

SPEKE HALL: EXCAVATIONS IN THE WEST RANGE, 1981-82

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SUMMARY

Restoration and underpinning of the west range of Speke Hall, Merseyside, was carried out during 1981-82. This provided the opportunity for limited excavation within the standing structure which dates to c. 1540-70. The excavation provided evidence of at least three earlier phases of building on the site and located deep deposits filling a late medieval water course. These deposits were rich in artefactual and environmental material and have provided considerable information about the lifestyle of this high status household during the late 15th and first half of the 16th centuries. This is particularly valuable in a region where few excavations of medieval domestic sites have been carried out and where finds assemblages tend to be poor.

THE EXCAVATION

Speke Hall stands on the north east bank of the Mersey about 11km (7 miles) south east of Liverpool (Fig. 1). It is a fine example of a Tudor half-timbered manor house built in the style typical of south Lancashire and Cheshire. The existing Hall was probably built in stages during the 16th century (Nicholson 1983a, 6-7) and consists of four main ranges enclosing a courtyard. It had a moat, which is now dry, and stables and outbuildings to the east during the later stages of its use. The manor itself is mentioned in Domesday and references to it occur throughout the medieval period, a building being mentioned on the site in 1314. During an extensive restoration programme a series of small trenches in and around the building were excavated by the contractors. This enabled the Liverpool University Rescue Archaeology Unit to examine the medieval developments leading up to the construction of the present Hall.

Builders' trenches observed by D. Freke in 1980 (see Fig. 1, A and B) in the east courtyard and to the south west of the Hall revealed a group of sandstone blocks (Trench A) and two sandstone walls (Trench B) belonging to earlier building phases. Traces of earlier walls were also found in the trenches excavated at the northern end of the west range showing that the medieval buildings are likely to have occupied approximately the same area as the present Hall. The trenches in the western range were excavated during 1981-82 to facilitate underpinning of the central wall (Fig. 1, C). Ultimately, areas of the Library, Corridor and most of the Billiard Room were examined (Fig. 2). This range was constructed in a single building phase and is thought to have been erected c. 1540-70. For convenience a date of c. 1550 is used in the text. The site code for the 1981-82 excavations was 81 895.

All the areas examined were floored with well fitting

sandstone flags bedded on a sand layer. This flooring is the result of a complete refitting of the western range in 1867/8, following neglect in the early 19th century.

The following notes on the 19th century refurbishment of the Hall were kindly provided by Mr A Tibbles: Mr S.C. Hall described the western range in 1848: 'This side of the house has been quite neglected: windows are partially boarded up, and it is difficult to trace any architectural features, except the two fine chimneys, all else is a complete wreck ...'. In October 1867 Frederick Leyland leased the Hall and by 11 December had issued instructions to restore the old kitchen as a Billiard Room - the work being nearly complete by 5 February 1868. The family were using the 'new rooms in the corridor' by October of that year. Some additional drainage work was carried out in 1869 and 1872 following flooding of the courtyard and ground floor of the Hall. This was represented archaeologically by the insertion of a ceramic drain from the courtyard through the Billiard Room and into the grassed moat to the west.

Excavation in the Library was confined to a small area along the east wall. Under the 1867/8 floor a lead pipe in a brick lining ran E-W across the room from the Corridor and, apparently, replaced an earlier pipe which had passed through a hole in the sandstone footings. Both phases date from during or after the 1867/8 refit. Two post holes from the 1867/8 refit were also found. The post holes measured c. 60 x 25 mm and were formed when pointed timbers were driven in c. 150 mm, and then removed when the floor was laid, so the sand bedding ran into them. Similar holes were found near the walls of the Billiard Room and may have been from light internal scaffolding or setting out pegs. The Library trench was too narrow to go below the footings of the 16th century wall but the surrounding layers were similar to those found in the Corridor.

In the Corridor, the sand bedding for the 1867/8 floor rested on sandy soils mixed with building waste. No traces of earlier floors survived, although these soils did cover the foundation trench for the 16th century wall and, were therefore built up after its construction. The construction of the wall was marked by packed red sandstone masons' waste which came from dressing the foundations. The timber superstructure is supported on two courses of dressed masonry which are bedded on large foundation blocks. These lie across the wall line and project from both sides of it. The layers cut through by this construction and, therefore, earlier than c. 1550, consisted of sandy soils mixed with builders' waste from earlier phases of the Hall.

The footings of an earlier N-S wall were found in the eastern side of the trench. This consists of five courses of rough sandstone blocks running at a slight angle to

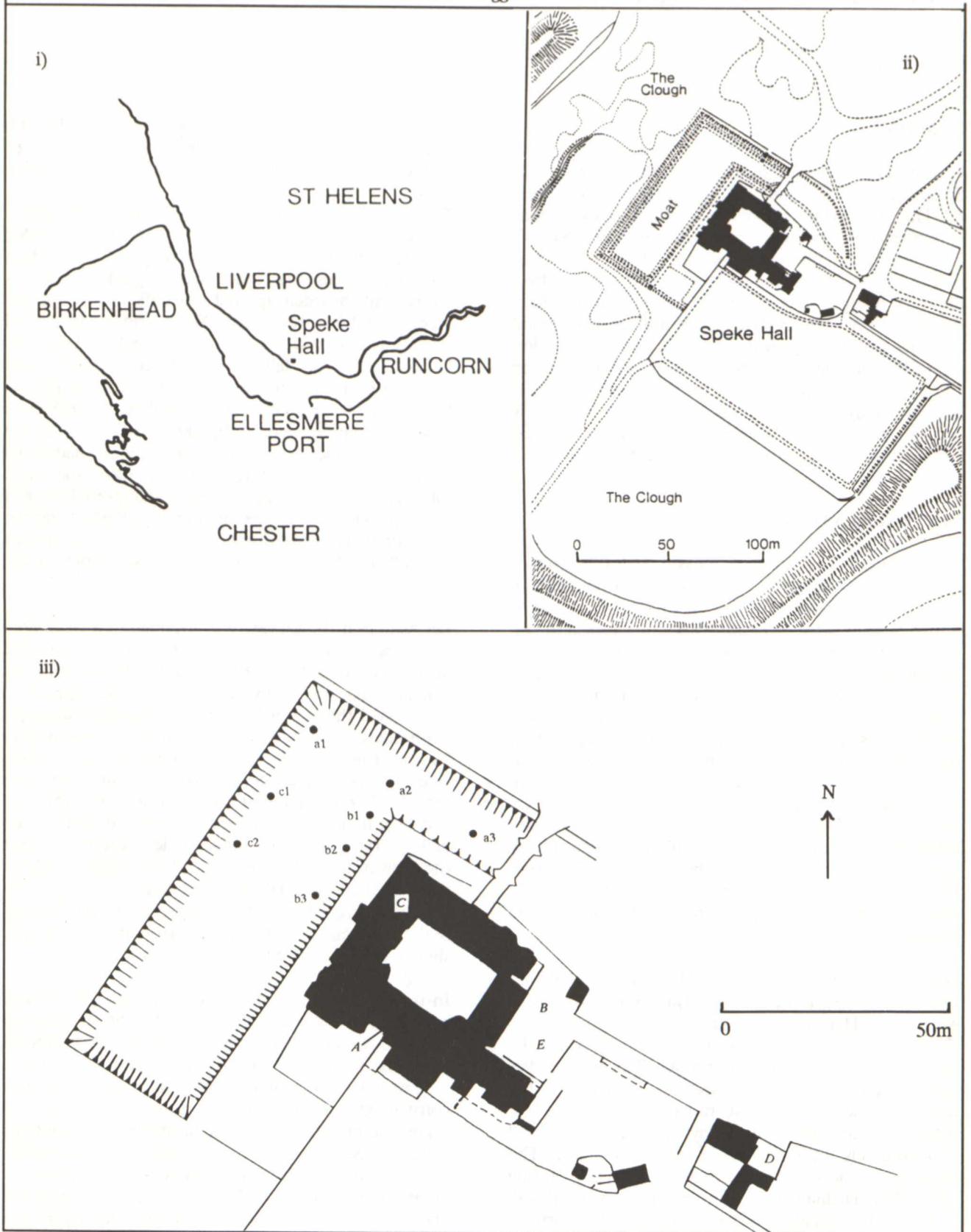


Figure 1: i) Location plan. ii) Site plan. iii) Plan showing location of excavation and builders' trenches and boreholes. Key: A. Freke, 1980, builders' trench observations to the SW of the Hall. B. Freke, 1980, builders' trench observations in the east courtyard (see page 88, trench 32). C. Higgins, 1981-82, excavations in the west range. D. Davey and Speakman, 1987, excavations in the gardeners' compound (see page 85). E. Lewis, 1989, excavations in the east courtyard (see page 87). Boreholes a1-c2. Innes and Innes, 1982 (see page 83).

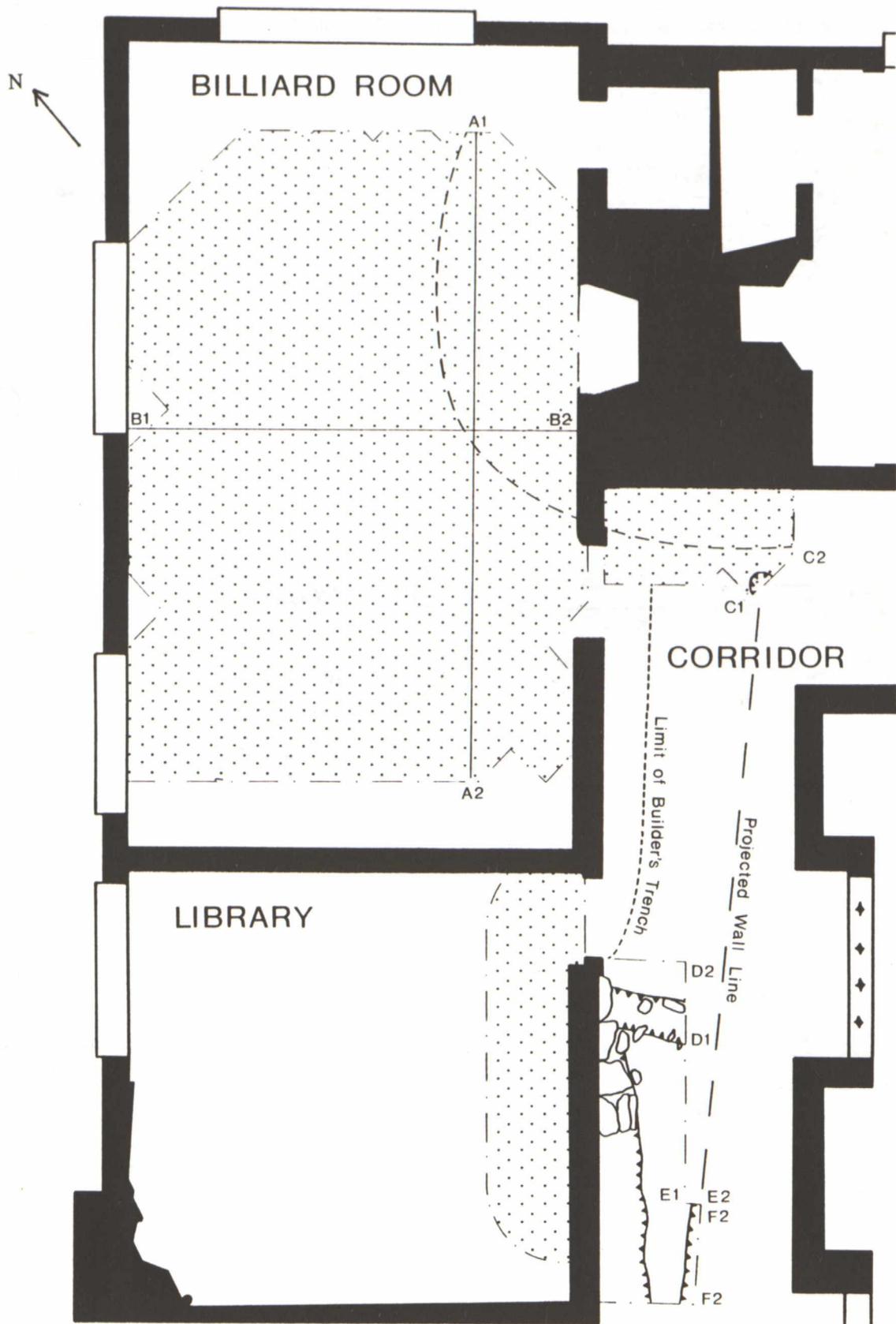


Figure 2: Detailed trench plan

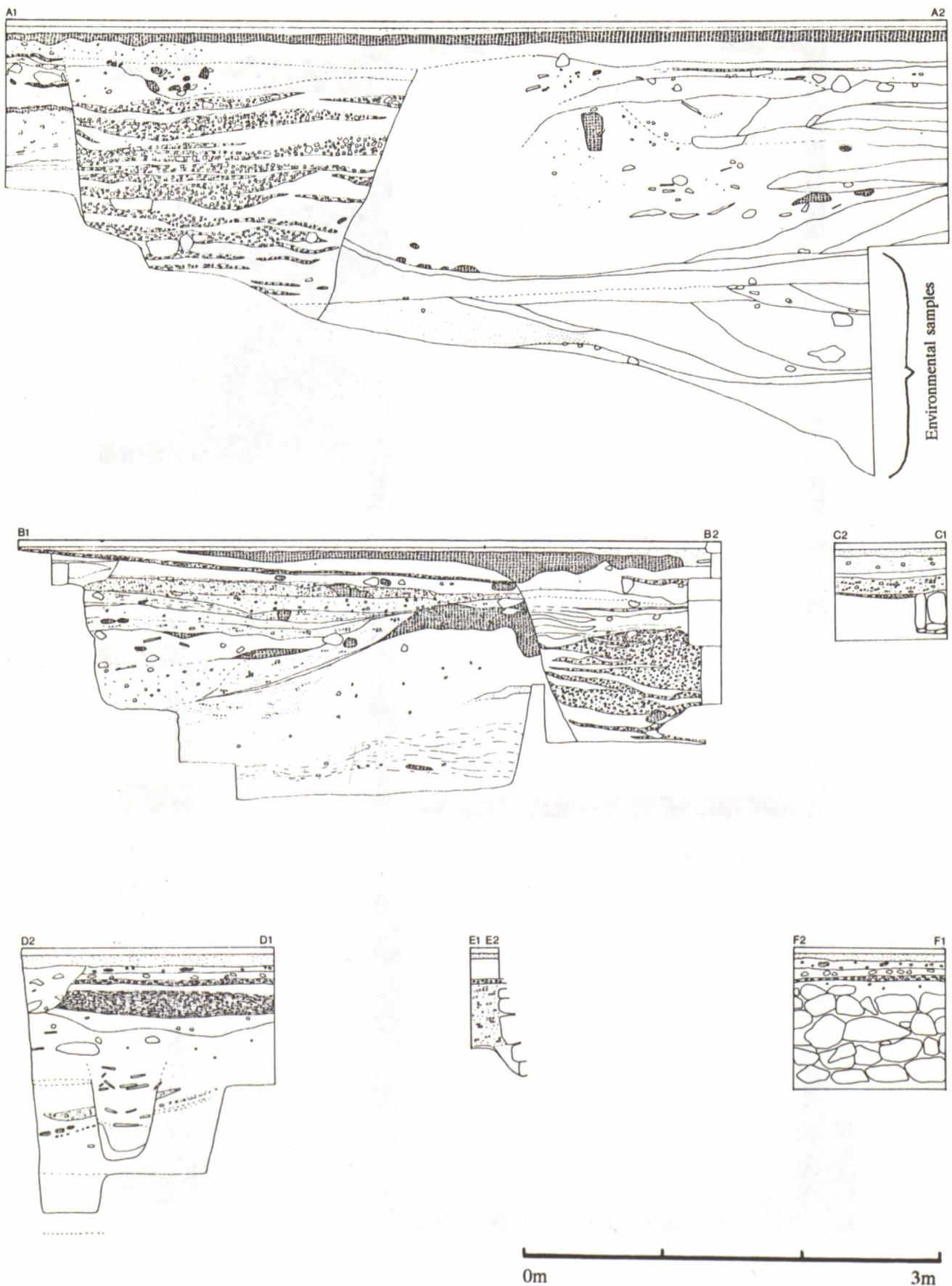


Figure 3: Section drawings (see caption opposite).

the present building. (Fig. 3, sections E1/E2 and F1/F2). This wall possibly extends north under the present corridor to join with the sandstone blocks found in the northern trench (Fig. 3, section C1/C2). This earlier building may have been roofed with sandstone slabs since a tip of these had also been disturbed by the 1550 construction. Beneath it were found traces of another building which had had a slate roof. A trench ran E-W across the Corridor and probably represents a robbed out wall (Fig. 3, section D1/D2). The fill contained many roof slates which were usually between 90 and 140mm wide. Although slate seems an unusual roofing material at this date there are references to Welsh slate being quarried from the medieval period, and slate from the Ogwen valley near Bangor was used c. 1358-60 for the great stable at Chester Castle. (Roberts, *in litt.*, 11.3.82) Domestic debris continued below this building in soft sandy layers with peaty streaks although no earlier structures were found. It seems that occupation at this time may have been to the south (see below). Rubbish may have been dumped to level up, or consolidate the ground which was damp and subject to flooding. Despite its small size this Corridor area was one of the most important examined, showing that at least two substantial building phases underlie the west range, and that these are not the earliest occupation of the site.

The largest area examined was the Billiard Room where most of the floor was removed for excavation. This is where structural problems in the 16th century building were most obvious. The doorway into the Billiard Room was rising and falling so that the door alternately jammed or swung free and this was the initial reason for underpinning. The floor itself was of larger slabs (c. 560mm square) than in the Corridor (400mm square). Many of the slabs had a mason's mark underneath consisting of a few straight lines forming a star. A strip across the south of the room had been lifted to insert one of the drains for the courtyard in either 1869 or 1872. In the rest of the room the slabs were again bedded on a sand layer which had been raked flat

before they were laid. The rake marks survived underneath the big hearth slab showing that its prongs were c. 30mm apart.

The sand layer contained numerous fragments of carpenters' waste and building debris associated with the refitting work. The most interesting finds were 13 fragments of orange glass strips, 31-34mm wide with traces of leading along the edges (Fig. 9, nos. 65 and 66). One of these has an angled end which also shows signs of leading. As no orange glass was found in the other excavated areas the Billiard Room may have had decorative window panels which were removed in 1867.

Inside the door and along the east side of the Billiard Room were two layers of clay which had been used to level the floor and on top of which was a scatter of ash from a small hearth. This was crudely constructed of sandstone and brick mortared onto a slate slab base, and was full of coke and coal fragments. It lay under, but not central to, the present fireplace, the surround of which was inserted in 1867. It does not seem large enough for a kitchen fire. It may have been the ash pit for a small intermediate fire of late 18th or 19th century date.

An odd find, presumably dating from the period of abandonment during the early 19th century, was a dog burial. The remains, only 250mm under the present floor level, must have been buried since all the bones were in position and undisturbed by rodents. The body had been buried with the front legs and head missing - one of the legs was found similarly undisturbed some 4m away. The reason for this shallow, dismembered inhumation within a building remains a mystery.

No clear floor levels were found within the room, suggesting perhaps a raised wooden or earlier stone floor, which had been totally replaced in 1867. The soils under the floor were sandy and well mixed with masons' waste and were probably tipped across this area to make up the surface prior to the building of the west

Figure 3: Section drawings from the Billiard Room:

Sections A and B:

These show the two clay layers (shown as one band) lying directly beneath the sand bedding of the present floor. It is not certain whether these were intended as floor surfaces or merely patching to an area by the door since they faded out to the west of the room. The main feature in both sections is the massive construction trench for the chimney stack on the east side of the room. This cuts through deep, sandy layers of made-up ground and has a distinctive fill consisting of soil and red sandstone chippings from dressing the stonework. On the right hand side of section A1/A2 some 1.75m of material, apparently dumped from the south, overlies the silted up water course. The channel was waterlogged from 2m below the floor level resulting in the preservation of a wide range of organic remains. The column examined for environmental remains is indicated at the right hand side of the section. The white sandy lenses, indicative of running water subject to periodic flooding and identified in Table 15, are the layers which taper down to appear as narrow bands at the right hand side of this section.

Corridor, Sections C - F:

At the north end of the corridor a small group of sandstone blocks was found (section C). These possibly form part of the wall revealed in sections E and F. Section D shows a thin band of red sandstone chippings from dressing the wall footings overlying a thicker band of sandstone slabs from an earlier roofing phase. Below these is a trench, possibly the robbed out footings of a wall, the fill of which contains roofing slates.

range. Bands of red sandstone and a light laminar sandstone showed that the builders had dressed the footings on site and used sandstone for the roof of the 16th century phase. Shrinkages as these deposits dried resulted in a loose gap against the west wall, into which some late china and bones had dropped. The sides of this were soot blackened which, together with a charred main post in the north east of the room (exposed during restoration), shows that there had been a fire in this room at some period, probably when it was in use as a kitchen.

The west wall footings were of a rougher construction than the neatly dressed blocks of the east side, but still consisted of large red sandstone blocks dressed on the outside where a wall is necessary due to a drop in ground level to the moat. The wall has no discernible construction trench and there is evidence of shrinkage back from it. This indicates that the wall was built first and the room level was then made up with soil and building waste within. Because it still supports the west range it was not possible to section it to any depth. The main chimney on the east side of the room also had large blocks supporting it in a massive construction trench. The bottom was not fully reached but a hole c. 5m square and 2m deep had been dug for the chimney, and the trench backfilled with layers of masons' waste and soil (Figs 2 and 3; Sections A1/A2 and B1/B2). This fill contained fragments of a Cologne/Frechen jug of c. 1525-50, confirming a mid 16th century date for the construction of this range. All the remaining layers, therefore, predate the mid 16th century building. The reason for the movement of the door and the massive chimney foundation became apparent when an earlier water course was discovered beneath this end of the range. Numerous layers of mixed sand and soil tips with building waste were found making up the level of the ground above it, and pieces of pottery from several of the 'layers' joined, showing them to be contemporaneous tipping from the first half of the 16th century. Below this fill was a water course which ran roughly E-W across the site. It was not possible to get a complete section but at its deepest point there was a total of 3.3m of deposits under the 16th century floor level (Fig. 3, section A1/A2).

The modern water table was encountered at about 2m below the present floor level. The waterlogged fill of the water course below this point was rich in organic remains and has provided much additional information about the environment and lifestyle of the inhabitants of Speke (see specialist reports). The contents also provide a valuable record of the development of the feature itself. The lowest levels produced evidence of aquatic and waterside beetles, caddis fly larvae and sandy lenses consistent with a clean and open waterway with flowing water. The fill became more organic with increasing evidence of human activity, such as fig seeds, while the presence of apparently *in situ* tree roots and numerous pieces of wood suggested that it became overgrown and clogged with vegetation. The pollen record suggests that the channel ran through a mixed

environment of woodland, heath and arable, while the dung beetles suggest grazing animals for which it may have formed a boundary. Towards the top there were extensive spreads of packed organic material containing a lot of domestic waste such as oyster shells and bone. This, together with the apparently buried dung beetles at around 2m below the present floor, suggested that the water course had gone out of use and was being filled up.

This suggestion is supported by the stratigraphy. In Figure 3, section A1/A2, the northern slope of the water course can be seen. It appears to be a wide and rather shallow feature with deposits in it sloping gently to the south. Above the water table the tip lines slope down from the south, suggesting dumping from that direction. It would seem that, having silted up to a point where it was probably no more than a flat marshy area, the ground was reclaimed by large scale dumping from the direction of the existing Great Hall. The water course does not seem to have been particularly important either for defence or drainage as it was allowed to become overgrown and it had domestic waste dumped into it, the artefacts in this waste suggesting that it was being filled during the later 15th and early 16th centuries. An unusual type of evidence to support this date is provided by the presence of sycamore pollen, an alien tree species, not widely planted in this country until the 16th century (Jones 1944). Finally the area was levelled and the Hall complex extended over it c. 1550.

It is by no means certain that the bottom of the water course was reached in the available section. But, from the excavated portion, the channel appears to have been very shallow and wide. The greatest depth excavated was only about 1.25m while the estimated width would have been at least 8.5m. This suggests the channel would have extended well under the Library. It would also have extended underneath the possible robber trench seen in section D1/D2 and it may have extended as far as the wall seen in section F1/F2. If this is the case, these features must have been relatively short lived since they would be sandwiched between the filling of the water course and the construction of the west range in c. 1550.

It is not clear whether the water course was man-made or natural although the wide and shallow profile, lack of any evidence for recutting and the fact that it was allowed to silt up all argue for the latter. Whichever is the case it appears to have started life as an active channel, presumably running to the Mersey. In 1314 there is a reference to a brook called Mykelderyord which ran through the Clough, between the present Hall and the Mersey (Nicholson 1983b, 33). This brook probably ran along the line of the present pools and culverts which lie to the west of the Hall. In 1314 the brook is recorded as having a tributary, perhaps the water course encountered in this excavation. Whether this is the case or not, the excavated channel appears to have formed a northern boundary to the Hall

complex which is likely to have been in the general area now occupied by the Great Hall. The brook would have formed a western boundary and, with the Mersey to the south, the site would have been surrounded on three sides by water.

As well as organic remains, the fill was rich in artefactual and building debris. This included roofing slates and pottery ridge tiles as well as some fine pieces of metalwork and pottery, reflecting the status of both the buildings and their occupants. The borehole survey picked up the probable line of this feature outside the present building. It was clearly an important element in the medieval landscape at Speke and it would be useful to find out more about its origin, course and relationship with the earlier Hall complex.

The wide range of artefactual and environmental material recovered from this channel is particularly useful in that it provides information about the food and lifestyle in the late 15th century to early 16th century Hall which supplements the documentary evidence available (Nicholson 1983a). In addition, the excavations have shown the location of the northern boundary of the earlier buildings and indicated that sandstone footings and slate roofs were used in these phases. The archaeological examination of a relatively small part of this site has demonstrated that a great deal of information can be recovered about both the standing structure and the earlier deposits beneath it. The excavation of these well dated and sealed deposits has made a considerable contribution to the archaeology of the region and demonstrates the importance of properly planned research during any future disturbance of this site.

Acknowledgements

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FINDS REPORTS

The pottery

None of the deposits excavated was particularly rich in ceramic finds despite the fact that a large quantity of spoil was excavated from the water course which had clearly been used for dumping domestic waste. The majority of the pottery was recovered from the levelling deposits in the water course or from contexts directly associated with the construction of the west range in c. 1550. This material appears to range from the late 15th century through to the first half of the 16th century in date. Individual vessels appear to have been widely scattered by levelling and building, for example, fragments of a Cistercian ware vessel were recovered from contexts 3, 11, 60 and 119. For this reason the earlier pottery is considered by fabric type rather than context group. A table for each of the main classes has been prepared giving details of the fragments recovered. The layout of the tables is described below.

The pottery tables

A table has been prepared for each of the main classes of pottery. This lists the contexts from which fragments were recovered and gives details of the number and type of fragments found. NA is used where particular information is not available.

The tables give:

- | | |
|----------|--|
| Cxt | The context number from which the fragments were recovered. |
| Joins to | Context numbers of other pieces with which the fragments recovered actually join. Where pieces from more than one context have been re-assembled the total sherd number and weight is given under the lowest context number. |
| Fab. | The fabric texture had been graded by inclusion size on a scale of 1 to 5:- <ol style="list-style-type: none"> 1. Very fine, almost no inclusions visible to the naked eye. 2. Fine sandy, no inclusions larger than 0.25mm. 3. Medium sandy, no inclusions larger than 5mm. 4. Coarse sandy, no inclusions larger than 1mm. 5. Very coarse, with inclusions larger than 1mm. |

Sherd No.	The number of sherds recorded, including those in 'joins to'.	Min. V.	The minimum number of vessels represented by the sherds. This was arrived at by logical arrangement of the pieces into the smallest number of possible vessels.
Sherd Wt	The total weight of the sherds, in grammes.	Fig. no.	The figure number of any illustrated pieces.
S.V.	Context numbers for other fragments which are thought to come from the same vessel. These are counted and weighed under their own context numbers.	In addition, the Cistercian wares were divided into 'kitchen' (K) or 'table' (T) types. The 'kitchen' types are larger, rather cruder vessels with relatively thick walls, such as storage jars, and the 'table' types are smaller vessels with thinner walls, such as cups. This designation does not necessarily imply either their original status or use but offers a means, by modern analogy, of visualising and differentiating the categories of vessel recovered.	
Rim ϕ	The diameter of any rim sherds, in mm.		
Rim%	The percentage of any rim surviving.		
Handle scar	The number of handle stumps or scars present on the sherds.		

Iron-free fabrics (Fig. 4)

Fragments of nine vessels with white or buff coloured fabrics were recovered. Almost all of these sherds were associated with rubbish or levelling deposits in the water course and appear to be of late fifteenth century or early sixteenth century date. The remains of one cooking pot made of a rather coarse buff clay were

recovered (Fig. 4.1). The remainder of the pieces came from rather finer vessels all of which are imports to the area. At least two plain Saintonge jugs are represented (contexts 58, 62, 119 and 156; Figs. 4.2 and 4.3) and four sherds from a Beauvais 'fine green' jug (contexts 80, 152 and 154; Fig 4.4). There is also a bottle which is probably from Cheam in Surrey (Marshall 1924, 86; Fig. 4.7).

Table 1: Iron-free fabrics

Cxt	Joins	S.V.	Fab.	Sherd No.	Sherd wt.	Rim ϕ	Rim %	Handle Scar	Min. V.	Fig. no.
8			2	1	5				1	
25			1	1	11				1	
36			2	1	16				1	
58		?119, 156, ?62	1	2	14				2	
62		?58, ?119, 156	1	1	NA				1	4.3
80		152, 154	1	1	3				1	4.4
119		?62, ?156, ?58	1	1	22				1	
139			2	2	6				1	
151			5	1	168				1	4.1
152		80, 154	1 & 2	1	NA				1	4.4
153			1	c60	NA				1	4.7
154		80, 152	1	1	5				1	4.4
156		62, 58, ?119	1	2	56	100	17	1	1	4.2

Iron-rich fabrics (soft types) (Fig. 4)

Quite a range of fabrics and vessel types are made of iron-rich clay firing pink to orange in colour, sometimes with a reduced core. All these pieces are generally soft and have a 'rugged' fracture. Most are small fragments coming from the mixed late medieval tips used to make up the ground. They represent jugs and storage/

cooking vessels from a number of sources, and do not fall into easily recognisable groups. The only substantially complete piece (from contexts 28 and 32) is the lower part of a jug (Fig. 4.8). It is made of a fine pink fabric, which is probably an import to the area, possibly from continental Europe. Some of the pieces have patches of green or orange glaze.

Table 2: Iron-rich fabrics (soft type)

Cxt	Joins	S.V.	Fab.	Sherd no.	Sherd wt	Rim ϕ	Rim %	Handle scar	Min. v.	Fig. no.
5			2	1	35				1	4.5
24			4	2	20				1	4.6
28	32		1	many	392				1	4.8
32	28									4.8
29			3	1	4				1	
42			3	1	5				1	
45			3	1	10				1	
58		107	2	2	26				1	4.9
70			3	1	19				1	
75			2	1	6				1	
77			3	1	10				1	
79			3	1	15				1	
84			2	1	5				1	
107		58	2	1	8				1	
117			3	1	10				1	
119			3	1	30				1	
143			2	1	5				1	
151			4	1	7				1	

Iron-rich fabrics (hard types) (Fig. 5)

A second group of pots made of clay firing orange to red in colour can be distinguished from the softer types. The fabric is typically well fired, making it much harder with a smooth, angular fracture. There are numerous

sandy grits in the body distinguishing it from typically 17th century fabrics. Most of the sherds from Speke seem to be associated with construction activity c. 1550. Many of them have orange to dark brown glazes, often covering large areas.

Table 3: Iron-rich fabrics (hard types)

Cxt	Joins	S.V.	Fab.	Sherd no.	Sherd wt	Rim ϕ	Rim %	Handle scar	Min. v.	Fig. no.
11			3	1	3				1	
27		140	4	1	39				1	
41		65	4	1	34				1	5.10
58			3	11	300				1	5.12
58	67		3	2	55	85	27		1	5.11
60		62	3	2	58				1	
62		60	3	1	42				1	
65		41	1	1	105	100	20	1	1	5.11
67	58									5.10
73			5	1	11			1		
140		27	4	5	113			1		

Highly fired grey fabrics (Fig. 5)

One of the most distinctive types of pottery consists of highly fired fabrics heavily gritted with white quartz grains. Although the fabric is extremely hard, the dense inclusions tend to give it a 'rugged' rather than a glassy fracture. The colour is almost always an even grey/black, although some pieces have patches of red. The vessel types seem to be large jugs and storage vessels. These are often thin walled in relation to their size resulting

in some sagging of the sides. All the rim sherds have thumb bands applied and two bodies show incised decoration. The pieces often have a good external coating of a translucent green/brown glaze speckled with white patches where the grits show through. Most of these sherds are associated with the rubbish levels over the water course and so probably date from the late 15th century.

Table 4: Highly fired grey fabrics

Cxt	Joins	S.V.	Fab.	Sherd no.	Sherd wt	Rim ϕ	Rim %	Handle scar	Min. v	Fig. no.
5			3	1	74				1	
18			4	1	5				1	
22	25		2	2	71				1	
25	22									
45			3	1	136			1	1	
60			4	1	185	100	30		1	5.13
71			2	1	15				1	
73		76 80 ?153	3	2	24				2	
76	80	156 153	3	2	206				1	5.14
80	76	73	3	1	75				1	
119		?130	3		21				1	5.15
130		?119	3	1	20				1	5.16
132			2	1	26				1	
140			4	1	25				1	
152			4	1	6				1	
153		?73	2	1	32				1	
"		76, 80	3	2	42				2	5.17
"		156								
"		73, 80	4	1	37				1	
156		76, 80	3	5	493				2	
		153								
US			3	3	10				3	

Cistercian-type Ware (Fig. 7)

A considerable number of sherds were of this type (Brears 1967). The majority were associated with deposits immediately prior to and after the 1550 construction. Both 'kitchen' and 'table' types are represented, although most are of the former type. In all cases the fabric is hard and smooth with very few inclusions (Unit ref. collection type 10). The colour varies from a rich purple/brown to a lighter red/brown. The glaze is often thin becoming patchy on the larger vessels while the smaller vessels have a more even coating. Individual glazes vary but generally are either a dense finely streaked brown/black or a more transparent metallic brown with iron specks. These effects are probably the result of two different glaze types. The larger vessels were made and fired with the smaller ones as is shown by a 5cm diameter scar on the base of a larger jar (Fig. 7.29). This has clearly been fired

upside-down with a smaller vessel, probably a cup, standing on its base. Another larger vessel may have covered this, acting as a form of sagger. The 'kitchen' types represented (e.g. Figs. 7.29 and 7.32) are upright jar forms and may have had handles (Fig. 7.35). The smaller vessels are mainly drinking vessels of two forms, very similar to the mid 16th century groups from Norton Priory (Greene and Noake 1988, 59). One type has a narrow base (Fig. 7.23) leading to a conical body with a wide mouth (Figs. 7.20 and 7.21) and seems to be slightly less common than the second type. This has a much more globular body (Figs. 7.22, 7.24, 7.26, 7.27, 7.28 and 7.30) with the neck about the same diameter as the base which at Speke ranges from 7.5 to 9cms. Both types have distinctive handles (Figs. 7.33 and 7.34) and pronounced bases which seem to be a common feature of 16th century pottery in the North West. The only other recognisable form is part of a bottleneck (Fig. 7.19). All these forms are slightly different from

the Cistercian type series published by Brears (1971, 20). Since similar 16th century drinking vessels have been found not only at Norton but at Warrington

(Davey and Morgan 1977, 114), Twiss Green and Prescott, it seems that an extended Cistercian ware form series is needed for the North West.

Table 5: Cistercian-type ware

Cxt	Joins	S.V.	Sherd no.	Sherd wt	K/T	Rim ϕ	Rim %	Handle scar	Min. V.	Fig. no.
3	11(2), 119		7	82	T				2	5.19
11	60, 3	108, 119	5	56	T				3	5.20
18			1	15	T	24	100		1	5.21
23			6	8	T	70	20		1	5.22
25		30, 34	1	63	K	180	16		1	5.23
30	34	25	2	133	K				1	5.23
34	30	25	1	53	T	90		1	1	5.24
36			1	12	T				1	5.35
51			1	4	T				1	
55			71	96	5K				2	5.27
				2T						
58			6	46	T			2	2	5.25
60	11		6	41	T				2	5.26
61			5	43	T				2	5.28
65			1	1	T				1	
108	11		3	8	T			1	2	
113			4	20	T				2	5.29 & 5.30
115			1	4	T				1	
119	3	11	3		T				2	5.31
123			1	29	T			1	1	5.32
128			1	12	T			1	1	
132	136		2	17	T			(handle) 2	1	5.33
136	132		5	80	1K				4	5.34
U/S					3T					
					1?					

Cistercian-type variants (Fig. 7)

Contemporary with the Cistercian types and of similar form and glaze were three sherds, probably all from drinking vessels. Although they also have a fine even fabric it is softer and of brick red colour. This makes the glaze look browner, and more like typical 17th century sherds. But they were found in the tipping prior to the 1550 construction and must represent lower fired variants of Cistercian types.

Table 6: Cistercian-type variants

Cxt	Sherd no.	Wt	K/T	Min. V.
123	1	4	T	1
130	1	7	T	1
U/S	1	6	T	1

Miscellaneous (Fig. 7)

Two joining fragments of a Cologne stoneware jug (Fig. 7.18) were found in the construction trench for the chimney. This is an important find not only because it is a scarce import, but because it confirms the suggested date of c. 1550 for the west range. The form and decoration is closely datable to c. 1525-50 (Reineking-von Bock 1976, 201-204), the fragments being from a small jug. The decoration would have consisted of a spiralling tendril design, perhaps with another decorative emblem or face on the front. A good example of similar date has been found at Norton Priory (Greene 1974, cover illustration).

Later Wares (Fig. 7)

Only a small quantity of later wares were recovered since there was very little disturbance below floor level between the mid 16th century and the refitting of 1867/8. Some of the later wares, for example, those from the later hearth or from a crack against the wall

in the Billiard room, cannot now be found. However, the following pieces are present.

Context B2: the sand bedding for the Billiard Room floor. This produced three sherds from either one or two creamware plates of late 18th or early 19th century date. The rim sherds are decorated with a painted border consisting of two red lines. There are six sherds from a small pearlware jar which dates from c. 1820-30 (Fig. 7.37). This has a diameter of 78mm and very thin walls rising to a total height of only 32mm. There is a groove below the rim, presumably to secure a tied covering. There is one small sherd of pearlware tea-bowl with printed decoration of similar date and two small pieces of a printed willow-pattern plate dating to the 1820s or later. It is interesting that all of the pottery recovered could date from 1820s while the floor can be historically dated to 1867/8. This later date is supported by the presence of a decorated tobacco pipe of a form current from the mid 19th century onwards in the same context. If the pottery was derived from rubbish left within the west range it can be suggested that it was derelict for about 40 years before the 1867/8 refitting.

Context 12: fill of a pipe trench from 1867/8 refitting (very similar material to B2 above). One small rim sherd of a late 18th century or early 19th century porcelain tea-bowl. This is painted internally and externally with an underglaze pattern in blue with additional red and gold decoration applied over the glaze.

Context 103: a layer of sandy earth under the bedding for the Billiard Room floor. An undecorated handle sherd from a tin-glazed vessel (Fig. 7.36).

Discussion

The pottery can be related to activity on the site and shows a development from the late medieval to early post-medieval types. The presence of white-wares from Surrey and France and the Cologne stoneware jug shows that throughout this period imports formed a small but important element of the pottery used.

The earliest pottery recovered from the filling of the water course probably dates from the late 15th century. At this time fine imported white wares are found alongside the highly fired grey jugs and jars which were probably produced locally. These are decorated with thumbled strips and incised lines, other examples of which are not uncommon in the North West. The almost vitrified body demonstrates fine control over high temperature kilns and shows that the technology existed for the later switch to Cistercian types.

The water course deposits and the levelling above them also contained a range of soft sandy fabrics. These are typical of the later medieval fabrics found on many sites in the North West. At each site, however, they seem

slightly different which suggests there were numerous local production centres which were making jugs and cooking pots.

In the levels associated with the 16th century construction there were hard gritted red wares and Cistercian types. These represent a fundamental change to more even, uniform types of pottery, with a greater range of vessels and more even glazing. The most important of the new forms are the Cistercian cups, marking the first departure from the widespread use of wood and bone table vessels in the medieval period.

The red fabrics also include new forms, such as the jar (Fig. 5.11) as well as older types such as the jug (Fig. 5.10). The recognition of these mid 16th century hard red fabrics (with brown glazes) and their distinction from the similar 17th century types, is important in the North West, where they mark the start of a period of substantial pottery activity. On many sites with both 16th and 17th century occupation, such early fabrics can be mistakenly assigned to the later period. At Speke this group constitutes a small but important assemblage of forms and fabrics sealed by a mid 16th century structure.

Pottery illustrations (Figs. 4-7)

Iron-free fabrics (Fig. 4)

1. Context 151. Base sherd of cooking pot, reduced grey core with buff surfaces. Mainly <1mm sandy inclusions, some larger. Sagging base with at least three finger impressions on base line. No glazed areas.
2. Context 156. Rim and base sherds of a plain Saintonge jug. Fine cream fabric with slightly pinkish core, and fine mica 'glitter'. No glaze.
3. Context 62. Rim sherd and handle of a plain Saintonge jug; only the handle side survives. Fine pinkish/buff fabric with diameter of c. 90mm. Handle well smoothed onto body, small glittering inclusions in fabric, with two very small spots of light green glaze. Some ?crosses scratched onto handle after firing.
4. Contexts 80, 152 and 154. Beauvais 'fine green' jug in fine white fabric (1), no glaze internally, glossy full copper-rich glaze externally, with darker green streaks. Grooved decoration flooded a deep green/black. Handle is of a coarser (2), slightly brown, fabric with small rounded inclusions.
7. Context 153. Cheam Bottle - about 60 sherds. Fine highly-fired buff fabric (1) rather uneven shape and rough finish. Base has been chipped all round to make it stand. The top is starting to flare out. Thin splashes of yellow glaze on body - fuller near top and coats all upper portion internally.

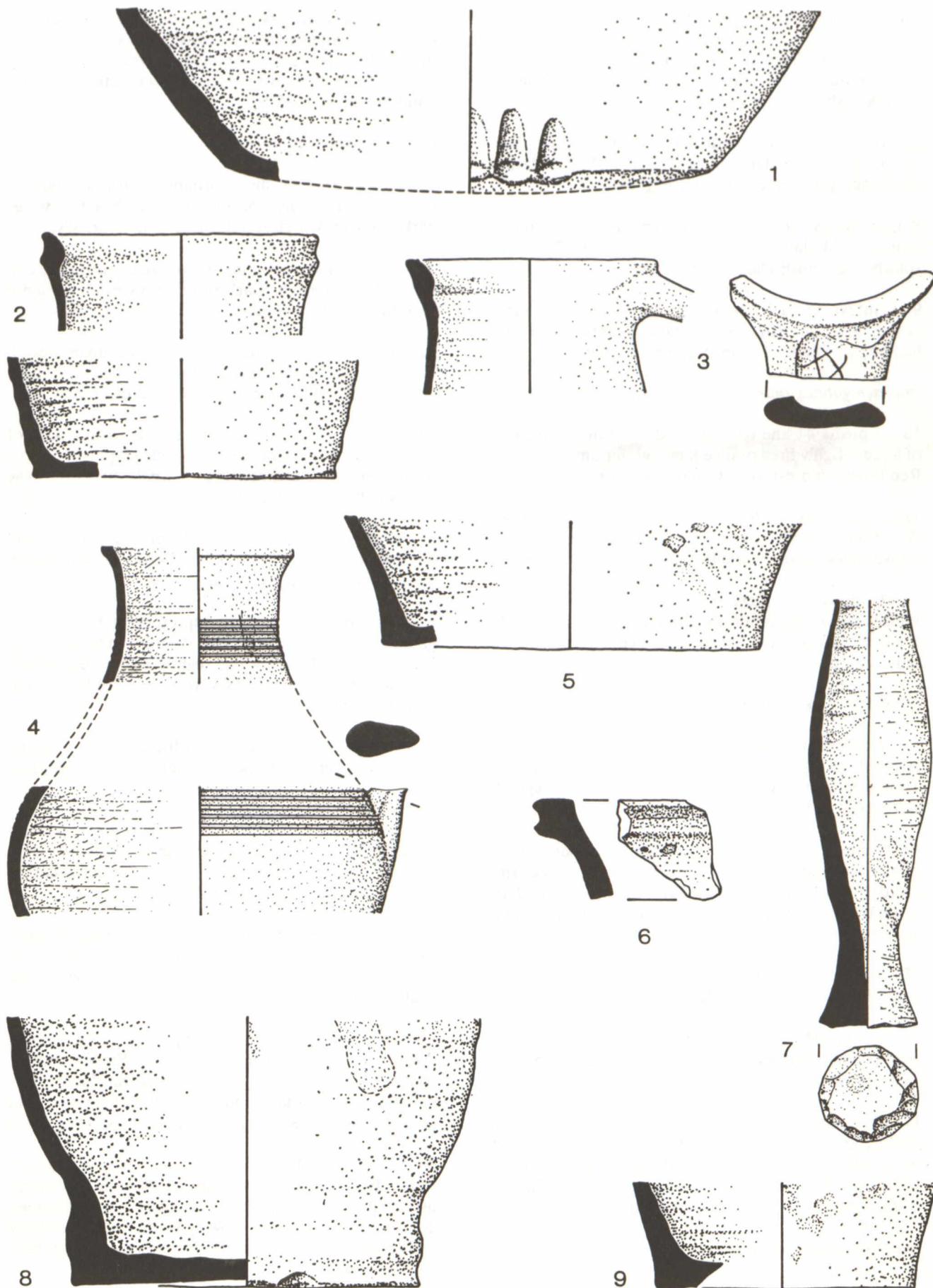


Figure 4: Pottery illustrations, nos. 1 - 9. Scale 1/2.

Iron-rich fabrics (soft types) (Fig. 4)

5. Context 5. Fragment of jug base in fine even sandy fabric; reduced grey interior, reddish exterior. Splashes of yellowish glaze on exterior.

6. Context 24. Two sherds of a large bowl/jar. Soft orange fabric with dense large sand inclusions. Splashes of orange glaze externally and internally.

8. Context 28 and 32. Numerous sherds of a jug in fine salmon pink fabric with slight grey core. Traces of splashed greenish glaze on exterior.

9. Context 58. Two fragments of a jug base; same vessel also in 107. Soft orange fabric with fire inclusions. Patch of orange glaze on exterior.

Iron-rich fabrics (hard types) (Fig. 5)

10. Contexts 41 and 65. Base and rim/handle fragment of a jug. Highly fired orange fabric with numerous grits. Reddish-brown exterior. Orange interior. No glaze.

11. Contexts 58 and 67. Two rim sherds of globular jar. Well-fired orange/red fabric, gritty, with metallic brown/black glaze externally, traces of same internally.

12. Context 58. Eleven sherds of a globular jar. Well-fired orange fabric with numerous grits. Outside a patch orange, very similar to ridge tiles. Traces of same inside.

Highly-fired grey fabrics (Figs. 5 and 6)

13. Context 60. Rim and handle scar of a jug. Highly-fired grey fabric with numerous inclusions. Thumbed strip at handle level. Glossy dark brown/green glaze externally only.

14. Context 119. Body sherd of hard grey fabric with numerous quartz inclusions, may be same vessel as rim sherd from context 130 (33). Externally a dark green/brown glaze with white grits showing and incised decoration.

15. Context 130. Rim sherd with thumbed strip below. Same fabric and glaze as 32.

16. Context 153. Rim sherd with thumbed strip. Hard grey quartz-filled fabric with patchy metallic brown glaze showing white grits.

17. Contexts 76, 80 and 156. Fragments of a large cooking/storage vessel. Highly-fired grey fabric with numerous quartz fragments, and odd inclusions, up to 15mm. Dull purplish-brown surface with splashes of greenish glaze internally and externally.

Imported stoneware (Fig. 7)

18. Context 65. Two fragments of Cologne stoneware

jug. Even grey fabric with small quartz grits. Salt-glazed; externally ranging from greyish brown to brown, internally pale grey. Applied leaves and tendrils externally on body with traces of decoration on neck band above. *c.* 1525-50.

Cistercian-type ware (Fig. 7)

19. Context 18. One sherd forming the top of a pottery bottle. Even, reddish purple fabric with a few voids, dark black/brown glaze internally and externally.

20. Context 113. One rim sherd from a drinking cup with a flared mouth. Dark purple-brown fabric, dense blotchy black/brown glaze internally and externally.

21. Context 23. Six sherds from top of a drinking vessel; finely thrown reddish purple fabric with a few voids, dark black/brown glaze internally and externally.

22. Context 11. Two joining sherds from base of globular drinking cup. Smooth reddish-purple fabric, translucent dark brown glaze internally and externally with small cream specks.

23. Context 61. Four sherds from base of 'conical' drinking cup, even purple fabric, dense metallic brown glaze internally and externally.

24. Context 34. One sherd representing the tip of a globular drinking cup with part of one handle surviving. Even purple fabric. Glossy, slightly translucent brown glaze internally and externally, with frequent blotches of metallic brown.

25. Context 36. One base sherd from base of drinking vessel. Only one small speck of metallic brown glaze on base.

26. Context 119. One sherd from base of a globular drinking vessel. Even purplish fabric with few white specks. Translucent brown glaze internally, darker metallic patches on the outside.

27. Context 123. One sherd of globular drinking vessel with handle scar. Even purple fabric with few white inclusions, translucent dark brown glaze showing the white flecks internally and externally.

28. Contexts 3, 11 and 119. Four joining sherds forming lower part of a globular drinking cup. Smooth purple to reddish fabric with a glossy, slightly translucent dark brown glaze internally and externally; patches of thin glaze on outside. Small cream coloured specks in glaze.

29. Context 55. Five sherds forming base of storage vessel. Even purple fabric, with small white inclusions, usually firing a reddish colour. Translucent dark brown glaze with bare patches, showing white flecks, internally and externally. There is a 50mm diameter scar on base where a smaller vessel stood during firing.

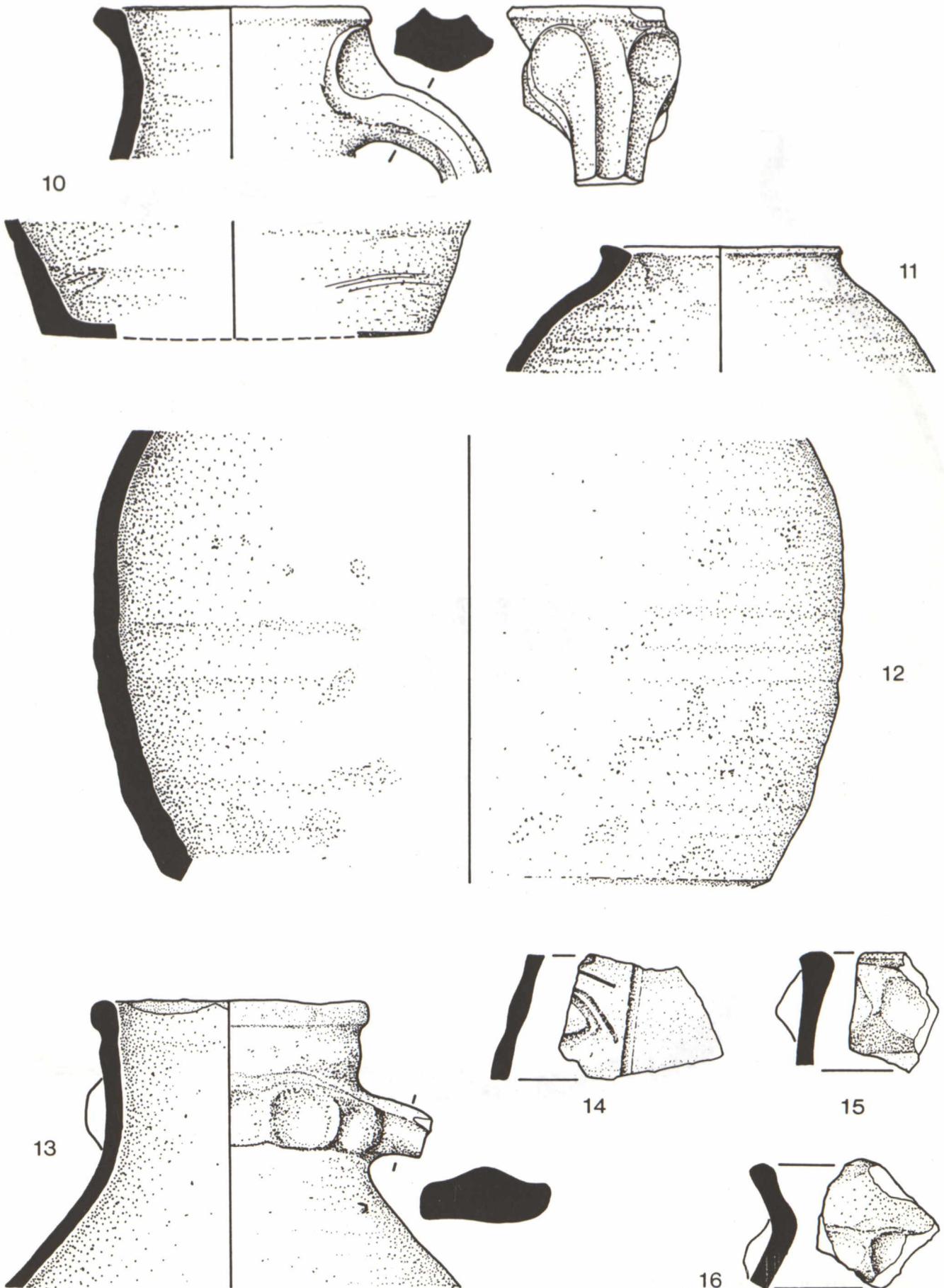


Figure 5: Pottery illustrations, nos. 10-16. Scale 1/2.

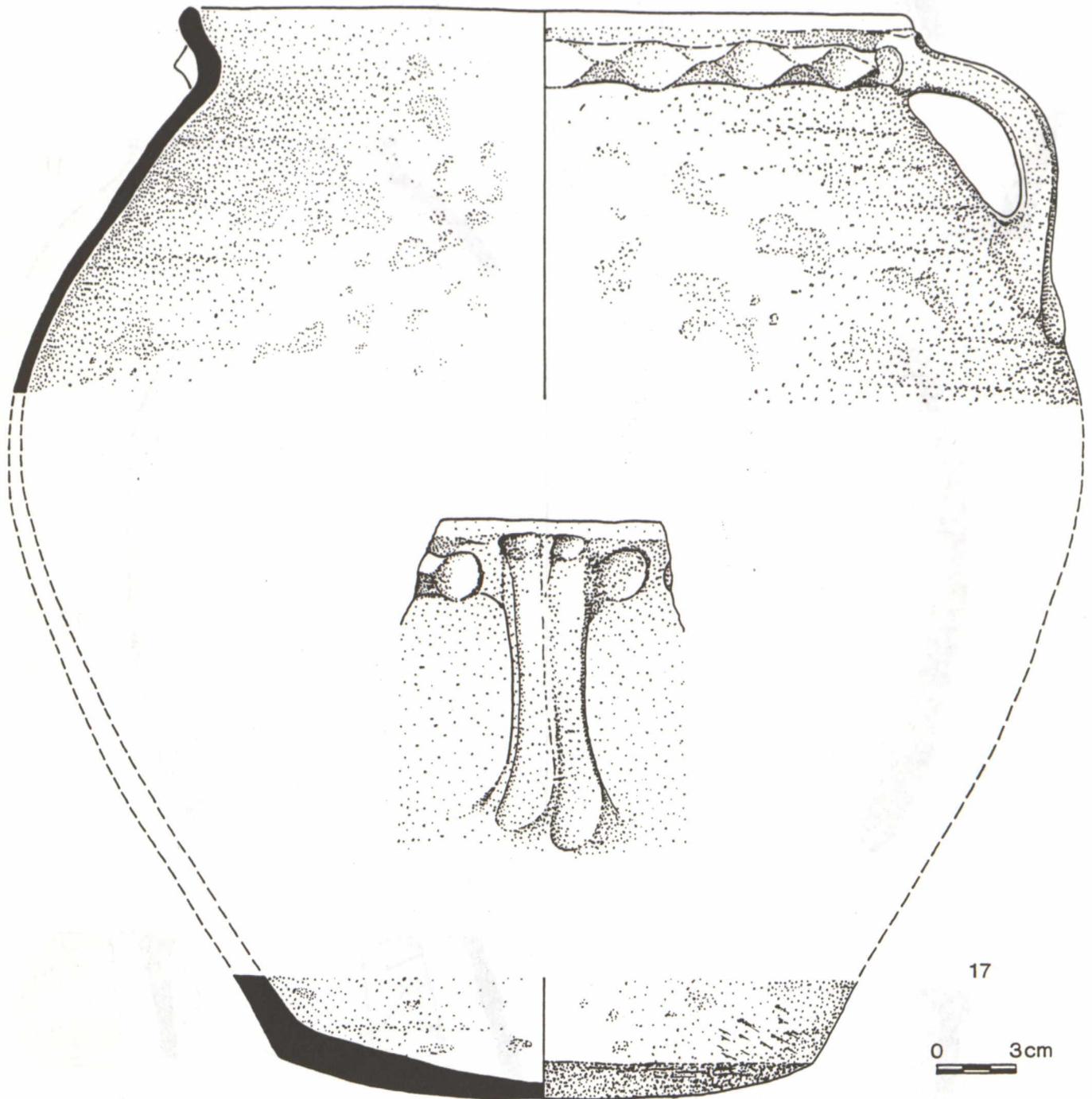


Figure 6: Pottery illustration no. 17. Scale as shown.

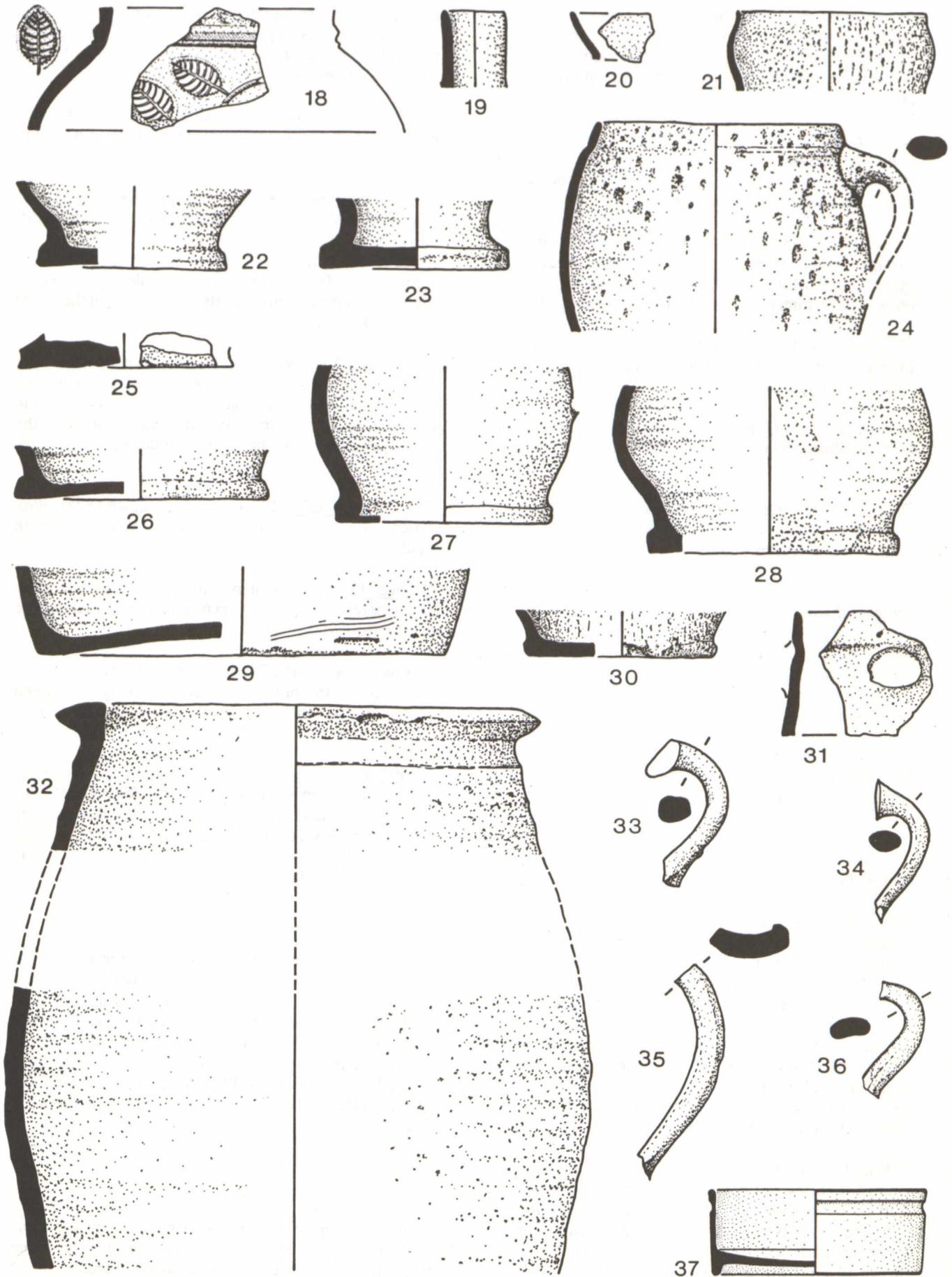


Figure 7: Pottery illustrations, nos. 18-37. Scale 1/2.

30. Context 60. One sherd from base of globular drinking cup, even purple fabric, few small white inclusions and one large piece of c. 4mm diameter. Glossy thick, slightly streaky black glaze internally and externally.

31. Context 58. One sherd with rim and handle scar. Even purple fabric with a few white inclusions. Slightly translucent dark brown glaze showing the white inclusions internally and externally.

32. Contexts 25, 30 and 34. Three sherds from a storage vessel. Highly-fired even purple fabric with sparse small white inclusions, slightly patchy metallic brown glaze internally, streaks of same externally.

33. Contexts 132 and 136. Handle in two sherds. Purplish fabric, locally red with translucent brown glaze with metallic patches.

34. Context 113. Cup handle with purple fabric locally firing reddish, metallic brown glaze with a few blotches on.

35. U/S. Handle sherd, broad storage vessel type. Even purplish-red fabric, locally red under glazed area. Patchy dark metallic brown glaze.

Tin-glazed ware (Fig. 7)

36. Context 103. Undecorated handle sherd from a white tin-glazed vessel.

Pearlware (Fig. 7)

37. Context B2. Six sherds of a small pearlware jar of c. 1820-30. This vessel has very fine walls and a rim-groove for securing a cover.

Ridge Tiles (Fig. 8)

The excavations recovered 124 fragments (5.5kg) of earthenware ridge tiles from 42 contexts (Table 7). These pieces, although exhibiting a considerable range of individual variations, could be grouped into four fabric types (A-D) and five glaze colours (see below).

Fabric A: Forty-one fragments. Slightly soft, sandy fabric with numerous small quartz inclusions. Usually a light pinkish orange with a grey core, which extends to the surface under a glaze. The glaze is almost invariably green and splashed in patches.

Fabric B: Sixty-nine fragments. Well fired fabric of orange to brick red colour, sometimes with streaks of buff or darker red clay. It rarely has a grey core and it has fewer grits than fabric A. The fracture is much more angular and rugged. It usually has an orange brown to dark brown glaze, covering large areas.

Fabric C: Thirteen fragments. Highly fired, semi-vitrified fabric giving a sharp angular fracture. Fabric is a purplish-brown, and glaze is always a glossy dark brown. This is probably a higher fired version of B.

Fabric D: One fragment. Pinkish buff fabric otherwise identical to A and probably just representing a variant of it.

A total of ninety-six of the fragments were glazed (Table 8). All the glazes are presumed to be lead-based, the apparent colour being a combination of the metallic impurities in or added to the glaze and the colour of the fabric underneath. The tiles are glazed on the upper surface only and then often in patches. The colours present are:

Green (G). Twenty-four fragments. Ranges from olive greens to light yellowish greens, the colour sometimes being rather patchy. The glaze almost always results in localised reducing conditions underneath so that the grey core extends to the surface under it. Occurs only on fabric A.

Green/brown (GB). Three fragments in which the glaze varies from pale orange/brown to yellowish green shades.

Orange (O). Five fragments in which the glaze is clear and glossy with sparse brown iron specks, taking the colour from the body.

Orange/brown (OB). Twenty-one fragments. Similar to the orange glaze, but pronounced streaking or speckles of brown, and including much darker glazes. Occurs only on fabric B.

Dark brown (DB). Forty-three fragments. Generally glossy, but often with dull areas of 'flash glaze'. The surface is a dark slightly metallic chocolate brown. Seems to be associated with the higher fired fabrics and may well be a high fired variant of orange/brown. Occurs only on fabrics B and C.

Decoration

The remains of eight spikes decorating the tops of the ridge were recovered. These were modelled on to the soft tile and there were probably several on each ridge. A 17th century example from the Brookhill site at Buckley, north Wales, probably had three groups of small bumps, formed by two depressions in short applied strips, along its 39cm length. One piece (Fig. 8.38) has the slashed base of a more elaborate modelled finial surviving.

Manufacture

All of the fragments have been made using the same basic technique. The slab of clay, usually 10-15mm thick, has been rolled out on a sand-covered surface

Table 7: Ridge Tiles: glaze and fabric types

(Where there is more than one fabric the glaze types are given in the same order.)

Context	No.	Wt.(g)	Fabric	Glaze
5	1	20	A	O
8	2	17	A, B	G, DB
19	1	18	B	OB
22	3	36	2B, 1C	20, 1DB
24	1	62	B	O
25	3	22	3B	1DB, 1OB, 1 no glaze
27	1	13	B	no glaze
33	2	133	A, B	G, 1 no glaze
34	1	52	B	OB
36	1	20	A	G
42	1	16	A	G
50	3	75	3B	3DB
51	1	4	B	OB
55	1	10	A	G (same tile in 58)
58	5	310	2A, 2B, 1C	2G, 1OB, 1 no glaze, 1DB
60	5	89	5B	5DB (includes 1 joining fragment from 113)
61	1	7	B	DB
62	1	15	B	no glaze
65	2	120	2B	DB, OB
72	1	162	B	no glaze
73	5	239	5A	5G
74	2	100	2A	G, O
78	1	45	A	G
82	1	10	B	no glaze
99	1	210	C	DB
103	4	35	4C	4DB
107	3	5	3B	3DB
113	6	135	4B, 2C	2DB, 1OB, 1 no glaze, 2DB
117	3	209	1A, 2B	G, DB, 1 no glaze
119	9	955	9B	2DB, 2 no glaze, 5OB (2 fitting fragments from 128 & U/S)
123	3	304	3B	2OB, 1 no glaze
124	1	159	C	DB
125	3	304	2A, 1B	G, GB, OB
128	6	134	4B, 2C	2DB, 2 no glaze, 2DB
130	15	399	5A, 9B, 1C	1G, 4 no glaze, 5OB, 1DB, 3 no glaze, DB
132	4	74	4B	1OB, 3 no glaze
135	3	142	2B, 1D	2DB, 1 no glaze
136	1	7	B	no glaze
137	2	111	2B	1DB, 1 no glaze
139	3	62	3B	3DB
153	4	300	4A	4G
156	1	147	A	GB
U/S	6	110	3A, 3B	3G, 1GB, 2 no glaze

Table 8: Ridge tiles: glaze and fabric types - totals

Glaze:	G	GB	O	OB	DB	Total
Fabric A	24	2	2	-	-	28
Fabric C	-	-	-	-	13	13
Fabric B	-	1	3	21	30	55
Total	24	3	5	21	43	96

(to prevent adhesion) and knife trimmed around the edges. The sand-covered surface is always the inner one. The slab is arched to form the ridge (probably over a former) which would have been c. 29cm wide at the base (Fig. 8.43). This size is similar to the 17th century examples from Brookhill. The only difference in technique appears to be smoothing lines which occur regularly both inside and out on fabrics B and C but very rarely on fabric A. These differences together with those of fabric, glaze and finial suggest two basic traditions are represented.

The softer sandy fabrics (A,D, Figs. 8.38-8.40) have well fitted, sometimes slashed finials, few smoothing lines and greenish glazes. The harder fabrics (B,C, Figs. 8.41-8.42) generally have conical points with a clear division between point and body, smoothing marks on the tile and a good orange to brown glaze depending on firing conditions. This suggests that at least two major phases of re-roofing the Hall are represented.

Dating

All these types of tile are represented in deposits cut by or earlier than the range of c. 1550. The earliest deposits, stratigraphically, to contain tile were 153 and 156 in the upper fill of the water course, which contained only fabric A. Above this the fabric types were mixed, but this could be the result of either tipping mixed material to make up the ground or the demolition of two earlier phases at one period. Ridge tiles in a soft sandy fabric with thumb and slashed points, and a zoomorphic finial, have been found at Hen Blas, Clwyd (Davey and Morgan 1977, 47), presumed to be from a building abandoned in the later 14th century. Similar slashed points (Davey and Harrison 1977, 99) were produced at the Ewloe kiln for which a 15th century date is suggested. This suggests that the earlier postulated roofing phase at Speke dates to the 14th or early 15th century. Fabrics B and C with their better glazes and higher-fired fabrics are likely to be rather later. The fabrics appears closer to the 17th century earthenware types but must predate 1550. A date of c. 1500-1550 is therefore suggested for these pieces.

Illustrated examples (Fig. 8)

38. Context 156, fabric A. A substantial base, probably for a modelled zoomorphic figure. The main body has flaked off leaving thumb impressions showing that it was applied in stages. Four deep slashes on each side. Most of the surviving surface is covered with a greenish-brown glaze. Faint grey core to the fabric.

39. Context 8, fabric A. Applied point formed by pinching in two directions to give a pyramid shape. Half covered with a green glaze.

40. Context 125, fabric A. Applied point, oval in section with a deep slashed thumb impression on each side. The spike is well smoothed into the body near a

surviving cut end of the tile. Dark brown surface largely covered with a thin, well fired green brown glaze.

41. Context 124, fabric C. Small conical point applied near the cut end of the tile, with a clear junction between point and tile, largely covered with a dark brown glaze, patches of which occur underneath at the cut end.

42. Context 123, fabric B. Slightly chipped, rather roughly applied lump of clay. All over orange brown glaze with a speckled appearance.

43. Typical cross section of a ridge tile, reconstructed from the largest surviving fragment.

Not illustrated. There are three other ridge tile fragments with traces of decoration surviving which have not been illustrated. All are made of fabric B and have an all over orange/brown glaze. There are two conical points of similar form to Fig. 8.41 and one fragment where an applied ornament has broken off.

Roofing stone (Fig. 8)

Many of the contexts excavated contained fragments of roofing stone. Two different types of stone had clearly been used on the site, both of them prior to the mid 16th century construction of the west range. One is a laminar type of sandstone. This is a light golden brown colour and contains a large number of glittering inclusions. It fractures into rather thick slabs, often with an irregular surface where it has split unevenly between different bedding planes. The second is a purplish/grey slate, presumably of Welsh origin. There were no fragments of flat ceramic roof tiles from the excavations although ceramic ridge tiles were frequently found (above). There can be little doubt that at least some of the principal medieval buildings at Speke were roofed with either sandstone or slate and finished with decorative ceramic ridge pieces.

Although most of the fragments recovered were damaged it was possible to obtain dimensions from some of the pieces. Sandstone slabs were recovered measuring in excess of 220mm across the top and 135 to 220mm across the bottom. One piece was 510mm in length. The slates generally appear to have been of smaller size. Their tops ranged from 80-115mm in width and their bottoms from 92-160mm. Complete lengths for the slates ranged from 290-325mm. Both types of roofing had holes near the top edge for supporting pegs. These were presumably of wood since very few nails were found on the site. The holes in the slates were clearly made by striking them hard with a sharp point rather than by drilling. One example from context 128 clearly demonstrates this (Fig. 8.44). It has two holes through it, the lower of which has a number of small indentations near it where unsuccessful attempts were made to make the hole. The slates generally appear to have been roughly rectangular, although with

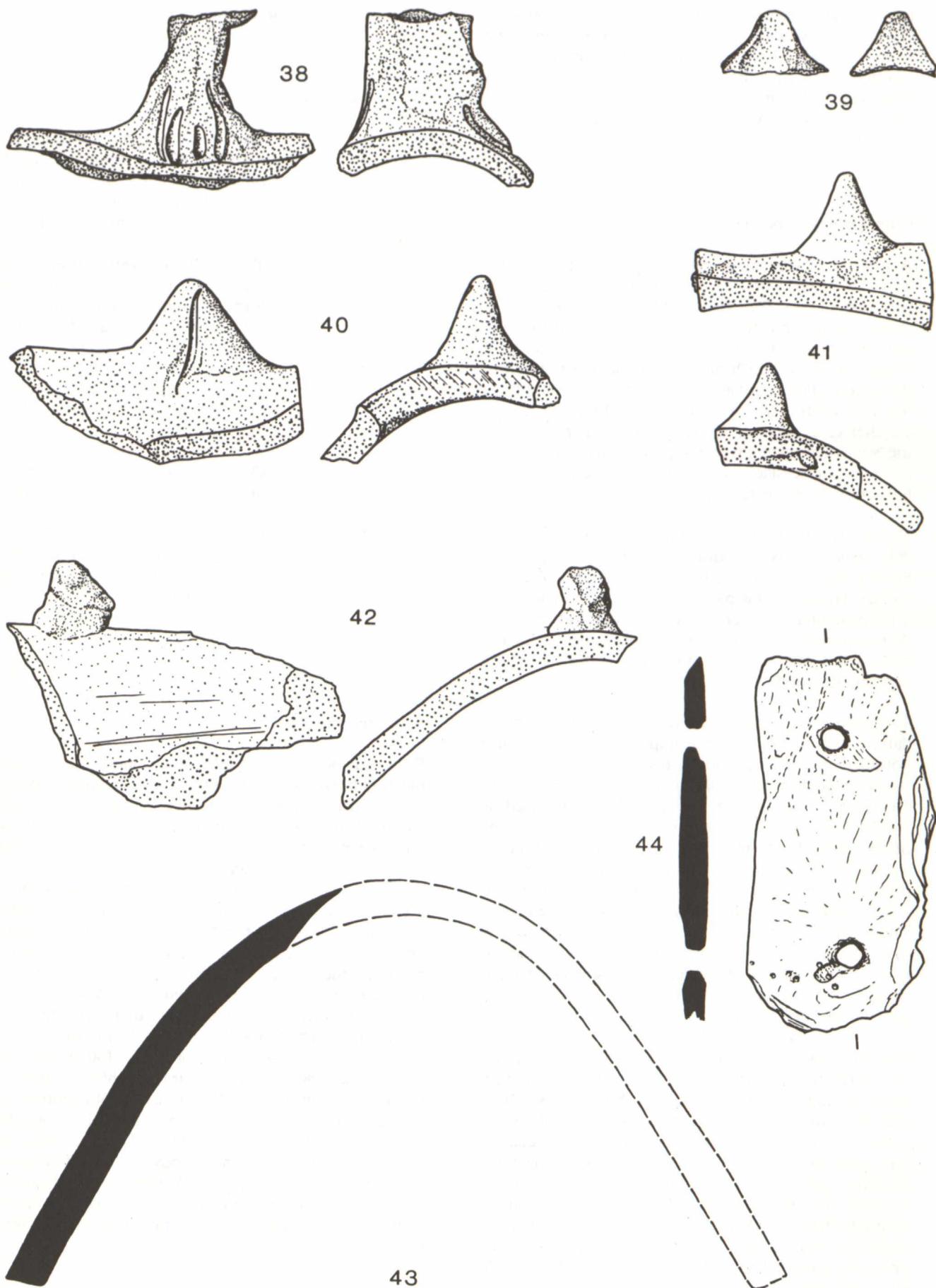


Figure 8: Ceramic ridge tiles, 38-43; roof slate, 44. Scale 1/2.

flaring sides, and suspended from the narrower end. One piece of sandstone, however, may have been hung from a corner so that it would have appeared as a lozenge. Both types of stone are likely to have been graded with the smaller, lighter, pieces near the ridge and the larger, heavier, pieces at the eaves, as on the present roof.

Clay tobacco pipes (Fig. 9)

A total of eleven fragments of pipe (10 stems and 1 crushed bowl) were recovered from five different contexts (Table 9). The small number of pieces recovered does not reflect a lack of activity at the Hall but rather the fact that the excavations took place within a building which has been standing since before the introduction of tobacco. Six of the stems date from the 17th century and are of a typical local fabric with a rather gritty texture. These are probably products of the South Lancashire workshops, centered on Rainford (now in Merseyside) and show that even in a large household pipes were obtained locally.

There is one stem fragment, apparently of 18th century date, which has been ground at both ends (Fig. 9.46). Such pieces have previously been interpreted as wig curlers. However, this piece seemed too short for such a purpose and has been unevenly ground at one end. A reappraisal of stems with ground ends is clearly needed but their use for drawing or simply doodling are obvious candidates.

There are two other stems of 18th or 19th century date, one of which has been impressed with an incuse border (Fig 9.45). Although this is similar in style to the later stem borders of the Chester series (Rutter and Davey 1980), which may have been produced as late as 1790 or 1800, it is not exactly matched by any of the examples from there. The stem was found in context 2, the bedding of the floor for the 1867/8 refit. If it is contemporary with that work, a much later date is suggested for this particular type of decorated stem. There are illustrations of what appear to be similarly decorated stems in the Davidson of Glasgow catalogue of c. 1880 (Gallaher and Price 1987), so this example should, perhaps, be regarded as a late survival of stem stamping from c. 1867/8.

The final piece of note is also associated with the 1867/8 refitting. It is the crushed bowl of a 19th century short stemmed (cutty) pipe, the bowl of which is decorated with beading and hatched loops (Fig. 9.47). It was found in context 102, beneath the floor bedding, but joins with a piece of stem in context 2, the floor bedding itself. Since it is a later 19th century form it is unlikely to pre-date the refitting and was almost certainly dropped by one of the workmen. This provides an unusually exact date for the pipe and an important one since it establishes an early date by which this style must have been in use.

Table 9: Clay tobacco pipes

Context	Numbers		Comments
	Bowl	Stems	
2		2	Two stems which appear earlier than the 1867/8 context in which they occur. One piece has an unusual, faintly impressed 'roll stamp' on the stem (no. 45).
3		3	Three 17th and 18th century stem fragments, one of 18th century form has ground ends (no. 46). The two 17th century fragments are made of 'local' fabrics.
8		2	Two 17th century stem fragments of 'local' fabrics, one of which is burnished.
21		1	One 17th century stem fragment in 'local' fabric, probably burnished.
102	1	2	One crushed bowl (no. 47) and two pieces of stem, one 19th century the other 17th century in a 'local' fabric.

Brick fragments (Fig. 10)

Brick fragments were much less common than ridge tile fragments, with only twenty-two fragments being recovered from a total of twelve contexts (Table 10). Although most of the fragments are small they show quite a range of colour and texture and can be divided into two basic types. One group (A) has a fairly even mix (although including voids and large inclusions) with a colour ranging from orange to purplish/brown. One example (context 58) has a complete depth of 55mm, and three pieces (one in 58 and two in 60), show grass marks on the surface. The second group (B) has a pale buff orange to cream colour and is streaked with buff and orange clay. There are hard red/brown inclusions in the fabric. The fabric is smoother to the touch than the softer sandy A. None of these fragments was measurable. The earliest piece stratigraphically was from context 75, from the late 15th to early 16th century fill of the water course. This piece is possibly, however, burnt daub rather than brick. The other types occur in layers both cut by and in or above the 1550 deposits and show that two types of brick were in limited use on this site by the mid 16th century. The bricks may have been used as hearth linings rather than for wall construction.

Table 10: Brick fragments

Context	Type	Number	Weight
3	B	2	13
5	A	1	17
5	B	2	19
27	A	1	8
27	B	1	5
35	A	1	4
37	A	2	16
51	B	1	12
58	A	1	226
60	A	5	145
75	B	1	35
96	B	1	13
117	A	1	33
117	B	1	30
139	A	1	7

Bone objects (Fig. 9)

Two objects of worked bone were recovered from the excavations. Both of these came from deposits of dumped rubbish which had built up above the water course and are likely to be of late 15th or early 16th century date. From context 153 is one side of a knife handle (Fig. 9.49). The outer surface is smooth and rounded while the inner face is flat and bears tool marks. There are two holes for rivets which would have fixed this piece, and its twin, to a metal knife blade. The second object is a bone counter or gaming piece from context 156 (Fig. 9.48). It has been fairly crudely shaped but has well smoothed edges.

Leather (Fig. 9)

Three fragments of leather were recovered from the domestic waste above the water course and are probably of late 15th to early 16th century date. Two pieces are from shoes. These consist of a thin strip of leather of triangular section from context 84 (Fig. 9.50) and the sole of a child's shoe from context 156 (Fig. 9.52). The third piece is a small sheet of leather with an angled end, a cut most of the way across its body

and a series of stitching holes pierced through it (context 156, Fig. 9.51). The function of this piece is not known.

Worked wood (Fig. 9)

Three pieces of worked wood were recovered from the waterlogged deposits associated with the water course. Two pieces were recovered from the rubbish dumping above the water course and are likely to be of late 15th to early 16th century date. Both were found in context 156. The first is a piece of turned wood of a simple circular section (Fig. 9.54) and the second is the end of peg or stake, the point being formed by a simple series of knife cuts (Fig. 9.55). The third piece comes from the water course itself (context 153) and is likely to be 15th century or earlier in date. It consists of a substantial slab of wood with a rounded corner and has a mortise hole cut through it (Fig. 9.53). The wood does not seem thick enough to have been part of the structure of a building and so this fragment possibly comes from a piece of furniture.

Glass (Fig. 9)

Almost all of the glass came from deposits associated with 19th century activity at the Hall (Table 11). The sand floor bedding (context B2) and drain trench of 1869/72 (contexts 100 and 108) together with the loose crack against the west wall (context 105) produced much of it. The material from the drain fill seems to have included a deposit of rather earlier material since most of the wine bottle necks seem to be of late 18th - early 19th century form. A window pane was found crushed where it had been buried in the corridor (Fig. 9.63) and indicates the size of pane used in the Hall prior to the 19th century refurbishment.

Table 11. Glass (Fig 9)

Context	
B2	- Twenty-one fragments of bottle glass (150g) including part of a flat-sided bottle.
	- Six fragments of clear window glass (29g).
	- Thirteen fragments of orange window glass (55g), nos. 64-65.
100	- Thirty-six fragments of bottle glass (650g), e.g. no. 61.
105	- Fifty-nine fragments of bottle glass (550g) including part of a flat sided bottle.
	- Three fragments of clear window glass (2g).
	- One fragment of a drinking tumbler with cut decoration.
108	- Sixty-seven fragments of bottle glass (1851g), e.g. nos. 56-60, 62 and 66.
	- Seven fragments of clear window glass (11g).

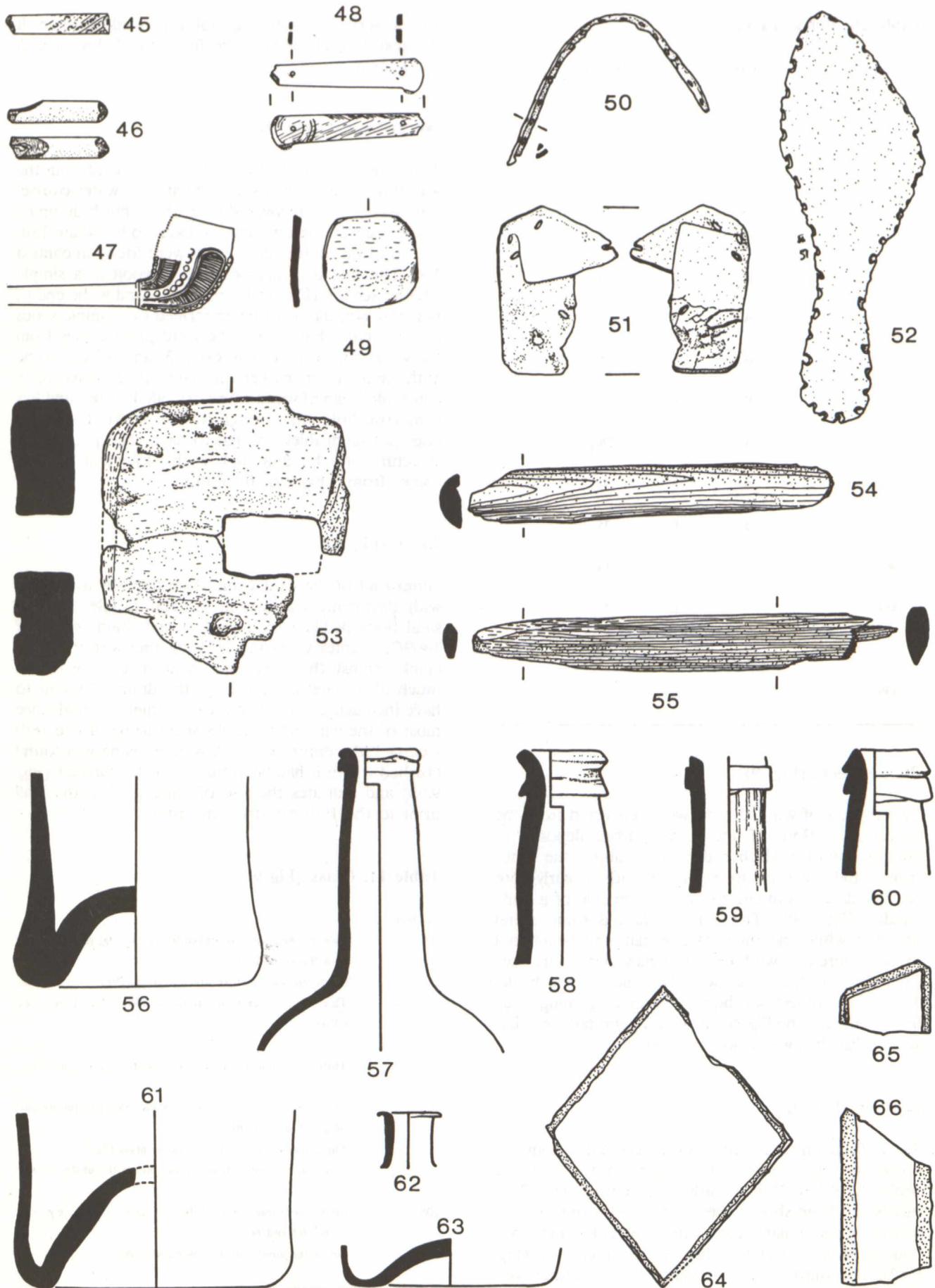


Figure 9: Clay tobacco pipes, 45-47; worked bone, 48-49; leather, 50-52; worked wood, 53-55; glass, 56-66. Scale $\frac{1}{2}$.

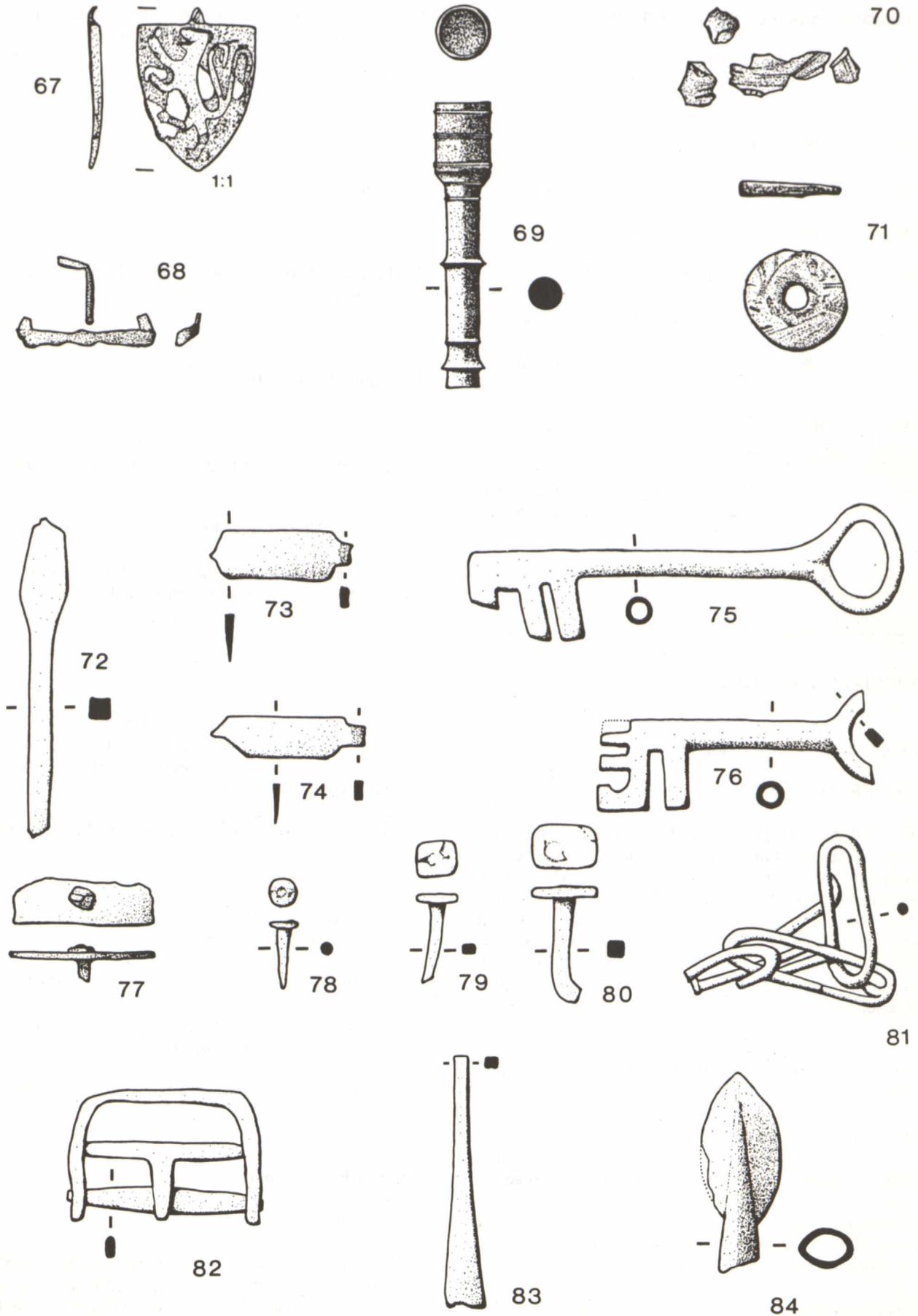


Figure 10: Copper alloy, 67-70; lead, 71; iron, 72-84. Scales: 67 1:1, 68-84 ½.

Illustrated examples of glass (Fig. 9)

Nos	Context	Comment
56	108	Green bottle base
57	108	Pale brownish bottle neck
58	108	Pale brownish bottle neck
59	108	Pale green bottle neck
60	108	Brownish/green bottle neck
61	100	Pale green/brown bottle base
62	108	Clear glass bottle neck, mould made.
63	108	?Decanter base, pale turquoise glass
64		Diamond pane with clipped edge and traces of leading. Slight greenish tint.
65/66	B2	Orange window glass, scored edges, traces of leading.

SPECIALIST REPORTS**Copper-alloy objects (Fig. 10)**

Alison R. Goodall

67. Small heraldic pendant with incomplete suspension loop. Traces of gilding survive on the field and the lion rampant has been inlaid with enamel which now appears as a rusty-brown colour. Heraldic pendants from Netherton, Hants. were dated on historical grounds to the 13th and 14th centuries and a similar date range may be supposed for this example (Goodall in Fairbrother forthcoming). From the fill of the water course.

68. Incomplete buckle frame made from a strip of metal. The decoration is almost lost due to corrosion. Context 76.

69. Candlestick lacking its base. The socket and stem are decorated with shallow grooves and cordons and there is a knob on the stem. The mouldings suggest a date in the 15th or 16th centuries. A complete candlestick of similar type and the socket from another were found in Queen Street (New Inn Court), Oxford (Goodall forthcoming). Context 83.

70. Fragments of a disc or bridle boss with repoussé decoration. Context 114.

Not illustrated. Fragments of two sheet metal bells with the peas made of clay or stone. Contexts 19 and 132.

Not illustrated. Two pieces from the rim and body of a sheet metal vessel. Context 45.

Lead object (Fig. 10)

Alison R. Goodall

71. Perforated weight made from a droplet of molten lead. Context 156.

Iron objects (Fig. 10)

I.H. Goodall

72. Distorted auger bit, the terminal broken and bit lost. Context 58.

73 and 74. Whittle tang knives. Contexts 76 and 28.

75 and 76. Keys, typologically of 13th century or later date. 75 has an oval bow and bit rolled in one with the stem, 76 a broken bow and solid stem. Contexts 152 and 157.

77. Nailed strap.

78 - 80. Nails, (contexts 113, 119 and 119). In all, seven were recovered; three with circular heads (contexts 60, 105, 113) two with square heads (context 119) and two indeterminates (contexts 36 and 117).

Not illustrated, a stud with a flat square head. Context 42.

Not illustrated, three clench bolts, probably from doors. The most complete has a diamond-shaped and circular nail head. All from context 42.

81. Chain of five straight-sided links. Context 70.

82. Harness buckle, the T-shaped pin resting against a revolving baluster bar. Context 152.

83 and 84. Socketed arrowheads. Contexts 45 and 153.

Animal Bone Report

Clem Fisher

Although the six most common species in this bone assemblage are domestic (cow, sheep/goat, dog, pig, chicken and horse) the most interesting aspect is the variety of wild species present (Table 12). Some of

these represent commensals (rat, house mouse, jackdaw) but most were species caught for the table. These include deer, probably obtained from the nearby Toxteth deer park, rabbit, hare and woodcock, the latter a common table bird in medieval times.

The large number of dog remains are unusual, especially as they tend to be found as odd bones in different contexts. Apart from one obvious pet's burial (contexts 104 and 120) the possibility of dog as table meat is strong, especially as knife and tooth marks are found on several bones. The dog burial itself poses a problem; the skull, first three vertebrae and one front leg are missing *en bloc* which suggests that these were removed before the carcass began to rot.

Both the bank vole and house mouse remains appear to be from animals dying *in situ*; the bank vole close to a burrow which it almost certainly made; the house mice in a wall cavity in which they were probably walled up or poisoned. Other rodent remains include those of rats, which would have been responsible for many of the tooth marks present on bones throughout the excavation. Rats do pose uncertainties in excavations as by burrowing they tend to move bones vertically between levels; for instance the chewed woodcock bone in context 55 may well have been carried down from the context above. Without skulls it is not possible to distinguish the bones of black rat (*Rattus rattus*) and brown rat (*Rattus norvegicus*) although the brown rat is more likely to burrow. Hare and rabbit bones are present in great numbers in this excavation; apart from the juvenile hare or rabbit remains in context 3, which are almost complete and probably from a pet, most of the remains bear knife and human tooth marks. Butchery marks are unusual on these bones as, like chicken, they are usually cooked whole and can then be pulled apart by hand.

The bird remains are probably from table birds, except for the single jackdaw bone which may have been from a scavenger (although young birds of the crow family are supposed to be fair eating in stews and pies). Both the mallard and goose bones are likely to be from domestic stock, although wild mallard are still common on the Mersey and the teal remains are most probably from a duck caught on this river. Moorhen is a common water bird, still found on the pools across the runway at Oglet and apparently has a strong but good flavour. The pigeon bones would have come from rock doves, from which our town pigeon is descended. Rock doves were once widely distributed but are now confined to Scotland, Ireland and parts of Lincolnshire.

Of the four most common species found in this excavation, three would have been used primarily for food. The cow teeth show that most of the stock was killed at between 1½ and 2½ years old, an age when they reach maximum size. Although there is some bias in comparing numbers of cow bones against those of calf, sheep and pig which disintegrate more quickly and are therefore more difficult to identify, the general ratio

of food preference seems to be cow 4: sheep/goat 2: pig 1. Chicken bones are also very common but some of these will be from individuals kept for egg laying rather than the pot. Horse bones appear frequently but although most fragments show butchery marks they are all from ageing individuals, which is logical when one considers the previous importance of the horse for agriculture and transport. They would only have been eaten when too old for work. It is notable that horse remains are totally absent after 1550, although this may be due to the different types of deposit found after this date.

A few bone fragments were also recovered from the samples examined for plant remains. These are listed at the end of Table 14.

Pathological examination of animal bones

J. R. Baker

Context 3 (Corridor). Cow first phalanx, two Baker Type 1 defects on proximal articular surface (Baker and Brothwell 1980).

Context 22 (Corridor north). Pig first incisor, enamel hypoplasia.

Context 58 (Billiard room). Bovine first phalanx. There is a ridge of new bone running between the proximal and distal articular surfaces on the medio-ventral aspect. The cause of this is not known.

Context 58 (Billiard room). Dog humerus. There is slight new bone formation around the bicipital groove, possibly associated with a tearing of the sheath due to a severe strain.

Context 115 (Billiard room). Cow first phalanx, very minor Baker Type 1 defect on distal articular surface.

Context 152 (Billiard room). Equine posterior metatarsal with a well developed spavin.

Context 152 (Billiard room). Bovine first phalanx. Irregular new bone formation is present over a large proportion of the bone, together with eburnation of part of the proximal articular surface, which also shows a degree of expansion. This is a case of osteoarthritis, probably secondary to periostitis following infection.

Context 153 (Billiard room). Dog lumbar vertebra with new bone on the anteroventro lateral aspect of the centrum. Grade 3 spondylosis.

Context 156 (Billiard room). Pig fragment of mandible showing severe periodontal disease associated with the posterior molar. There is extensive alveolar recession and a possible abscess cavity.

Context 156 (Billiard room). Bovine first phalanx with

Table 12: Animal bone - species list.

SPECIES	MINIMUM NUMBERS (total)	FRAGMENTS (total)
Domestic cow	77	232 (+ ?4)
Domestic sheep/goat	33	56 (+ ?2)
Domestic dog	25	182 (+ ?1)
Domestic pig	17	34 (+ ?1)
Domestic chicken	13	21 (+ ?1)
Domestic horse	11	26
Rabbit	11	56
Brown hare	8	29 (+ ?1)
House mouse	5	100
Fallow deer	5	6
Rat species	4	6
Woodcock	4	6
Bird, unidentified species	4	5
Domestic cat	3	3 (+ ?1)
Red deer	2	2
Mallard ?domestic	2	2
Pigeon	2	2
Bank vole	1	6
Lagomorph juvenile, hare/rabbit	1	22
Domestic greylag goose	1	4
Teal	1	2
Jackdaw	1	1
Moorhen	1	1
Fish	1	2
Total: (22 species)	233	817

Table 13: Animal bones - minimum numbers of species in each period.

	Water course siling	Late 15thC	c. 1550	c. 1550-1867	1867/87 to present
Cow	2	20	37	12	2
Dog		3	11	7	
Sheep/goat	1	10	13	6	
Horse	1	7	3		
Pig	1	7	4	3	1
Rat sp.			1	1	1
Goose					1
House mouse			5		
Rabbit			4	1	4
Brown hare		1	3	1	3
Fallow deer	1	2	2		
Chicken	1	3	2	2	1
Red deer			1		
Cat		2	1		
Mallard				1	1
Woodcock		1		2	
Pigeon		1			
Indet. bird				2	
Juvenile Hare/rabbit				1	
Teal				1	
Bank vole				1	
Jackdaw			1		
Fish			1		

large congenital cleft in proximal articular surface (Baker's Type 1).

Context 104/120 (Billiard room). This skeleton is from a fairly small, long limbed dog of border collie type.

ENVIRONMENTAL ANALYSIS

H. K. Kenward and P. R. Tomlinson

Introduction and methods

A column sample was taken in monolith tins through the fill of the water course by the excavators, for pollen and other environmental analyses. The sequence of deposits was thought to represent the fills of a ditch or moat and appeared in the field, to have waterlogged organic preservation. The base of the column was at 3.20m below floor level and the top 1.40m below floor level (the site datum). The lithology was noted from the material in the tins (see table 15). A series of 22 subsamples for pollen analysis were taken at intervals of 5cm (see below). The remainder of the sample block was divided into 10cm intervals. Samples of approximately 1kg were taken from each interval. No samples were taken above 1.80m because the material was very sandy and chalky with visibly poor organic preservation (1.80-1.90 contained no seeds). The 1kg samples were washed through a bank of sieves (mesh sizes 2.00mm, 1.00mm, and 500 microns) after soaking in hot water with a solution of sodium pyrophosphate to disaggregate the clay particles when necessary (Kenward et al. 1980). The entire wet residue was sorted, primarily for plant material. Insect, bone and other organic fragments were also picked out. Nomenclature for plants follows Clapham *et al.* (1962) and for beetles Kloet and Hincks (1977).

Plant remains

Table 14 shows the complete list of plant taxa from the fourteen 1kg samples. Each species has been placed in one of five ecological groups:

- B - taxa which cannot be placed in any one ecological group, or which cannot be identified to specific level.
- D - species of disturbed ground, including both arable weeds and plants of waste places.
- H - species which can only have been introduced by humans for food
- T - woodland species
- W - species of wet or damp habitats

The end column on the table gives the total number of occurrences of each taxon in the fourteen samples. Table 15 shows how the numbers of taxa in each of the ecological groups vary through the samples, together with a generalised lithology. There appears to be a relationship between the lithology and the numbers of individual 'seeds'. As the samples were of similar weight the number of 'seeds' can be taken as an indication of their concentration. The darker, siltier and more organic layers between 1.90m-2.65 and 2.80-3.15m contain a higher concentration of 'seeds' than the sandy and chalky layer at the top of the section and the very sandy layer between 2.65-2.80m, which have very few or no plant remains. This may be caused by either poor preservation or the more or faster rate of deposition in the sandier parts or possibly reduced seed input.

In Table 15 the samples have been divided into four units, W, X, Y and Z, taking into account the concentrations of plant remains and the nature of the lithology. It now becomes clear that there are some differences in the ecological groups occurring in the two main units W and Y. In W there are a few woodland species but there are none in Y. Y contains the only plant which suggests the presence of human activity (*Ficus carica*) and a higher proportion of disturbed habitat types (around 40%) than in W. Both W and Y contain high proportions of the broad group (B), between 30 and 60%. W contains a higher percentage of wetland species, particularly at the base (3.10 - 3.20m). In group B there are few taxa which might be specific to arable or pasture. However, the pollen data (see Innes below) give evidence of the cultivation of cereal crops in the region of the site. This highlights the fact that while pollen evidence can provide information from the area around the site, the macrofossil assemblage is likely to be, in the main, from close vicinity to the point of deposition.

The botanical evidence suggests the presence of damp to wet conditions during the deposition of W, followed by inorganic deposition (X), and then a longer period of organic deposition when species from disturbed habitats (most likely caused by human activity) were deposited. A gradual decrease in the wetness of the site continued up to 1.90m. Above 1.90m the deposition of waterlogged organic material ceased. The hypothesis that this sequence of deposits represents a ditch or moat seems to be supported by this evidence.

Other material found tends to support this hypothesis. The animal, fish and bird bones all occur at the top of Y (between 2.20 and 1.90m), suggesting the disposal of refuse in the infilling ditch. The caddis fly larvae occurred only at the base of the column in W and X. They suggest open and relatively clean water. These caddis fly larvae were represented by their cases but also by the small round opercula with which they shut their cases when they pupate. One other interesting find was of the stem of Hydroid (Coelenterata), a tiny marine organism (sea-fir).

Table 14. Complete list of plant taxa, showing their ecological groups and the total number of individuals in all fourteen samples. All plants are represented by their seeds unless otherwise stated.

Plant species	Ecological group code	Number of 'seeds'	Plant species	Ecological group code	Number of 'seeds'
<i>Aethusa cynapium</i> L. (fool's parsley)	D	19	<i>Potentilla palustris</i> (L.) Scop.		
<i>Alisma</i> sp. (water plantain)	W	2	(marsh cinquefoil)	W	1
<i>Alnus glutinosa</i> (L.) Gaert (alder)	W	4	<i>Potentilla</i> sp. (cinquefoils)	B	13
<i>Anagallis arvensis</i> L. (scarlet pimpernel)	D	6	<i>Prunella vulgaris</i> L. (selfheal)	B	1
<i>Anthemis cotula</i> L. (stinking mayweed)	D	2	<i>Prunus spinosa</i> L. fruitstone (sloe)	B	1
<i>Aphanes microcarpa</i> (Boiss. Rent) Rothm.			<i>Quercus</i> sp. budscales (oak)	B	12
(parsley piert)	D	1	<i>Ranunculus flammula</i> L. (lesser spearwort)	W	2
<i>Arctium</i> sp. (burdock)	B	4	<i>Ranunculus</i> Subgenus <i>Batrachium</i>		
<i>Atriplex</i> sp(p). (oraches)	D	13	(DCA.Gray.) (crowfoots)	W	5
<i>Brassica</i> sp(p). (wild cabbage types)	D	252	<i>Ranunculus</i> Section <i>Ranunculus</i>		
<i>Capsella bursa-pastoris</i> (L.) Medic.			(buttercups)	B	14
(shepherd's purse)	D	1	<i>Ranunculus sardous</i> Crantz		
<i>Carex</i> spp. (sedges)	W	354	(hairy buttercup)	B	14
<i>Chenopodium album</i> L. (fathen)	D	252	<i>Ranunculus sceleratus</i> L.		
<i>Chenopodium</i> sp. (goosefoot)	D	2	(celery-leaved crowfoot)	W	3
<i>Cirsium/Carduus</i> sp. (thistles)	B	11	<i>Rhinanthus minor</i> L. sensu lato		
<i>Conium maculatum</i> L. (hemlock)	B	77	(yellow rattle)	B	2
<i>Corylus avellana</i> L. nutshells frags. (hazel)	B	4	<i>Rubus idaeus</i> L. (raspberry) and		
<i>Daucus carota</i> L. (wild carrot)	B	5	<i>R. fruticosus</i> agg. (bramble)	B	141
<i>Dipsacus</i> sp. (teasel)	B	1	<i>Rumex acetosella</i> agg. (sheep's sorrel)	B	6
<i>Eleocharis palustris</i> (L.) Roem. Schult.			<i>Rumex</i> spp. (docks)	D	410
(spikerush)	W	74	<i>Salix</i> sp. wood fragments (willow)	B	3
<i>Euphorbia exigua</i> L. (dwarf spurge)	D	1	<i>Sambucus nigra</i> L. (elder)	B	269
<i>Euphorbia helioscopia</i> L. (sun spurge)	D	4	<i>Silene</i> sp. (campion)	B	1
<i>Ficus carica</i> L. (fig)	H	4	<i>Sinapis</i> sp. (wild mustard)	D	10
<i>Galeopsis tetrahit</i> L., sensu lato			<i>Solanum nigrum</i> L. (black nightshade)	D	17
(hemp nettle)	D	1	<i>Sonchus asper</i> (L.) Hill (prickly sowthistle)	D	2
Gramineae (grasses)	B	51	<i>Stachys</i> sp. (woundwort)	B	3
<i>Hyoscyamus niger</i> L. (henbane)	B	39	<i>Stellaria cf. alsine</i> Grimm (stitchwort)	W	9
<i>Ilex aquifolium</i> L. leaf fragments (holly)	B	2	<i>Stellaria media</i> (L.) Vill. (chickweed)	B	77
<i>Isolepis setacea</i> (L.) R.Br. (bristle scirpus)	W	3	<i>Thuidium</i> sp. (moss)	B	1
<i>Juncus</i> spp. (rushes)	W	3	cf. <i>Torilis japonica</i> (Houtt.) DC.		
<i>Juncus squarrosus</i> L. (heath rush)	B	1	(upright hedge parsley)	B	1
<i>Labiatae</i> sp. (Labiatae family)	B	2	Umbelliferae indet. (umbellifer family)	B	5
<i>Lapsana communis</i> L. (nipplewort)	B	8	<i>Urtica dioica</i> L. (stinging nettle)	D	190
<i>Lychnis flos-cuculi</i> L. (ragged robin)	W	2	<i>Viola</i> sp. (violet)	B	32
<i>Lycopus europaeus</i> L. (gypsywort)	W	2			
<i>Moehringia trinervia</i> (L.) Clairv.			Other remains:		
(three nerved sandwort)	S	6	leather fragment		1
<i>Montia fontana</i> L. (water blinks)	W	2	<i>Felis</i> sp. 1st phalange (domestic cat)		1
<i>Myosotis</i> sp. (forget-me-not)	B	1	<i>Sus</i> sp. incisor (domestic pig)		1
<i>Odontites/Euphrasia</i> sp.			animal bone indet. fragments		2
(red rattle or eyebright)	B	5	<i>Gallus</i> sp. vertebrae (domestic fowl)		1
<i>Oxalis acetosella</i> L. (wood sorrel)	T	6	<i>Clupea harengus</i> L. vertebrae (herring)		1
<i>Papaver rhoeas</i> L. (field poppy)	D	6	<i>Scophthalmus</i> sp. vertebrae (turbot?/brill?)		1
<i>Polygonum aviculare</i> agg. (knotgrass)	D	23	fish vertebrae fragment indet.		1
<i>Polygonum convolvulus</i> L. (black bindweed)	D	6	cf. Gadidae atlas bone (cod family)		1
<i>Polygonum hydropiper</i> L. (water-pepper)	W	9	<i>Trichoptera</i> sp. larval cases (caddis fly)		many
<i>Polygonum lapathifolium</i> L. (pale persicaria)	B	11	<i>Cenococcum</i> sp. sclerotia (soil fungi)		many
<i>Polygonum persicaria</i> L. (persicaria)	B	42	Hydroid (Coelenterata) 'stem'		1
<i>Polygonum</i> sp. (persicaria species)	B	7	<i>Oligochaeta</i> egg cases (earthworms)		many
<i>Potamogeton</i> sp. (pondweed)	W	1			

Table 15: Habitat table showing the number of plant taxa in each of the ecological groups given as a percentage of the total number of taxa in each sample. Other materials and a simplified lithology are also shown. The sample numbers represent the depth in metres below the site datum (Billiard Room floor).

SAMPLE NOS:	BOTTOM	3.10- 3.20	3.00- 3.10	2.90- 3.00	2.80- 2.90	2.70- 2.80	2.60- 2.70	2.50- 2.60	2.40- 2.50	2.30- 2.40	2.20- 2.30	2.10- 2.20	2.00- 2.10	1.90- 2.00	1.80- 1.90	TOP
TOTAL NO. OF ITEMS:		103	77	142	42	0	6	117	376	330	257	544	417	198	0	
TOTAL NO. PLANT TAXA:		26	11	12	4	0	4	18	21	22	24	36	37	23	0	
% TAXA IN EACH INDICATOR GROUP:																
T Woodland		12	18	0	0	0	0	0	0	0	0	0	0	0	0	
B Broad		35	55	50	75	0	100	56	43	32	54	42	41	44	0	
D Disturbed		19	18	17	0	0	0	33	43	50	29	39	46	39	0	
W Wet or damp		34	9	33	35	0	0	11	14	18	17	17	11	13	0	
H Human		0	0	0	0	0	0	0	0	0	0	2	2	4	0	
ANIMAL AND BIRD BONES:												+	+			
FISH BONES:													+	+		
LEATHER:												+				
CADDIS CASES:		+	+	+	+	+										
SIMPLIFIED LITHOLOGY:		VERY SANDY AT BASE AND STONES	ORGANIC AND DARK			SANDIER		FAIRLY DARK & SILTY			SANDY		DARK AND SILTY		V. SANDY & CHALKY CHARCOAL FRAGMENTS	
DIVISIONS:		W				X			Y					Z		

Insect remains

None of the beetle assemblages is very large (minimum number of individuals 1 - 20 or so). This is not surprising since they were taken from the samples used for the seed analysis so that smaller (and generally more abundant) species may have passed through the 500 micron mesh sieve, 300 microns normally being employed.

In the lower levels, at least, the preservation was good and it is unfortunate that fuller analyses were not possible. There is, however, a distinct trend visible through the material, and some general observations may be made.

The lower samples (3.20m up to 3.00m) had a large proportion of aquatic and waterside beetles, indicating permanent open water with damp mud at its edges (*Anacaena ?globulus* (Paykull), *Chaetarthria seminulum* (Herbst), *Limnebius truncatellus* (Thunberg) or *papposus* Mulsant, *Agabus* sp, *Coelostoma orbiculare* (Fabricius), *Hydroporinae*, two *Helophorus* species, *Agonum obscurum* (Herbst) and *Lesteva heeri* Fauvel). By contrast, the upper levels, above 3.0m, gave only two aquatic or waterside individuals (from 2.80m-2.90m and 2.60m-2.70m). Open water habitats may therefore have disappeared by 3.00m.

A terrestrial component was present in most samples. The following taxa are recorded: Homoptera - Auchenorrhyncha, *Dyschirius globosus* (Herbst), *Bemdidion properans* Stephens, *Pterostichus melanarius* (Illiger), *Abax parallelepipedus* (Piller and Mitterpacher), *Cerycon analis* (Paykull), *Megasternum obscurum* (Marsham), *Cryptopleurum minutum* (Fabricius), *Silpha atrata* Linnaeus, *Acidota crenata* (Fabricius), *Anthobium* sp., *Olophrum piceum* (Gyllenhal), *Carpelimus* sp., *Anotylus rugosus* (Fabricius), *Lathrobium* sp., *Neobisnius* sp., *Gyrohypnus ?fracticornis* (Muller), *Xantholinus linearis* (Olivier), *Ontholestes murinus* (Linnaeus), *Tachyporus* sp., *Tachinus* sp?p., *Geotrupes* sp., *Aphodius* spp., *Onthophagus* sp., *Athous haemorrhoidalis* (Fabricius), *Anobium ?punctatum* (Degeer), *Grynobius planus* (Fabricius), *Chaetocnema concinna* (Marsham), *Strophosomus* sp., *Barynotus obscurus* (Fabricius), *Cidnorhinus quadrimaculatus* (Linnaeus) and *Leperisinus varius* (Fabricius).

The surroundings of the ditch thus seem to have provided a variety of semi-natural terrestrial habitats; possibly an area of tussocky grass and mixed herbage with some dead wood, dung and perhaps other decaying matter. The range becomes restricted in the assemblages from the upper samples, where the influence of man may have become more significant.

Dung beetles are present as a large proportion of all the assemblages. Most are *Aphodius* species, with a single *Onthophagus* in 3.10-3.20m, and a few fragments of *Geotrupes*. There are proportionally and absolutely many more *Aphodius* in the uppermost samples.

1.90-2.00m contained many, mostly apparently not fully hardened, suggesting a substantial environmental change which killed newly emerged adults in their pupal chambers - perhaps burial by dumped material, or just drowning when the ground became waterlogged. The ditch may, therefore, have been grazed after its terrestrialization.

Acknowledgments

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POLLEN ANALYSIS

J. B. Innes

Methods

Pollen analysis was undertaken at Speke Hall to supplement the archaeological excavations by providing evidence of the local and extra-local vegetation existing while the accumulation of sediments took place in the water course. Twenty-two sub-samples were taken for pollen analysis from the monolith tins from the lower two metres of the profile, above which the sediment appeared to be too dry and sandy to warrant attention. Samples were prepared at 10cm intervals, except for the basal half metre which appeared to be more organic and was sampled every 5cm.

Preparation of the samples for analysis was according to the standard methods as outlined in Moore and Webb (1978). Pollen extraction and concentration was achieved by alkali digestion followed by acetylation treatment. The high silt content of the sediment also made necessary the use of hot hydrofluoric acid. Despite the silty nature of the deposit pollen preservation was generally good, although some corrosion of grains was noted in the uppermost, sandier samples.

Counting the pollen continued until a total of 500 land pollen grains had been identified at each sampled level. Fern and moss spores, and aquatic pollen, although counted were not included within the pollen sum. The results are presented in two pollen diagrams. In Figures 11 and 12 each taxon's pollen frequency is expressed as a percentage of total tree pollen plus that taxon's ecological group. Thus trees are shown as percentages of total trees, while shrubs such as *Corylus/Myrica* (hazel or bog myrtle) are shown as percentages of total trees plus total shrubs, and so on. In Figure 13, frequencies are expressed as percentages of total land pollen, and some taxa are combined in broader categories on the grounds of their similar ecological affinities. Stratigraphic symbols on these diagrams follow the system proposed by Troels-Smith (1955). Plant

nomenclature follows Clapham *et al.* (1962).

The pollen record

Four local pollen assemblage zones have been recognised and are used to subdivide the pollen diagrams.

SHa 315-240cm. The assemblage is dominated by *Alnus* (alder) which contributes over 50% of total pollen. *Quercus* (oak), *Corylus/Myrica* and *Calluna* (heather) are consistently present in low frequencies, while a range of other tree and shrub taxa is also recorded (Fig. 12). Herbaceous indicators of clearance or cultivation are well represented, with *Cerealia* (cereals), *Taraxacum* - type (dandelion), *Rumex* (dock) and *Plantago lanceolata* (ribwort plantain) consistently recorded. *Pteridium* (bracken) is a major contributor to the fern spore record, while Filicales spores (undifferentiated ferns) are also significant early in the zone. Wetland herbs including Cyperaceae (sedges) and *Ranunculus* (buttercup) are prominent, as are Rosaceae (undifferentiated rose family).

SHb 240-220cm. The lower boundary of this zone is defined by a rise in *Calluna* pollen frequencies, which continues to a pronounced peak. *Alnus* exhibits a slight decline but still dominates the assemblage. *Quercus* and *Corylus/Myrica* are relatively unchanged. Dryland herb pollen frequencies rise and *Taraxacum*, *Plantago lanceolata* and *Senecio* (ragwort) - type reach their peak frequencies. Cyperaceae values also increase.

SHc 220-190cm. The lower boundary of this zone is defined by a sharp increase in *Betula* (birch) pollen frequencies and by a decline in *Calluna* and *Alnus*. *Quercus*, *Corylus/Myrica* and Gramineae frequencies are maintained at their previous levels. Open ground indicators are less in evidence, with *Pteridium* and *Taraxacum* showing major reductions. *Ranunculus*, *Senecio*-type and *Plantago lanceolata* are still consistently present, however. *Sphagnum* (bog moss) spores become recorded in higher values.

SHd 190-145cm. The upper part of the pollen diagram is described by this zone, in which *Alnus* resumes dominance of the assemblage, with *Betula* reduced to low frequencies. *Corylus/Myrica* shows an initial slight reduction in frequency, but in general, like *Quercus*, its values do not alter significantly. Similarly *Calluna* and Gramineae frequencies are almost unchanged throughout the zone. Herbaceous indicators of open conditions, including *Cerealia*, still occur, while frequencies of wetland herbs remain low but consistent.

Discussion

The application of pollen analysis to deposits having an archaeological context offers opportunities for the reconstruction of environmental conditions and the

recognition of land-use patterns which may be directly related to particular human activities. It is therefore potentially a most productive palaeoecological tool in these situations. In the interpretation of fossil pollen assemblages recovered from entirely natural sediments such as from bogs or lakes, direct cultural/environmental correlations should not be assumed (Edwards 1979), even with a comprehensive understanding of each taxon's ecological preferences (e.g. Behre 1981). The incorporation of pollen into deposits associated with settlement sites may not be a consistent process, and the preservation and stratification of pollen in these circumstances is very variable. Dumbleby (1976) has reviewed some of the problems involved in the pollen analysis of archaeological deposits.

As long as the limitations of the method are recognised, however, pollen evidence may be of particular benefit to the archaeologist (Dumbleby 1975) since pollen data from the archaeological deposits are likely to have been strongly influenced by cultural activity, either reflecting a culturally manufactured landscape in the vicinity of the settlement, or including pollen directly derived from human action, such as the transport of cereals, hay and other materials from nearby fields to the site. Pollen-bearing deposits of this kind include artificial excavations, such as moats, wells, ditches (Tinsley and Smith, 1974) and ponds (Innes and Tomlinson 1978).

The deposits analysed from the Speke Hall water course clearly are of the moat or ditch type, relatively few of which have been analysed for pollen up to the present time. Greig (1982, 1986) has reviewed much of the published pollen work from urban and semi-urban settlements and has considered the significance of most deposits for botanical study. Medieval ditches at Cowick, Humberside (Greig 1982; 1986) and Birmingham Smithfield (Greig 1982 and Ancient Monuments Laboratory Report 2919), are similar in showing very substantial tree pollen frequencies and significant but very low values for 'cultural' indicators such as cereals and weeds. After initial ditch construction, these may have functioned as 'semi-natural' sites although sediment may have been removed at intervals if the moat were re-cut. They could thus be interpreted as partly reflecting the state of the surrounding landscape. However, both tree pollen and 'cultivation type' pollen may be introduced with dumped plant material and thus the moat sediments may be contaminated by an artificial human-derived component, such as must account for cereal frequencies of 23% of total pollen recorded in the medieval ditch at Nantwich, Cheshire (Colledge 1980). The interpretations and conclusions which follow reflect the uncertain origin of moat sediments. The homogenous nature of the deposit and the low variability of the pollen curves must be due in some degree to the mixing which will inevitably occur in a ditch fill, with the probable slumping of material from the sides of the ditch into the sediment. Although changes in the pollen record may be recognised which allow its division into assemblage zones, it is probable that parts at least of the deposit accumulated quite

SPEKE HALL

MERSEYSIDE
%trees+group

LOCAL P.A.Z.

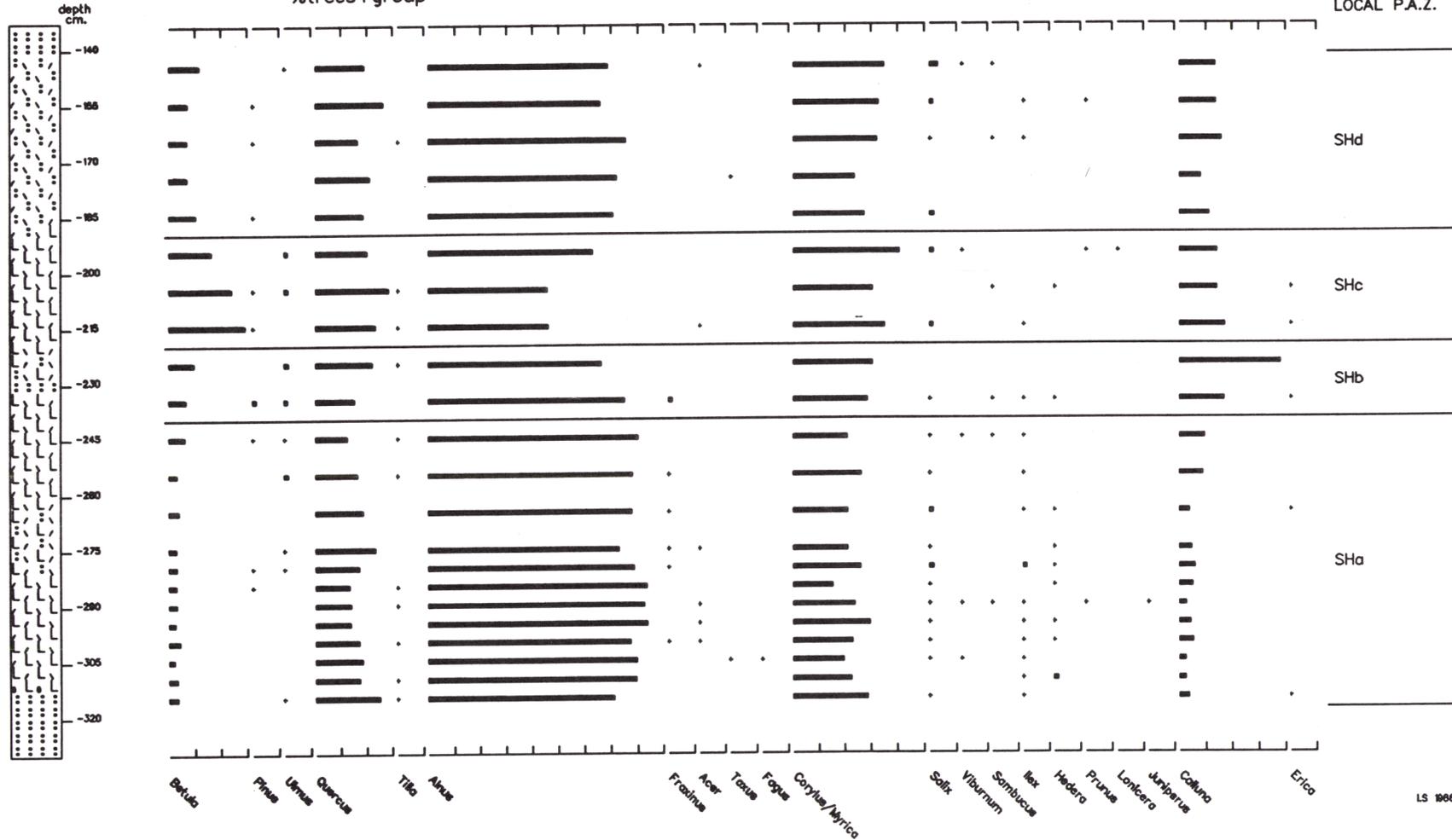


Figure 11: Pollen diagram with pollen frequencies calculated as percentages of tree pollen plus ecological group.

SPEKE HALL

MERSEYSIDE
%trees+group

LOCAL P.A.Z.

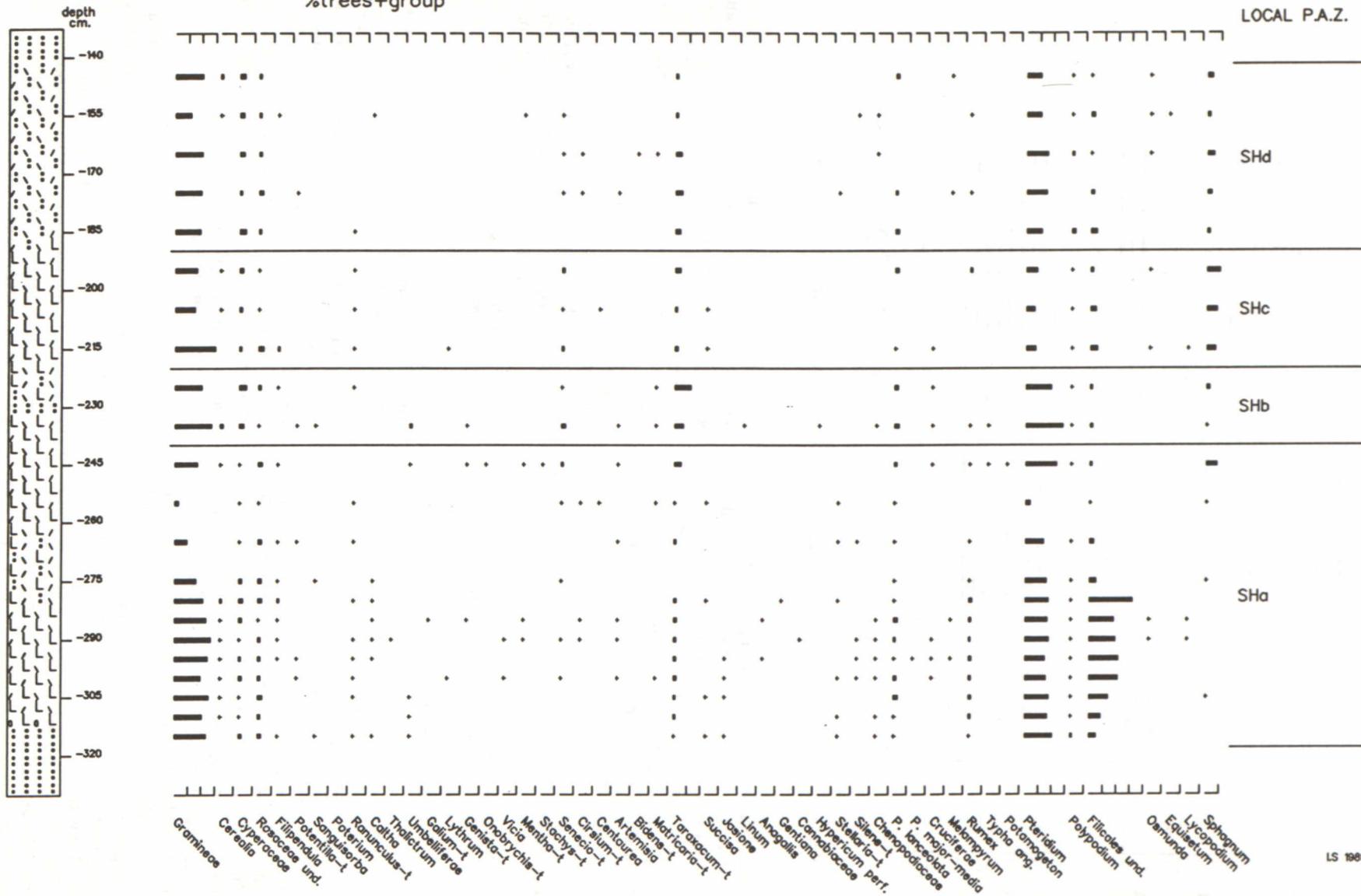


Figure 12: Pollen diagram with pollen frequencies calculated as percentages of total land pollen.

Speke Hall: excavations in the west range

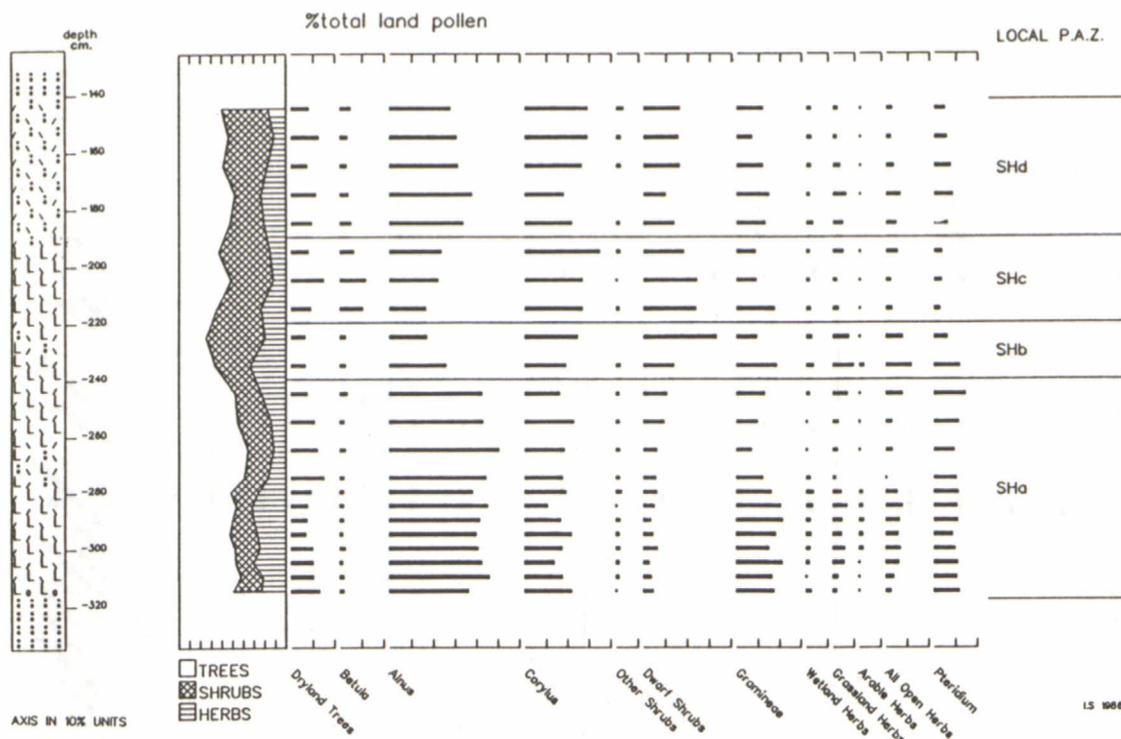


Figure 13: Summary pollen diagram showing ecological groupings (percentages of total land pollen).

quickly and that it would be wrong to assign any temporal scale to the vegetation history. Indeed the pollen changes which define the zone boundaries are relatively slight, and it may therefore be prudent to consider the pollen record, at least within zones, as comprising a single body of evidence, rather than as a progressive record of events.

Interpretation

Five main vegetation communities are represented in the pollen record, although individual taxa may be placed within more than one, especially where identification is only to generic or family level.

Woodland communities are well represented on the Speke diagram, with tree pollen between 30% and 50% of total land pollen (Fig. 13), with dryland trees *Quercus*, *Ulmus* (elm), *Tilia* (lime) and *Fraxinus* (ash) above 10%. Some mature woodland apparently existed nearby, and contained some *Fagus* (beech) and *Taxus* (yew), but whether managed or semi-natural is impossible to say. A wide variety of shrubs are recorded in low percentages but are usually under-represented in the pollen record and were likely to have been locally important. *Ilex* (holly), *Prunus* (cherry), *Acer* (maple), *Viburnum* (guelder rose) and particularly *Corylus/Myrica* are likely to have been widespread either as understorey or scrub. They could also have existed as hedgerow shrubs. Two woody taxa are of particular significance. Firstly the records of *Sambucus* (elder) are noteworthy, as this shrub typically grows around settlement sites and

its pollen is often found in associated ditch deposits. Secondly, some of the *Acer* records are attributable to *Acer pseudoplatanus* (sycamore) which was introduced to Britain in the 15th or 16th century (Clapham *et al.* 1962), which provides a temporal context for the sediments.

Wetland communities are represented throughout the profile. The ditch was probably fringed by *Alnus*, with some *Salix* (willow), causing locally abundant alder pollen deposition. The Cyperaceae records probably originate from ditch-side communities also, as would some of the grasses and wetland herbs such as *Typha angustifolia* (reedmace), *Lythrum* (loosestrife), *Potentilla* type (cinquefoil) and *Mentha* (mint). Perhaps surprisingly, aquatic pollen records are very few, so that perhaps the ditch was kept clear of aquatic plants, then quickly filled in after disuse. That the ditch contained a reasonable depth of water is shown by the detrital nature of the sediment, and also by the presence of diatoms (algae) within it. Freshwater oligotrophic forms noted from the lower metre of sediment include *Cymbella cyspidata*, *C. aspera*, *C. ehrenbergii*, *Pinnularia pulchra*, *P. nobilis*, *Diploneis ovalis*, *Amphora ovalis* var. *libyca* and *Gomphonema* sp.

Cultivated ground communities are represented in low but consistent amounts, and the cereal pollen records probably point to local growth or dumping of straw or organic waste, as cereal pollen grains are not naturally transported far. Further differentiation was not attempted, although grains resembling *Triticum* (wheat) and *Secale* (rye) were noted. Typical weeds of

cultivation recorded are *Centaurea cyanus* (cornflower) and others like Chenopodiaceae, *Silene* (campion), Cruciferae, *Matricaria* and *Plantago major* (great plantain) which may also occupy other habitats. Another probable crop is Cannabaceae (either *Cannabis*, hemp or *Humulus*, hop). Others like *Vicia* (vetch), Leguminosae and Cruciferae are less likely to be cultivated types. The *Linum* record is of *catharticum* (purging flax) type, not of cultivated flax.

Heathland communities are less well represented, except in the middle of the diagram, when *Betula* and *Calluna* values rise at the expense of *Alnus*. A temporary expansion of heathland possibly took place. With *Sphagnum* becoming recognised for the first time, a spread of more acidic soil conditions at this point seems likely.

Grassland and ruderal communities are well represented throughout. Taxa indicative of damp grassland and possibly pasture include *Plantago lanceolata*, *Sanguisorba officinalis* (great burnet), *Anagallis tenella* (bog pimpernel), *Linum catharticum*, *Hypericum perforatum*-type (St John's wort), *Gentiana* (gentian), *Jasione* (sheep's-bit) and several others. More open, disturbed ground such as footpaths is indicated by *Artemisia* (mugwort), Chenopodiaceae, *Urtica* (nettle) and *Plantago major*. Most of the weeds recorded in the pollen rain will have colonised a range of habitats within the general grassland/waste ground environments, or have been introduced in waste material.

Conclusion

The pollen evidence from Speke Hall suggests that the site was set in a mixed landscape in which mature open and scrub woodland coexisted with cultivated and pasture land. Wetland areas existed locally and there is evidence for waste, bare ground, rough grassland and cultural features such as hedgerows and footpaths. Slight fluctuations in the ratio of open ground herbs and dryland trees may be seen (Fig. 13). Open herbs are more significant in early zone SHa, SHb and early SHd. Dryland trees are at their highest values in late SHa, SHc and late SHd. Some clearance of woodland may be reflected here. If so, the most important clearance occurred in zone SHb, with alder and dryland trees replaced by grasses with bracken, dandelion and other herbs, with some spread of heather and birch heathland. However, the vegetation mosaic seems in general to have been fairly stable, with little significant vegetational change during the period in question.

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BOREHOLE SURVEY

J. B. Innes and I. V. Innes

A number of boreholes were made to investigate the stratigraphy and to find the location of the water course feature in the dry moat area which surrounds Speke Hall (Fig. 1, a1-c2). The following stratigraphic sequences were recorded, depths in centimetres:

a1	0-42	Disturbed material
	42-64	Clayey, organic mud
	64-79	Pink clay, charcoal at 69cm
a2	0-30	Disturbed material
	30-53	Wet clayey mud with charcoal and brick near the base
a3	0-40	Very wet disturbed material
b1	0-15	Disturbed material, unable to penetrate
b2	0-50	Disturbed material
	50-100	Sandy silt
	00-155	Wet sand
	155-200	More organic sand
	200-275	Black organic sandy silt
b3	0-46	Disturbed material
	46-59	Pink clay with pebbles
c1	0-60	Disturbed material
	60-86	Silty sand
	86-98	Clay
	98-100	Wood layer
	100-200	Black organic soil with charcoal
	200-275	Black organic wet silt

While most of the boreholes were shallow and ended in disturbed material or impenetrable clay, bores **b2** and **c1** penetrated much more deeply (to 2.75m). These contained basal organic silt deposits of a type similar to those retrieved from the Billiard Room excavation. That these two bores were of identical depth and contained the same depths of basal organic silt suggests an artificial feature. The line of **b2** and **c1** therefore most probably represents the linear extension of the old water course feature recorded in the Billiard Room. This should be borne in mind in any future developments or excavations at the site.

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