

CLAY TOBACCO PIPE FRAGMENTS FROM CHESTERFIELD

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INTRODUCTION

The *c.* 800 pieces of pipe stem and fragments of *c.* 50-100 bowls that make up the present collection were unearthed in the course of normal gardening operations at 238 Hady Hill, Chesterfield S41 OBJ (SK398711), between September 1977 and September 1986.

The site, measuring 0.48 acre/0.194 hectare, was divided into two approximately equal areas by a line of trees, running east/west. The house, drive, rose beds and herbaceous borders occupied the southern section whilst the vegetable garden, fruit bushes and orchard were located in the northern part (Fig. 1).

A large proportion of the pipe fragments was dug up from the vegetable plots, each occupying approximately 65 square yards (54 square metres), which were situated in the north-west part of the garden (Fig. 1:C). So far as could be judged, the clay pipe fragments were fairly evenly distributed within these plots. The greater preponderance of finds in the area of the vegetable plots was probably due to the fact that this part of the garden was more regularly and systematically dug over. Any fragments which may have been present amongst the rose bushes and herbaceous plants would have taken longer to come to the surface since these beds were subjected to less regular and only superficial cultivation.

A covered storage reservoir is situated east of the house. Both were built about 1935 by the Chesterfield and Bolsover Water Company. Fields to the north and west previously formed part of Dobbin Clough Farm.

Topographical considerations provide no clue as to why such a sizeable collection of clay tobacco pipe fragments should have been found on this site. Ordnance Survey maps dating back to 1875 show no earlier dwellings here. The 1875 map indicates a footpath which diagonally traversed the field immediately to the west of the site, at one point passing near to where the most north-westerly of the vegetable plots now stands. This footpath (Fig. 1:B) was not shown on the second edition (1898) Ordnance Survey map, however, presumably because it was no longer in use.

The Tithe Award map of 1848 shows a "house and yard — No. 154" covering an area of 7 poles (i.e. 14½ yards x 14½ yards or 176 square metres), belonging to the Ecclesiastical Commissioners (Rectorial Glebe) and in the occupation of Joseph Crofts, together with the fields in the immediate vicinity. A careful comparison of the Tithe Award and the Ordnance Survey maps shows that this structure stood about 90 yards (75 metres) east-south-east of the site where the pipe fragments were found, and within the site of the reservoir as it stands to-day (Fig. 1:A).

Enquiries of the Church Commissioners, the Public Record Office in Kew, the Derbyshire Record Office in Matlock and the Local Studies Libraries in Chesterfield and Derby have failed to produce evidence of any other dwellings of relevance to the present study.

It is, of course, possible that surface soil may have been imported to the site from elsewhere at the time that the gardens were laid out, but there is no evidence to confirm or refute this hypothesis.

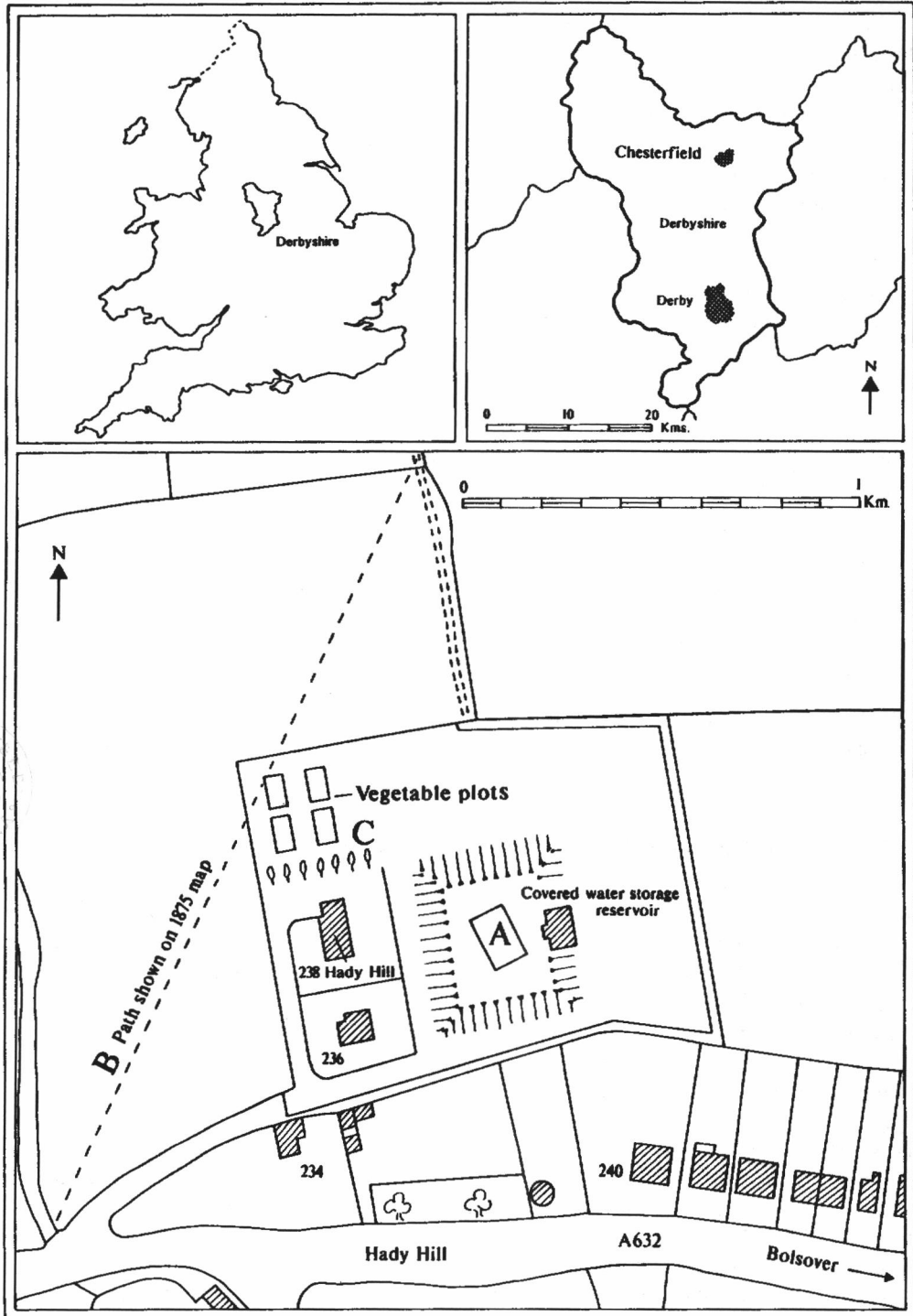


Fig. 1 Clay tobacco pipes from Chesterfield: location of site and features.

MEASURING THE FRAGMENTS

METHODS

Pipe stems

792 fragments were individually numbered and the dimensions of each measured, as follows:

1. Mean stem lengths were measured to the nearest millimetre. Where, as was frequently the case, the plane of fracture was not perpendicular to the major axis of the stem, maximum and minimum lengths were recorded.
2. Outside diameters were measured to the nearest thousandth of an inch using a micrometer screw gauge. In each case four measurements were taken, comprising the maximum and minimum diameters at each end of the portion of the stem.
3. Internal diameter (bore) was estimated using a set of standard engineering twist drills (see Table 1). The internal diameter at either end of each stem fragment was taken to be that of the largest drill which could just penetrate within the bore.

<i>Drill number</i>	<i>Diameter of shaft</i>		<i>Drill number</i>	<i>Diameter of shaft</i>	
	<i>inches</i>	<i>mm</i>		<i>inches</i>	<i>mm</i>
55	0.052	1.32	42	0.093	2.36
54	0.055	1.40	41	0.096	2.44
53	0.059	1.50	40	0.098	2.49
52	0.063	1.60	39	0.099	2.51
51	0.067	1.70	38	0.101	2.57
50	0.070	1.78	37	0.104	2.64
49	0.073	1.85	36	0.106	2.69
48	0.076	1.93	35	0.110	2.79
47	0.078	1.98	34	0.111	2.82
46	0.081	2.06	33	0.113	2.87
45	0.082	2.08	32	0.116	2.95
4	0.086	2.18	31	0.120	3.05
43	0.089	2.26	30	0.128	3.25

Table 1 Range of drill sizes used in estimating internal diameters.

Bowls

The generally poor state of preservation of the pipe bowls made measurement difficult. In twelve cases, however (Fig. 2, Fig. 3:6-8; Plates 1, 2), preservation was good enough to enable accurate measurements to be made of the volume of each bowl. This was done by blocking the outlet from the bowl to the pipe stem with the minimum amount of plasticine and then filling it with water from a burette. The difference between the contents of the burette before and after filling each bowl to its top produced its volume in cubic centimetres.

RESULTS

Lengths of the pipe stem fragments

As would be expected, the distribution of mean lengths of stem for the whole collection showed a random distribution (Fig. 4). Rather more than half of all the stem fragments have lengths of between 20 and 35 millimetres, with decreasing numbers of greater and smaller lengths.

Outside diameter of pipe stem fragments

Fig. 5 shows the distribution of the pipe fragments in relation to their outside diameter (o.d.). In this case also there is clearly a random distribution of o.d. over the whole collection.

It might be thought that the narrower stem fragments would be more susceptible to breakage

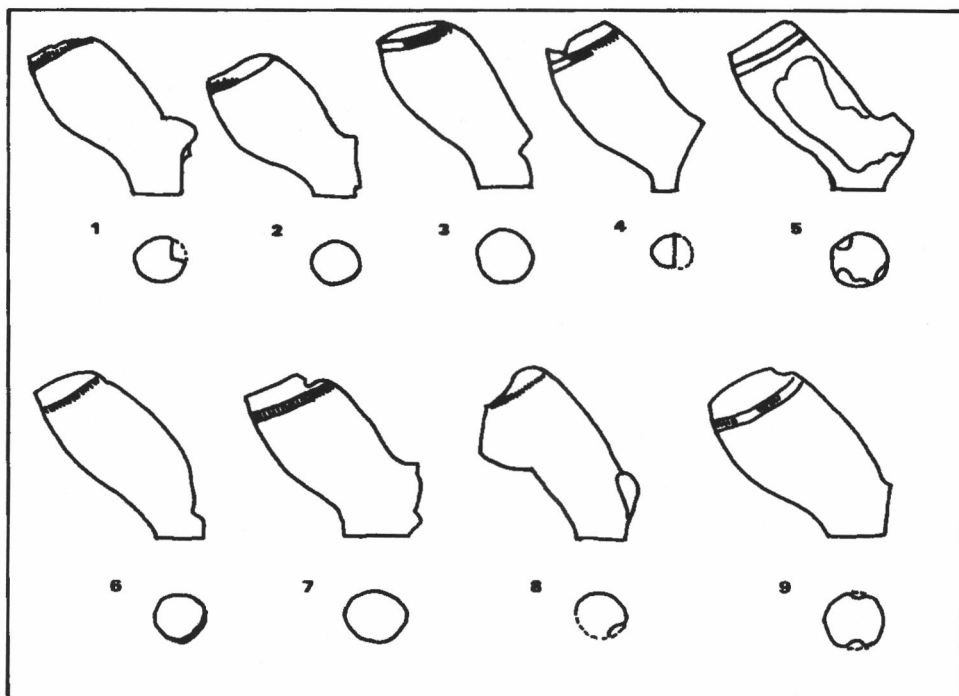


Fig. 2 Clay tobacco pipes from Chesterfield: bowls-probably 17th c.

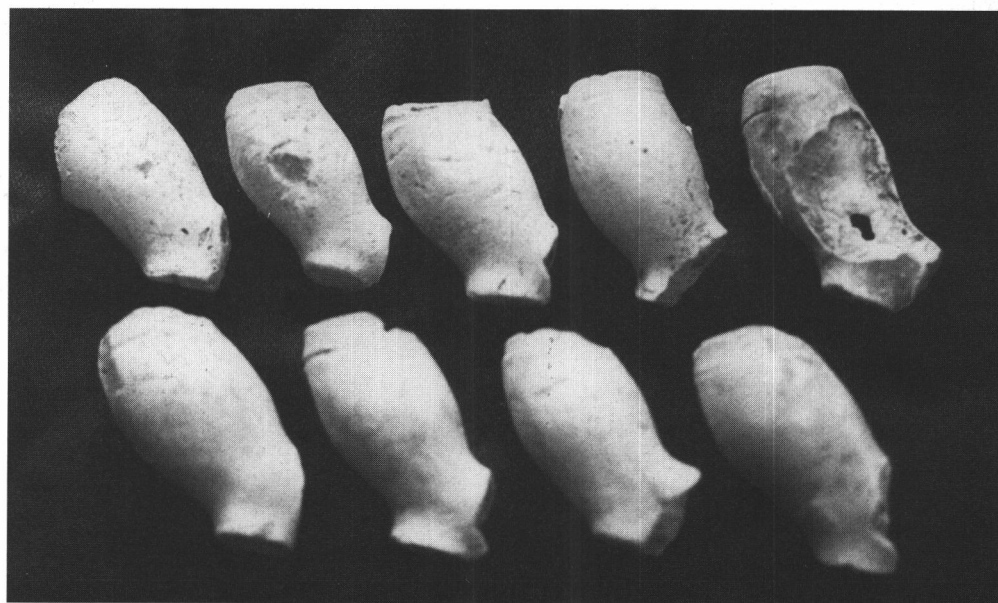


Plate 1 Clay tobacco pipes from Chesterfield: bowls-probably 17th c. (cf. Fig. 2)

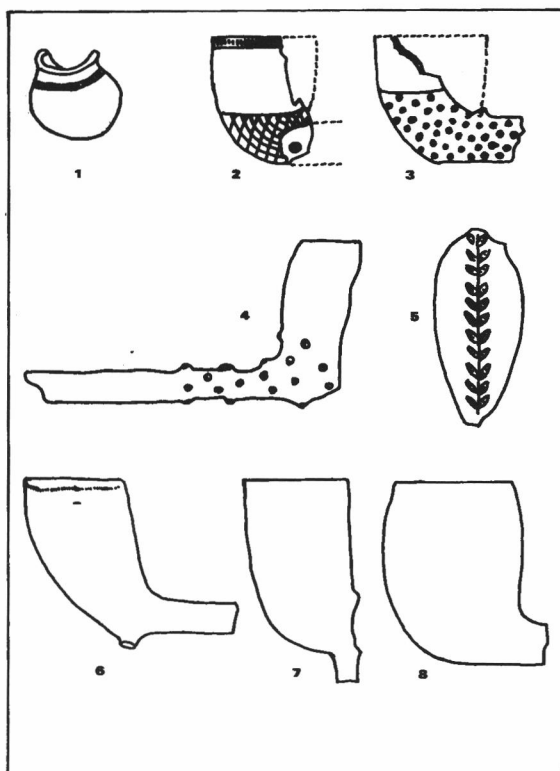


Fig. 3 Clay tobacco pipes from Chesterfield: bowls—probably 17th c. (1), 19th/20th c. (2-8).

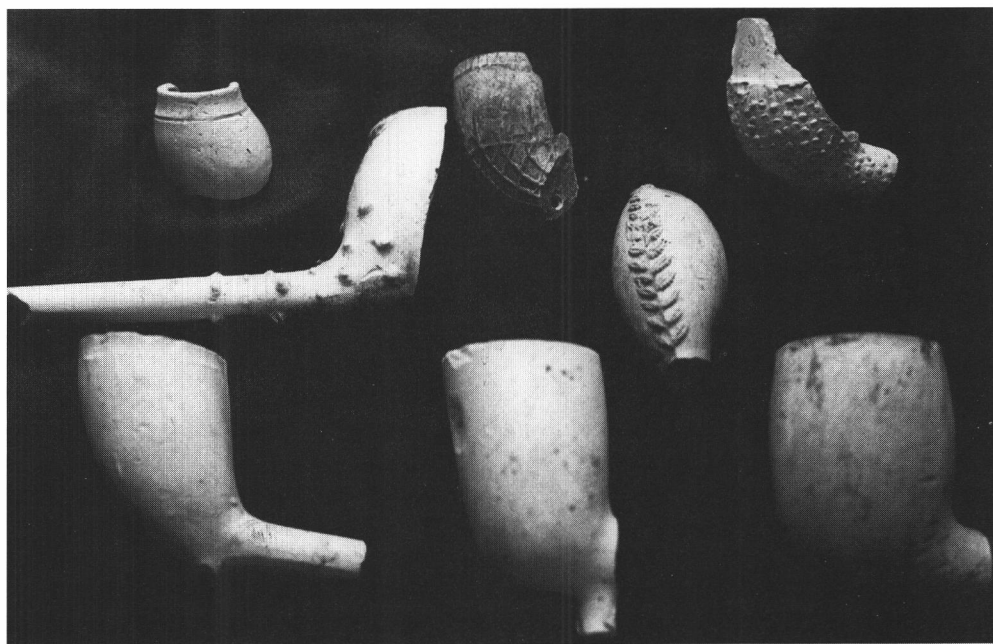


Plate 2 Clay tobacco pipes from Chesterfield: bowls—probably 17th c. and 19th/20th c. (cf. Fig. 3).

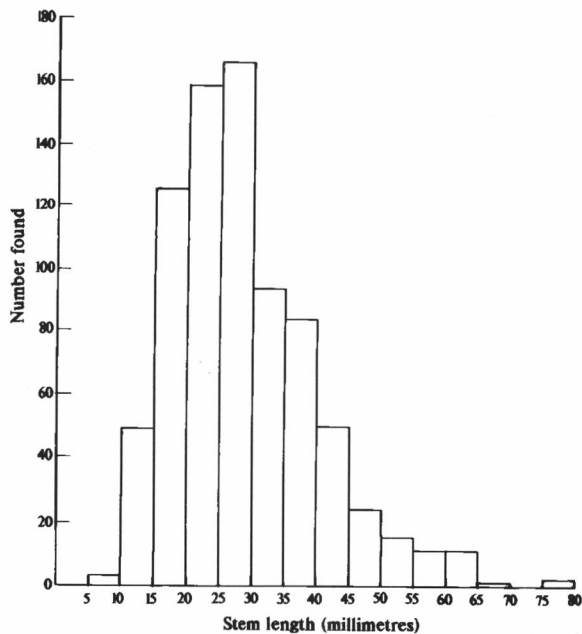


Fig. 4 Clay tobacco pipes from Chesterfield: distribution of stem fragments-by length.

and that, over the years, in the process of cultivating the soil, this would lead to a situation where the average length of stem fragments with a smaller outside diameter would be less than that of those with a larger outside diameter. In order to test this hypothesis, an assessment was made of the distribution of stem fragments according to their aggregate lengths, within the same bands of internal diameter. These results are illustrated in Fig. 6, where it can be seen that the overall distributions are in fact very similar to those indicated in Fig. 7.

Internal diameter (bore) of pipe stem fragments

Like Fig. 5, Fig. 7 shows the number of pipe stem fragments grouped according to their internal diameter (i.d.). 251 specimens have an i.d. of between 70 and 80 thousandths of an inch (1.8 to 2.0mm), forming the centre of a distinct group of lesser (50-70 thou./1.3-1.8mm) or greater (80-100 thou./2.0-2.5mm) i.d. In this case however, there is also a separate grouping of pipe stem fragments around those with an average internal diameter of 110-120 thou./2.8-3.0mm.

Volumes of the bowls

These results are listed in Table 2, which also gives an estimate of the stem bore in each case.

OBSERVATIONS/DISCUSSION

Almost none of the bowls has any significant length of stem remaining attached to it. The four most obvious exceptions are illustrated in Fig. 3 (Nos. 4-8), all thought to date from relatively recent times.

In Table 2, the bowls have been ordered according to their measured volume, and have been tentatively dated by reference to Atkinson and Oswald (1969), Alvey (1978), Alvey and Gault (1979) and Ayto (1979). According to Ayto (1979, 27), when establishing the date of new finds it is helpful first to group them in order of stem bore size and thickness: the larger the bore and the thicker the stem, the earlier the pipe is likely to be. In this respect it is noteworthy that

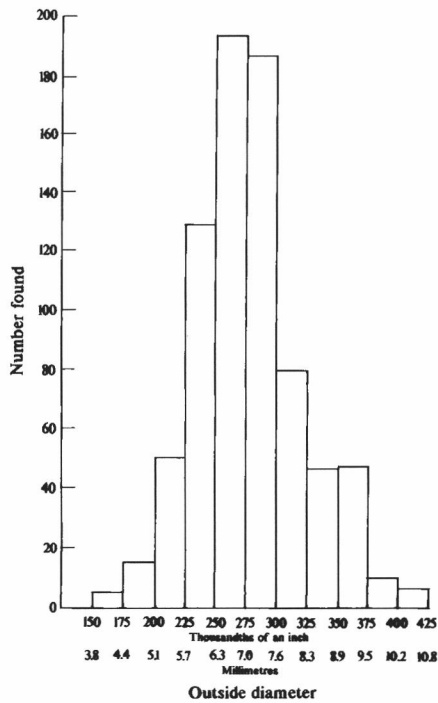


Fig. 5 Clay tobacco pipes from Chesterfield: distribution of stem fragments-by outside diameter.

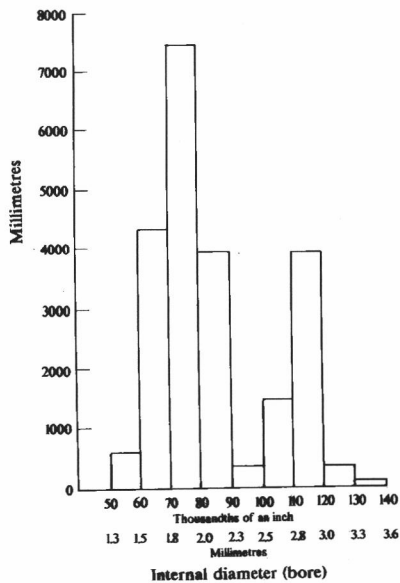


Fig. 7 Clay tobacco pipes from Chesterfield: distribution of stem fragments-by inside diameter (bore).

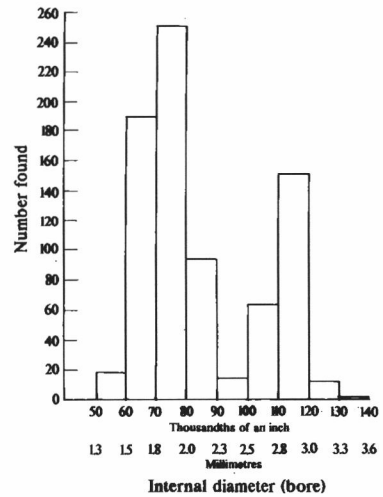


Fig. 6 Clay tobacco pipes from Chesterfield: distribution of stem fragments-by aggregate length:inside diameter (bore).

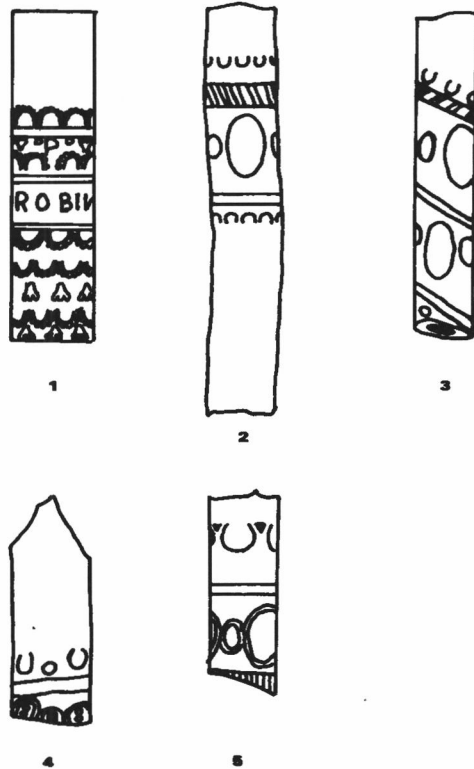


Fig. 8 Clay tobacco pipes from Chesterfield: decorated stems (scale 2:1).

Bowl number (Figs. 2,3)	Approximate date	Volume of bowl cc	Internal diameter of stem	
			inches	mm
2.1	17th c.	2.0	0.106	2.69
2.2	"	2.1	0.106	2.69
2.3	"	2.2	0.116	2.95
2.4	"	2.3	0.120	3.05
2.5	"	2.4	0.104	2.64
2.6	"	2.5	0.110	2.79
2.7	"	2.5	0.111	2.82
2.8	"	2.6	0.106	2.69
2.9	"	3.2	0.106	2.69
3.6	18/19th c.	5.8	0.082	2.08
3.7	"	9.7	0.082	2.08
3.8	"	8.0	0.086	2.18

Table 2 Volumes of bowls with internal diameters of stem bores.

although, in statistical terms, the bowls illustrated here are few in number, the mean bore of seventeenth-century bowls is almost one third (32%) larger than the three nineteenth/twentieth-century specimens (see Table 2), which corroborates Ayto's first criterion. On the other hand, when considering the total number of pipe stem fragments grouped according to bore size, one remarks that the proportion of those having a smaller bore (50-90 thou./1.3-2.3 mm) is more than twice the size of those having a wider bore (95-40 thou./2.4-3.6 mm). According to Ayto's criterion, we would therefore expect to have found a greater preponderance of earlier pipe bowls. In fact the reverse is the case, with in fact an almost complete absence of eighteenth-century bowls. At present no plausible explanation for this anomaly can be offered.

Five examples of decorated stems are illustrated in Fig. 8. The decoration on Nos. 2-5 bears a striking resemblance to those described and illustrated by Alvey (1978). In only one instance (Fig. 8:1) has it been possible to identify a name: *P. ROBI[N]SO[N]*. Alvey (1978) has noted that the Robinsons were a family of pipe makers working in Chesterfield and district between 1723 and 1876; and Alvey and Gault (1979) list two pipe manufacturers having the name of Paul Robinson: the first is said to have been making pipes in Brampton and Chesterfield between 1723 and 1756; the second is listed as operating in Bolsover and Chesterfield between 1756 and 1791. In the latter case also (Fig. 8:1) the decoration is more intricate and bears little or no resemblance to the other specimens (Fig. 8:2-5) nor to those illustrated by Alvey.

In only one other case (Fig. 3:8) has an identification mark been found, on the back of the bowl, but this could not be deciphered. In a number of other cases traces of possible decoration on pipe stem fragments were noted, but these also were too badly eroded to make identification of detail possible.

REFERENCES:

- Alvey, R. C. and Gault, W. R. (1979) County lists of clay tobacco pipe makers. In P. Davey (ed.), *The Archaeology of the Clay Tobacco Pipe* (British Archaeological Reports, British Series 63), vol. 1, 363-411. Oxford.
- Alvey, R. C. (1978) The clay pipes. In P. Borne, T. Courtney and P. Dixon, *The Peacock Inn*, Chesterfield, *DAJ* 98: 7-58, at 49-52.
- Atkinson, D. and Oswald, A. (1969) London clay pipes. *Journal of the British Archaeological Association* 32: 177-227.
- Ayto, E. G. (1979) *Clay Tobacco Pipes* (Shire Album 37). Princes Risborough.