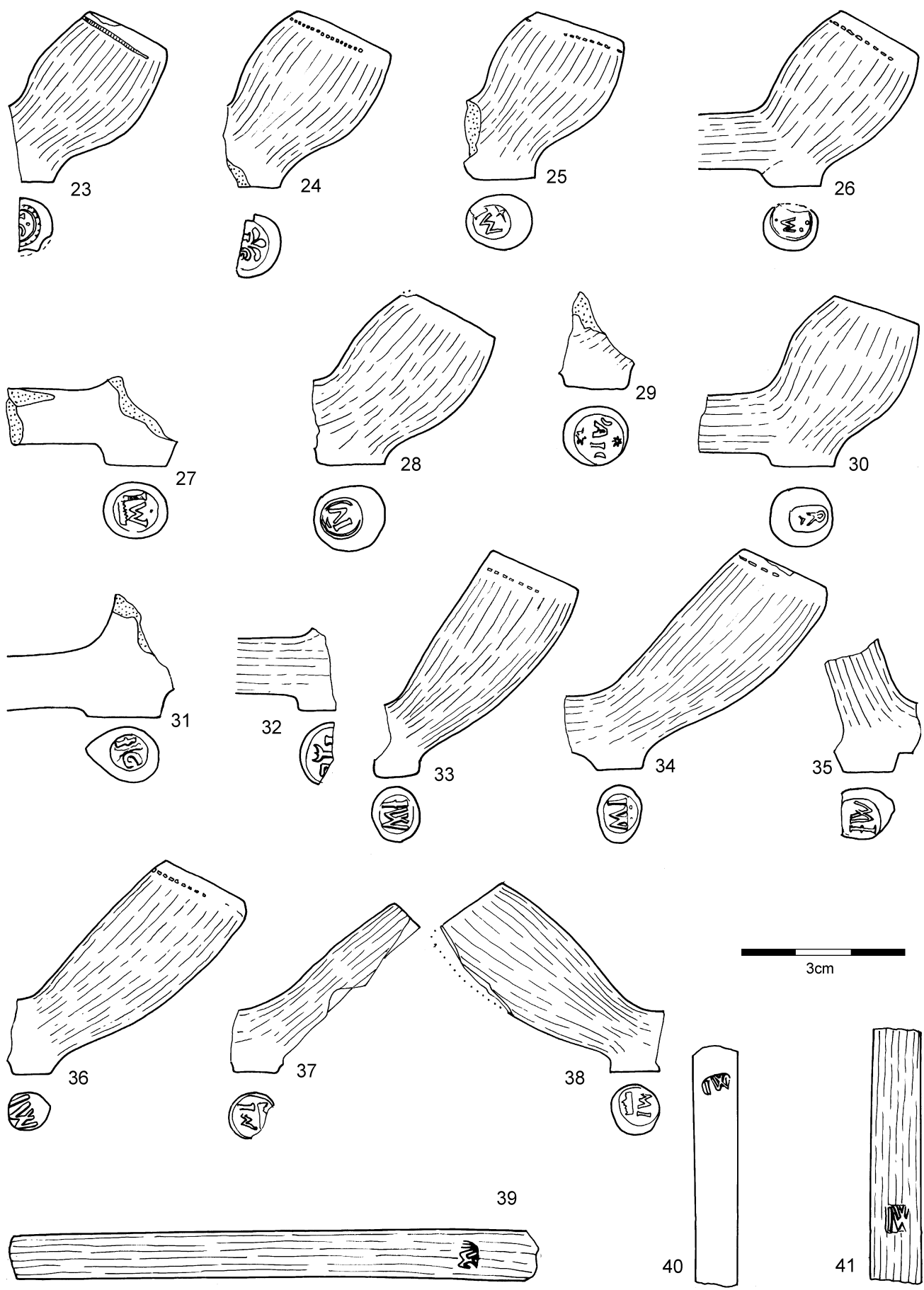
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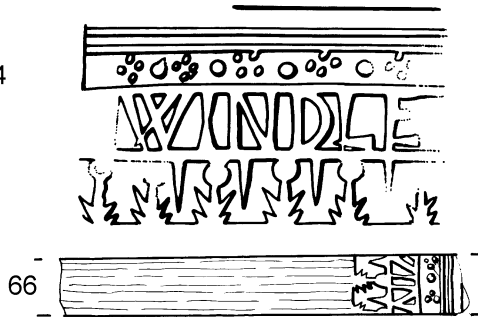
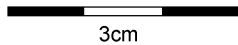
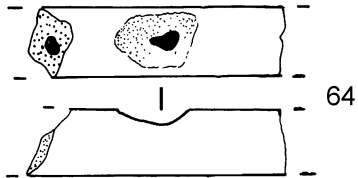
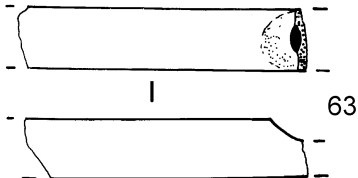
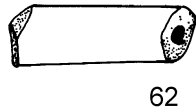
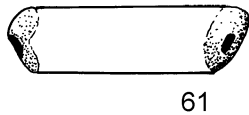
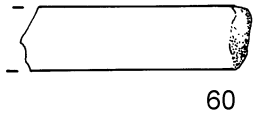
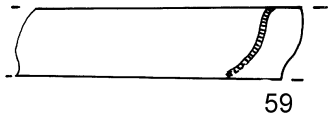
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3cm





Cxt	B	S	M	Tot	Range	Deposit	Marks	Dec	Comments
0167		1		1	1630-1700	1630-1700			One C17th stem just opening into a bowl, most likely c1640-80.
0186	1			1	1680-1720	1680-1720	IW		Complete transitional bowl with a finely burnished surface and initials IW stamped on heel.
0253		1		1	1750-1900	1750-1900			Single stem of later C18th or C19th date.
0320		1		1	1750-1900	1750-1900			Single stem of later C18th or C19th date.
1102	1			1	1830-1870	1830-1870			One plain bowl fragment with a sharply angled mould seam. Similar forms occur in deposits of c1830-70.
1131	1			1	1720-1800	1720-1800			Bowl fragment from a very thin-walled and nicely made C18th bowl with an internally trimmed rim. Most likely of late C18th date.
1132		1		1	1680-1750	1680-1750			
1142	1			1	1680-1730	1680-1730			Burnished fragment from a heel bowl.
1150		1		1	1640-1720	1640-1720			
1151		1		1	1680-1740	1680-1740			
1171		1		1	1660-1700	1660-1700			Thick stem of later C17th date.
1209	1			1	1690-1740	1690-1740			Transitional heel form.
1213		1		1	1640-1700	1640-1700			C17th stem, most likely c1640-80.
1251 <25>		1		1	1610-1680	1610-1680			C17th stem, badly burnt and discoloured. See also 1251.
1267 <7>	1			1	1610-1640	1610-1640			Unmarked heel bowl, badly burnt and discoloured. See also stems from 1267.
0190		2		2	1680-1900	1750-1900			Latest piece is a small and abraded fragment of stem of later C18th or C19th date.
0215		2		2	1680-1780	1680-1780			Two burnished stems, possibly from the same pipe.
1063		2		2	1760-1900	1760-1900			Two stems, most likely of C19th date.
1070		2		2	1610-1720	1640-1710			
1083	1	1		2	1800-1900	1810-1880			Two C19th fragments, one of which is a 'fresh' looking fragment comprising a plain spur and a long stem (fragment is 120mm long overall) - probably c1810-1880.
1095	2			2	1830-1880	1830-1870	I?	2	Two joining fragments making up the larger part of a bowl of c1830-1870 with leaf decorated seams. Within this range, it is more likely to be early, i.e., c1830-60, rather than later.
1107	1	1		2	1800-1900	1820-1860		1	Plain C19th stem and a bowl of c1820-60 with Masonic decoration.
1121		2		2	1680-1900	1800-1900			Two very small pieces of stem; one c1680--1720 the other C19th.
1135	2			2	1770-1810	1770-1810			Two joining fragments (freshly broken) of a thin-walled late C18th bowl.
1187		2		2	1610-1800	1700-1800			Two pieces that are very hard to date. One is just a sliver of stem that has been very abraded and looks water-rolled. Could be C17th but uncertain. The later piece is probably C18th.
1237		2		2	1610-1720	1610-1720			Nothing particularly diagnostic. One piece burnt.
1117		3		3	1610-1740	1680-1740			Three stems; all burnished. Latest pieces c1680-1740.
1128	1	2		3	1680-1800	1700-1800	IW		Two burnished stems of c1680-1740, one of which has an IW stamp on it. The plain bowl fragment is hard to date but it has an internally trimmed rim and appears to be of C18th date, although probably not very early. A date of around 1720-40 would fit all fragments, but the pipe evidence alone is not very robust (other than C18th).
1160	1	2		3	1700-1740	1700-1740	WINDLE		Part of an early C18th bowl and two early C18th stems, one with a roll stamped mark reading WINDLE. This is a previously unrecorded mark but may well be the same person (or at least family) as is represented by the numerous IW marks.
1173		3		3	1640-1750	1680-1750			Three stems, hard to date exactly, but latest looks c1680-1750.
1192		3		3	1640-1780	1700-1780			1 very abraded (?water-rolled) C17th stem and 2 C18th fragments of c1700-1780.
1269	2	1		3	1610-1680	1610-1640			Both of the bowls appear to date from c1610-40, suggesting a good date for this deposit. Neither is marked.
1041		4		4	1680-1900	1760-1900	IW		A large (100mm) fragment of burnished stem with an IW stamp across it dates from c1680-1740 and is residual. The other stems are of later C18th or C19th types and cannot be dated accurately, although a C19th date seems most likely.

B bowl, S stem, M mouthpiece, Tot total, Dec decoration

Appendix I Catalogue Summary

Cxt	B	S	M	Tot	Range	Deposit	Marks	Dec	Comments
1079		4		4	1610-1900	1800-1900			Two residual stems and 2 of C19th date, one with pale green glaze on.
1097		4		4	1760-1900	1820-1870			One piece of stem has yellowish / brown glaze on it.
1114		4		4	1800-1900	1830-1870			Four stems, probably all C19th, although one could be earlier and residual. The dating is provided by the two longest stems, which join to make a mid-C19th fragment nearly 240mm long. This is curved but very waney, suggesting that the quality of these pipes was not very good. It is particularly interesting since one end appears to have a yellowish / brown glaze overlaid by a greenish glaze. If this is the case, it would show that more than one glaze mix was being used at the same factory. The length of the surviving fragments suggests a good fresh deposit.
1122	2	2		4	1630-1700	1650-1680	?I or T / L or E		A group of chunky C17th fragments, including a bowl of c1630-1660 and part of a stamped heel of c1650-1680. The mark has a central device and a plain border but only the lower parts of the letters survive; probably I or T and then E or L.
1176		4		4	1680-1850	1780-1850			Stems of mixed date, one of which is very abraded as if rolled in a stream. The latest piece is hard to determine, but most likely c1780-1850.
1189		4		4	1610-1900	1800-1900			1 burnt C17th stem and three C19th fragments, all with very small bores.
1240 <8>		4		4	1610-1720	1610-1720			1 fragment and 3 chips of C17th style stems. See also 1240.
1267		3	1	4	1610-1720	1610-1720			Nothing particularly diagnostic but the stems are burnt / discoloured like the other mid C17th deposits and this material would all fit perfectly in a group of c1640-1670. See also 1267 <7>.
0180	1	4		5	1610-1700	1640-1680			Heel fragment of c1640-80 - other C17 stems could well be contemporary.
1037	1	4		5	1640-1900	1830-1870	Part symbol mark.	1	Two residual stems but the rest are of C19th types, including a bowl with leaf seams and traces of a symbol mark on the spur. Probably a mid-C19th group.
1099		5		5	1760-1900	1830-1870			Plain stems, most likely all of C19th date. One has traces of yellowish / brown glaze on and the another pale green.
1116	2	3		5	1640-1720	1680-1720		1	One stem with spiral of stem milling. Bowl fragments rather scrappy but latest piece probably from a late C17th or transitional form.
1124		4	1	5	1800-1900	1830-1870			Group of C19th stems including one with traces of yellowish / brown glaze on. Unusually for the C19th material from this site, the mouthpiece is unglazed. See also 1126.
1133		5		5	1610-1900	1800-1900			Stems of mixed date. The latest two appear to be C19th (although they could just possibly be late C18th).
1224	1	4		5	1640-1900	1800-1900			Mixed group of various dates.
1093	3	3		6	1800-1900	1830-1870		1	Three small bowl fragments, two of which are plain and join. The other has leaf seams. One piece of stem has a small speck of yellowish / brown glaze on it.
1084		7		7	1800-1900	1820-1870			Probably all C19th fragments, four with areas of brown or yellow / brown glaze on them. Most likely a mid-C19th group.
1029		8		8	1640-1900	1830-1870			Two residual pieces but the rest are of C19th types, two of which have glaze splashes on them. Probably a mid-C19th group.
1077		7	1	8	1610-1710	1640-1680			Although only stems present, they are generally chunky and would fit best with a mid to late C17th deposit. Several are badly burnt and discoloured, like those in 1026.
1110	2	6		8	1610-1890	1840-1890			All of these fragments date from 1610-1720 apart from one plain bowl of c1840-1890. Either a Victorian deposit with a lot of residual material or the bowl is intrusive in a deposit of c1680-1720.
1111	2	6		8	1680-1840	1780-1840		1	One bowl and most of the stems are of late C17th or (mainly) C18th date. The one decorated bowl fragment has leaf seams and flutes and dates from c1780-1840.
1239		8		8	1610-1720	1640-1720			Nothing particularly diagnostic. Some pieces burnt.
1251	4	4		8	1610-1720	1640-1660			A consistent looking group with all of the bowls dating from c1640-1660. All are heel types, none is marked. Some pieces discoloured / burnt. See also 1245 <25>.

B bowl, S stem, M mouthpiece, Tot total, Dec decoration

Appendix I Catalogue Summary

Cxt	B	S	M	Tot	Range	Deposit	Marks	Dec	Comments
1078	2	7		9	1780-1900	1830-1870		2	One bowl fragment with leaf seams and another with Masonic decoration. Stems all of late C18th or C19th types and one has splashes of yellow / brown glaze on.
1126		8	1	9	1680-1900	1800-1900			Two burnished stems of c1680-1740 plus a group of C19th fragments. The mouthpiece is unglazed (see also 1124), as is another fragment with the very end chipped off. Both are from thin-stemmed pipes with cut tips. The later stems as a group are generally thin and with small bores - which makes them look different from the numerous c1830-70 deposits found elsewhere. May well be either early or late C19th instead.
1188		9		9	1610-1880	1830-1870		1	All C17th or early C18th stems with the exception of one piece. This is an extremely unusual piece since it appears to come from the mid-section of a long-stemmed pipe but it is completely covered with a pale green glaze. Furthermore, there is a band of crudely moulded decoration under the glaze, perhaps in imitation of a stem twist. If the fully glazed surface is intentional, then it is extremely rare nationally and the only known example with a green glazed surface.
1221	5	4		9	1610-1720	1640-1720			Group of small, scrappy fragments, some burnt. One stem is unusual in that it has had a sharp point twisted in the bore of a broken end to gouge out a cone shape. All bowl fragments are very small making them hard to date. Most appear to be c1640-70 types and this may well be the date of the deposit. One piece, however, looks unusually thin and could be from a later C17th or early C18th type. Mainly a mid-C17th deposit but with possibility of later material.
1241	2	7		9	1610-1720	1640-1660			Both bowls date from c1640-60, providing a good date for this group. Some fragments discoloured / burnt and one stem appears to have had a partially ground end, perhaps part of a notch (see 1245).
1049	1	9		10	1800-1900	1820-1880			Small C19th group, including four very badly burnt and encrusted fragments (which make up 2 pieces, both freshly broken). The bowl is too encrusted to date accurately. One stem has mid brown glaze on it. Most likely a mid-C19th group.
1145	1	9		10	1610-1710	1680-1710			All C17th style fragments, including the larger part of a milled transitional bowl.
1056	1	10		11	1610-1880	1800-1880	WI		Very mixed finds ranging from C17th to C19th. Group includes an interesting bowl of c1680-1730 with a stamp reading WI inverted across the stem.
1161		11		11	1610-1900	1800-1900			Mixed stems with latest pieces being C19th. Two join (fresh break).
1178	1	10		11	1610-1850	1760-1850		*	Rather mixed group. Mainly C17th, including a heel bowl of c1650-70 but with a few early C18th stems and one later piece of c1760-1850 type.
0238	1	11		12	1610-1700	1640-1670			All C17th fragments with a bowl of c1640-70. Could well be a contemporary group.
1025		12		12	1610-1770	1700-1750			
1152	2	10		12	1610-1720	1680-1720	IW x 2		Group includes parts of two transitional bowls, c1680-1720, one with its heel surviving (stamped with a crowned IW mark). There is also a stem stamped IW (not crowned). Looks like a reliable group of c1680-1720.
1017	1	14		15	1700-1900	1800-1900			Odd group with differential patination, suggesting that two distinct deposits have been mixed. One group with a lot of iron staining includes part of a spur bowl of c1740-80 and could form a group of this date. The other pieces are much fresher and clean looking and appear to be of late C18th or C19th date - generally early C19th. One of these later pieces has a brown glaze from the mouthpiece on it.
1069	1	14		15	1690-1900	1800-1900			There is a residual bowl fragment of c1690-1760 but almost all of the other stems appear to be C19th, one with mid brown glaze on it. Most likely a mid-C19th group, but nothing terribly diagnostic to pin it down
1019	2	14	1	17	1680-1890	1840-1870	EC KEIG/ /EIGHLEY	2	There are five burnished stems, all of which join to make a single fragment of c1680-1740 (most of the breaks are fresh and there were probably just 2 joining pieces originally). The rest of the fragments form a coherent group of c1840-1870. This includes two decorated bowl fragments, one with part of a relief moulded EC KEIGHLEY mark on either side of the stem, and four stems with traces of the mouthpiece coating on them (3 yellowish / brown glaze and one matt grey).

B bowl, S stem, M mouthpiece, Tot total, Dec decoration

Appendix I Catalogue Summary

Cxt	B	S	M	Tot	Range	Deposit	Marks	Dec	Comments
1254	6	11		17	1610-1720	1640-1670			A consistent looking group with all of the bowls dating from c1640-1670. All are heel types but none of the surviving 5 bases is stamped. Some pieces are discoloured / burnt. One piece of stem has been ground at both ends.
1051	4	11	4	19	1640-1900	1830-1870		1	Three residual C17th and C18th stems but the rest all C19th. Four glazed mouthpieces (3 yellow / brown and one pale green), plus one stem, with yellow / brown glaze on. Bowls all of mid C19th types, one with traces of moulded decoration.
1245	6	15		21	1610-1720	1640-1660			A very consistent looking group with all of the bowls dating from c1640-1660. All are heel types, none is marked. One stem has had a notch cut through to the bore after firing, perhaps to make a flute. See also 1241.
1154	3	20		23	1610-1900	1830-1870	IW x 2		Mixed group, the majority of which dates from the C17th but with 7 stems of C19th date. Two of the later stems have pale brown glaze on them, so the group has been dated to c1830-70. The earlier finds include three heel bowls dating from c1650-80, one of which has an IW stamp on it. There is also a stem stamped IW.
1158	2	22	1	25	1610-1750	1680-1750			Mainly C17th group, including two bowl fragments of c1650-70. There are one or two stems, however, that appear to date from c1680-1750, which is why a later date suggested.
1157	2	23	1	26	1610-1900	1830-1870		*	Rather a mixed group including an interesting early bowl form in a local style, a transitional heel bowl and a stem of C17th or early C18th date that has had a notch cut through to the bore, perhaps to make a flute from the pipe. There are two C19th pieces, including one with a pale green glaze, which gives the suggested final deposition date for this context.
1086 <1>	3	23	1	27	1700-1900	1830-1870			A collection of small fragments of similar character to the main group. There are three plain bowl fragments, one mouthpiece glazed yellowish / brown and 6 further stem fragments with this type of glaze on. See also 1086.
1197	5	22	2	29	1610-1900	1820-1850		4	Three residual piece of C17th or early C18th date (including one mouthpiece), the remainder all probably C19th. The bowls (four are fluted and / or with Masonic designs) suggest a date of c1820-50. There is one C19th mouthpiece, covered with a brown glaze, and 5 further stems with traces of a yellow / brown glaze on them.
1086	3	26	2	31	1700-1900	1830-1870	double ring	2	Apart from a couple of pieces that are probably C18th and residual, all of the finds are of C19th date. Both mouthpieces are glazed (one yellow / brown and one dark brown, possibly overfired) and 5 stems have glaze on them (4 yellow / brown and one matt black). One spur with double ring mark and traces of flutes, another bowl fragment with leaf seams. See also 1086 <1>.
1282	6	25		31	1610-1720	1650-1670			The bowls range from c1630-1670 in date with the latest being c1650-70. Most of the fragments, however, would fit with a 1640-1660 date. Four heels survive, none marked. Several burnt / discoloured pieces and one stem fragment ground smooth at both ends.
1104	3	29	2	34	1610-1900	1830-1860	EC KEIGHLEY	2	This context contains two separate elements. There are 6 stems and a mouthpiece of C17th or early C18th date, together with a bowl fragment of c1680-1720. The rest of the fragments, however, are of C19th date. This later material appears to be freshly deposited and little disturbed since the later mouthpiece survived to a length of 152mm (since broken), and three of the stems join to make a section 213mm long. The later mouthpiece is glazed yellow / brown as are 8 of the other stems. Two stems have pale green glaze on them. One fluted bowl and one with leaf seams, both of c1820-60. One stem marked EC KEIGHLEY on both sides (relief moulded).
1130	6	28		34	1610-1900	1830-1870	?I...; EC KEIGHLEY		There is a small residual element of earlier material including 3 bowl fragments (one early C17th) and four stems. The remainder is of C19th date and includes a long stem fragment (130mm) and two stems with yellowish / brown glaze on. Two bowls have leaf seams, one of which may have initials on the bowl facing the smoker. The Christian name initial looks like an I but the surname is unclear - possibly a 'd' like motif (see 1089). These two bowls (this context and 1089) are very similar but probably not from the same mould. This context also includes a stem marked EC KEIGHLEY on both sides.

B bowl, S stem, M mouthpiece, Tot total, Dec decoration

Appendix I Catalogue Summary

Cxt	B	S	M	Tot	Range	Deposit	Marks	Dec	Comments
1028		34	1	35	1640-1900	1830-1870	EC KEIGHLEY x 2		Another odd group in that it is all stems (cf 278). There is one residual C17th stem but all the rest are C19th including one mouthpiece glazed with a yellowish / brown glaze and 10 stems with traces of glaze on, mostly of this colour. Two stems with relief moulded EC KEIGHLEY marks. All this later material would fit with a c1840-70 date.
1120	9	25	1	35	1610-1900	1820-1850		6	A few residual C17th fragments but mainly a good C19th group, including large, fresh fragments (stems up to 152mm). Three fluted bowls (same mould) and three Masonic types (different moulds). Mouthpiece with mid-brown glaze, one stem with yellowish brown glaze and one with light green glaze. Another stem has odd marks / patterning on it (very feint) - possibly just handling marks from manufacture.
1240	3	35	1	39	1610-1720	1650-1670			One bowl of c1610-40 but the other two fragments date from c1650-70, suggesting a mid century final deposition. Many discoloured / burnt stems. See also 1240 <8>.
1026	10	34	1	45	1610-1710	1650-1670			A large and very consistent group of C17th pipes. Most of the fragments appear to be badly burnt and the material is fairly fragmented (cf 1077). All of the bowl forms are very similar and all date from c1650-70, giving a tight dating for this deposit.
1021	6	40	3	49	1700-1880	1840-1880	EC KEIGHL/ /...; 3 symbols		One or two stems appear to be C18th residual, but the majority form a good mid C19th group. One bowl fragment with a faint EC KEIGHLEY moulded stem mark. Three moulded spur marks (symbols) are present; 2 'flowers' and one ring and dot. Three glazed mouthpieces (2 yellowish / brown; 1 dark green) and 5 stems with yellowish / brown glaze on. Good group - probably contemporary with 1022.
0278		48	4	52	1800-1900	1850-1880LL.LEEDS		Unusual group in that despite its size there are no bowl fragments. Many of the stems are large and 'fresh' looking and of a very consistent looking date. There are 4 mouthpieces; one nipple type dating from after c1850 and the rest cut. Two of the cut mouthpieces are glazed with a yellowish / brown glaze and a further 9 stems have traces of this glaze on. One stem has a moulded mark on one side of the stem reading '....LL.LEEDS'. This is almost certainly one of the Tunstall family, recorded there from 1807-1861, although there was also a maker called Connell in 1853 (Oswald 1975). Taken together, this assemblage would fit best with a deposit of c1850-80, with a date in the 1850s being most likely. Similar assemblages (i.e. without any bowls) have been found from beneath wooden floors, where only the stems have been able to fall through gaps. See also context 1028.
1105	7	44	2	53	1610-1900	1830-1870	EC KEIGHLEY with 'flower'	1	Group includes one C17th or early C18th stem but all the rest probably C19th. Includes part of a bowl with fluted and Masonic decoration and a spur with 'flower' mark on and EC KEIGHLEY relief moulded on each side of the stem. Both mouthpieces and 9 stems have yellowish / brown glaze on. One stem has a matt grey coating, probably a mis-fired or burnt glaze. Several of the stems in this group have been badly burnt.
1208	6	50	1	57	1610-1700	1650-1670	AI, IW x 2; symbol		A very good and consistent group of C17th fragments that can be closely dated to c1650-70 based on all 6 of the bowl fragments. The group is also important since four of the heels are marked, all with different dies and representing three different makers. One of the bowls has its stem ground smooth very short (15mm). The stems seem rather fragmented and a number are discoloured / burnt.
U/S	10	46	1	57	1610-1900	-	RB; IC or IG; IW	1	Stray finds include 2 x mid C17th bowls (not marked) and a few C17th or early C18th stems. There is also a bowl of c1650-80 stamped IC or IG and a transitional form of c1680-1720 stamped IW. The rest of the material is mainly C19th and includes a good example of a bowl decorated with flutes and Masonic emblems and with the makers initials RB facing the smoker. These initials appear to have been cut twice, or perhaps double struck on each side of the mould. Five of the later stems have a yellow / brown glaze on them and two a pale green.

B bowl, S stem, M mouthpiece, Tot total, Dec decoration

Cxt	B	S	M	Tot	Range	Deposit	Marks	Dec	Comments
1098	7	49	2	58	1700-1900	1830-1870	2 x dot and ring; 1 x small ring; 1 x flower	3	Some stems could possible be of C18th date, but this is not certain. If not, they are of C19th date, like the rest of the group. There are two plain bowls, probably from the same mould, with dot and ring marks on their spurs. Three bowl fragments have leaf seams (two have symbol marks on the spur; one a small ring, the other a 'flower') and there is another plain fragment from a spurless cutty. This could possibly be as early as the 1840s but a date of c1850-70 is perhaps more likely. The two mouthpieces both have yellow / brown glaze on them as do seven of the stem fragments.
1020	19	60	3	82	1610-1870	1830-1870	IB; illegible stem; 2 symbols	9	Large group with 1 or 2 residual stems but the majority forming a consistent mid-C19th group. There is one moulded bowl mark (IB), one stem with an illegible moulded stem mark, probably a work EC KEIGHLEY mark, or possibly a deleted mark from when a mould changed hands, and 2 moulded symbol marks on spurs (dots; ring and dots). Moulded decoration includes leaf seams, flutes and Masonic devices. Three glazed mouthpieces (1 pale green; 2 yellowish / brown) and 7 stems with traces of yellowish / brown glaze on. Group includes parts of three apparently identical late C18th / early C19th style fluted bowls with possible traces of rim lettering. The presence of these with predominantly mid C19th material may suggest that the mould was used until the 1830s or 40s.
	18	60	7	85	1780-1910	1840-1880		+	A large number of fragments, mainly very small, of similar types to those represented in the main group (see 1022).
1214	18	85	1	104	1610-1720	1680-1720	IG x 2; AI; IW x 3		The actual number of bowl fragments examined was 18 but 5 of these joined to make the larger part of a bowl, broken during excavation and two other freshly broken fragments jointed to make another (i.e. 13 fragments present in the ground). Similarly 90 stem fragments were present but freshly broken groups of 3, 3, and 2 bring the number originally down to 85. The pipes themselves are mostly of mid C17th date and the majority of the bowls date from c1650-70. Most of these fragments are badly battered and burnt. Marks include two different IG dies, AI and IW. In addition, there are two later IW marks of c1680-1720, both from different dies again. There are a few stems that are probably contemporary with these later IW marks and so the deposit seems to include two elements. There is a large assemblage of c1650-70 fragments, many burnt, and then a smaller element of c1680-1720 pipes, representing the final deposition of this group. One of the burnt stems certainly seems to have a ground end and another stem may have slightly smoothed ends (although possibly just abraded).
1054	2	99	5	106	1680-1900	1830-1870		1	Another stem dominated assemblage, with both bowls being just fragments. There are just a couple of residual stems but most are of C19th types. There are five mouthpieces, all coated in yellow / brown glaze and a 20 stems with areas of the same on. In addition, 5 stems have a pale green glaze and 1 a matt grey coating (? failed glaze). One bowl fragment has crude leaf seams and the overall appearance is of a good mid-C19th group. A few of the fragments are abraded, as if scuffed from being embedded in a surface.
1022	22	104	16	142	1780-1910	1840-1880	EC KEIGHLEY x 3; symbols (x3)	4	A large and very consistent group of C19th pipes with stem fragments of up to 177mm surviving. There are 3 stems with parts of EC KEIGHLEY marks moulded on them and three spurs with symbol marks on them (flower types). Most of the bowl fragments are plain but there are three with leaf seams and one with flutes and Masonic motifs. There are a very large number of yellow / brown glazed mouthpieces (16) and a further 12 stems with traces of this glaze on. In addition there is one piece of red clay stem with glaze on, which appears a light brown from the body beneath. This piece is probably from a short-stemmed 'cutty' style pipe, as is one other piece in white clay. Good looking deposit of c1840-80, probably contemporary with 1021. See also 1022 <2>.

B bowl, S stem, M mouthpiece, Tot total, Dec decoration

Appendix I Catalogue Summary

Cxt	B	S	M	Tot	Range	Deposit	Marks	Dec	Comments
1089	16	134	10	160	1760-1900	1820-1860	ID; ...D?; 2 symbols (dot and leaf)	13	A large and very homogenous group, with all the bowls fitting a c1820-60 range, and deposition most likely around 1830-50. Marks include a fluted bowl with the initials ID on each side and a bowl with leaf seams and the possible surname initial D on the bowl facing the smoker. This is oddly formed and could be a lower case 'd' or an inverted 'D'. The Christian name initial is chipped away (but see also 1130). Between 6 and 8 Masonic bowls are represented, with at least 5 examples from the one individual mould and one from another. The group of five is interesting as the mould shows alteration, which in turn shows that the finds from this context were probably deposited over a period of time. Three of the five have the spur surviving. One of these has a rather fine spur with a leaf on it, which is missing from two other examples. These two seem to have slightly thicker spurs and this area seems to have been reworked on the mould. All 10 mouthpieces are glazed - 7 yellow / brown and 3 pale green. A further 35 stems have yellow / brown glaze on them and 3 pale green. Some long fragments survive (up to 120mm) and this appears to be a tightly datable and fresh deposit.
TOTAL	256	1511	77	1844					

B bowl, S stem, M mouthpiece, Tot total, Dec decoration