SURVEY AND EXCAVATION AT LITTLE POTHERIDGE, MERTON 2013-15

By Chris Preece, Heather Coleman and Terry Green

NDAS
NORTH DEVON
ARCHAEOLOGICAL SOCIETY

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Fig. 1: Aerial photo of Little Potheridge (Martin). 'Barn' is second from left near bottom of picture; note lean-to on facing wall.

Dates: 11th – 26th May 2013; 17th May – 7th June 2014; 30th May – 11th June 2015.
Area: Site of presumed clay pipe production.
Remit: Survey and excavation of area where previous finds (mass of clay pipe material and number of items of kiln furniture had previously been found) in an attempt to locate kiln structure.
Present: Chris Preece (lead archaeologist), Derry Bryant and Bob Shrigley (supervisors), volunteers from NDAS, the local community and other interested parties.
Site codes: LPM13/LPM14/LPM15.

1. INTRODUCTION

Project Background by Chris Preece

In 2012 North Devon Archaeological Society (henceforth NDAS) were invited to investigate a potential clay pipe kiln site near Merton. The significance of the site (Fig. 1) had been recognised by Philip Collins (Director of Barometer World), following notification by the tenant farmer Robert Nancekivell. A spread of surface finds had been revealed by ploughing. Heather Coleman, a clay pipe maker (Dawnmist Clay Pipes) was contacted and made a site visit during which she recognised fragments of kiln furniture as well as a large quantity and variety of clay pipe forms. She informed NDAS and a programme was drawn up involving research, geophysics and excavation; the rationale being to prevent further loss of material, to potentially locate the first evidence of an 18th century pipe kiln in Devon and to recover pipes and a kiln assemblage. Permission was sought from Clinton Estates (and granted) and with the co-operation of the farmer, the Society began the first of three seasons of excavation in 2013. By the end of the project a considerable quantity of kiln furniture as well as a typology of pipes spanning a century, plus a variety of other finds had been recorded. These are subsequently detailed here.

2. TOPOGRAPHY AND HISTORY by Terry Green

2.1 Location and Topography

Little Potheridge is a small, apparently reduced settlement within the parish of Merton in Torridge District, in the north of Devon. It is centred at SS 523139 and lies at about 120m above OD roughly 1km NNW of Merton between Great Torrington and Okehampton (Fig. 2). It is represented by a small cluster of farm buildings and cottages situated beside a minor road which leaves the A386 at a point to the east of Cross Park Cottages, looping north-eastwards to rejoin the main road at Ryall's Corner about 1km farther east. Little Potheridge is situated at the apex of the loop.

Little Potheridge, which belongs to Clinton Estates, lies at the head of a combe which runs about 0.5 km eastwards towards the River Torridge. To the west the undulating landscape falls gently towards an extensive and relatively low-lying basin straddling the parish boundary between Merton and Petrockstow and known as Marland Moor. Geologically this represents what is known as the Petrockstow Basin, a deposit of Tertiary clays, sands and gravels which have long been worked for their fine ball-clay. This clay, which fires to a fine white or creamy yellow has been the source of the Marland brick which characterised much of 19th century building in North Devon and Torridge.

Figure 2: Site Location Maps

2.2. History

Potheridge

Held pre-Conquest by Ulf and after 1066 by Aubrey, the manor of Potheridge in the Domesday hundred of Merton descended by the late 12th century to the family of Le Moyne or Monk. It was held by Monk until 1734, when it passed to Lord Rolle from whom it passed to Lord Clinton, the present landowner.

Little Potheridge

Originally part and parcel of the manor of Potheridge, the hamlet of Little Potheridge as seen today is reduced relative to that which was recorded on an estate map of 1794 (Fig. 3) and the tithe map of 1842 (Fig. 4). In the 18th and early 19th centuries the settlement seems to have consisted of three farmsteads and a few domestic holdings.

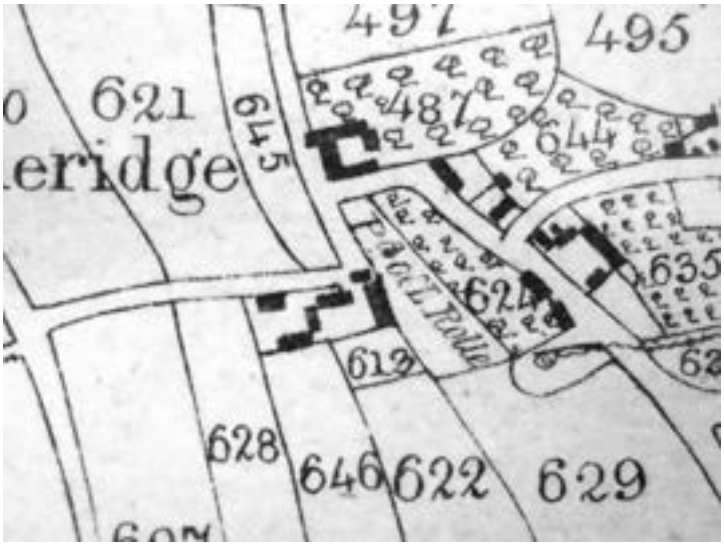

Fig. 3: Clinton Estate map of 1794

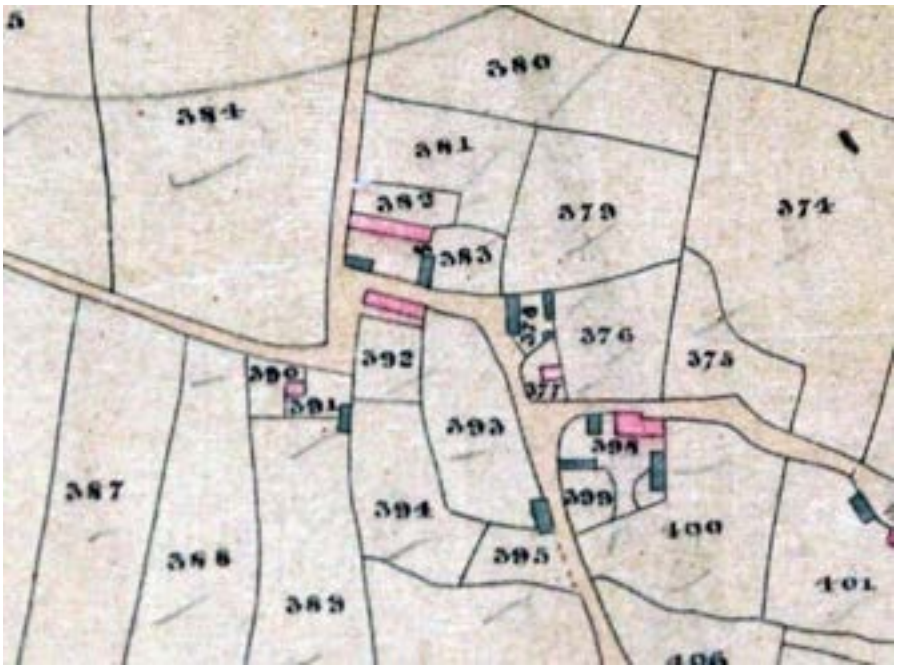

Fig.4: Tithe map of 1842 (pink = residential; grey = non residential)

2.3 Cartographic History

The available cartographic record indicates quite significant changes between the 18th and late 20th centuries involving removal and insertion of boundaries and destruction or reshaping of buildings The earliest available detailed map is an estate map of 1794 belonging to Clinton Estates (Fig. 3). The area that first suggested a history of clay pipe manufacture lies within the southern half of the field labelled, on the 1794 map, 'Purchased of Lord Rolle'.

Comparison of this plan with the tithe map of 1842 (Fig. 4) provides an indication of early 19th century developments, principally the insertion of an east-west boundary cutting the field 'Purchased of Lord Rolle' in two and the construction in the north part of a pair of roadside cottages with garden (392). The southern part of the area (394) is now described in the tithe apportionment as orchard. Lying west of the said field and immediately to the north of the small field numbered 613 on the map of 1794 was a group of six buildings including along the eastern boundary of the curtilage a long structure on a north-south axis. By 1842 the group of six buildings had been reduced to two, leaving a dwelling house in a now divided curtilage. Meanwhile a building on the east of the curtilage appears to represent the long building recorded in 1794, but now reduced at its north end, while apparently extended southwards to straddle the east-west boundary between the areas numbered on the tithe map 391 and 389.

Tracking the evolution of this building through the cartography, we encounter a difficulty. Allowing for the greater accuracy of the OS surveyors, the First Edition OS map of 1889 (Fig. 5) shows essentially the same as the tithe map. However, the north-south building is now shown entirely north of the east-west boundary, which must mean either that it has lost its southern half or that the boundary has been moved to the south. Since the mapping suggests a narrowing rather than a widening (north-south) of the curtilage to the west and since the east-west boundary is now shown veering to the north, the latter (moving the boundary southwards) seems unlikely. It is more likely that the east-west boundary as recorded on the tithe map of 1842 represents a replacement of the 1794 boundary with a

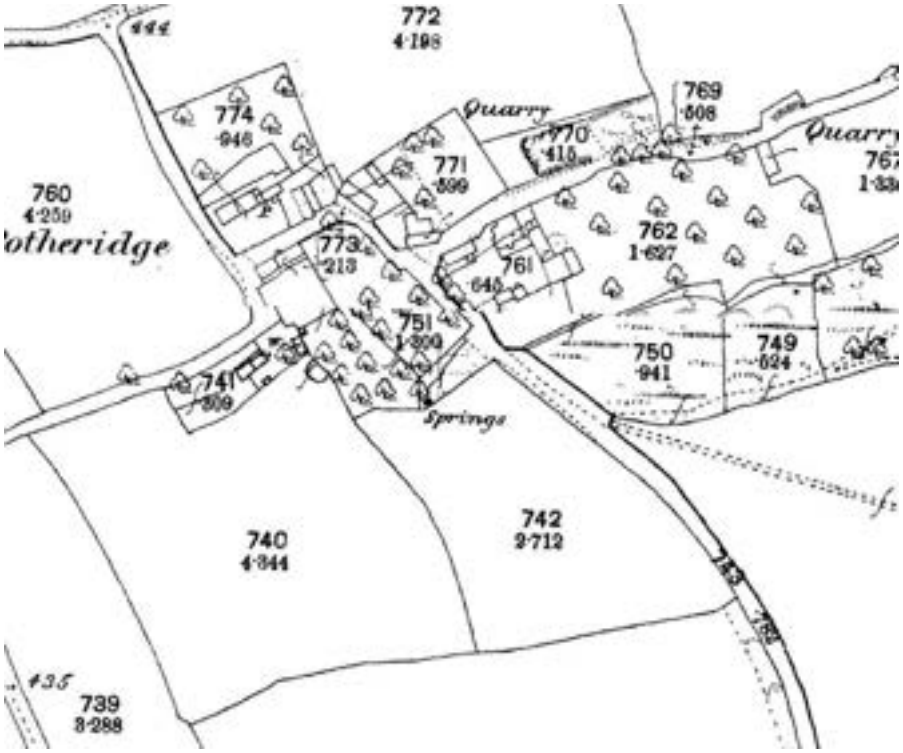

Fig. 5: OS map of 1889

new hedgeline as part and parcel of the considerable changes that affected the curtilage around the turn of the 19th century. This new boundary met the north-south building halfway. By this reckoning, the late 19th century maps indicate the removal of the southern end of the original 18th century building during the 19th century. The building now on site appears to correspond to that which was recorded in maps and photographs from the late 19th century through to the late 20th century and represents the remnant central one third of the building that was there in 1794. (These conclusions are borne out by the archaeology, for which see below.) A right-angled kink in the hedgeline immediately to the north suggests an echo of the footprint of the building as recorded in the late 18th century.

Additional Observations
Recorded in 1889 is a very small square structure to the immediate north-east of the building, possibly a privy. Additionally there is to the south, lying up against the boundary of the orchard (tithe map 394) an ovoid feature which was probably a pond. By the time of the Second Edition OS map of 1905, the roadside cottages had disappeared leaving a small featureless field.
Mid-to late 20th century photgraphs indicate that the orchard boundary, originally part of a long north-south field boundary, finally disppeared in the later 20th century, probably together with the filling in of the probable pond. Any remains of the group of buildings to the west together with its boundaries were removed post-1950.

The significant conclusions emerging from the cartographic history are that:

The bulk of the excavation area falls within the bounds of the field recorded in 1794 as 'Purchased of Lord Rolle'.

The east-west boundary immediately north of the small building (the barn) currently on site dates from the period 1794-1842.

The small building currently on site (the barn) represents the the central portion (one third) of the 18th century north-south long building.

The small building (the barn) became truncated from its original 18th century extent firstly in the early 19th century and secondly in the mid-19th century. The earlier change may have been concurrent with the introduction of the east-west boundary.

2.4 Documentary evidence for John Pardon, Pipe Maker
There is no doubt that a John Pardon was a pipemaker in the parish of Merton during the 18th century, since an indenture of apprenticeship of 1761 (NDRO 814A/PO 713) records that John Pardon of Merton, pipemaker took on James Halse, a poor child, as an apprentice (Fig. 6). Around thirty years later John Pardon of Merton, pipemaker, took on the lease of a property in Taddiport next to Great Torrington (NDRO 2558-2/129).
Surface finds of pipe bowls bearing the stamp IP, I PARN etc. recorded on the site make it almost certain that this is where John Pardon worked. The typology set up by Heather Coleman suggests a date range comprising at least the whole of the 18th century with possible overlap into the 17th and 19th centuries, which strongly suggests that two or three generations were at work here.

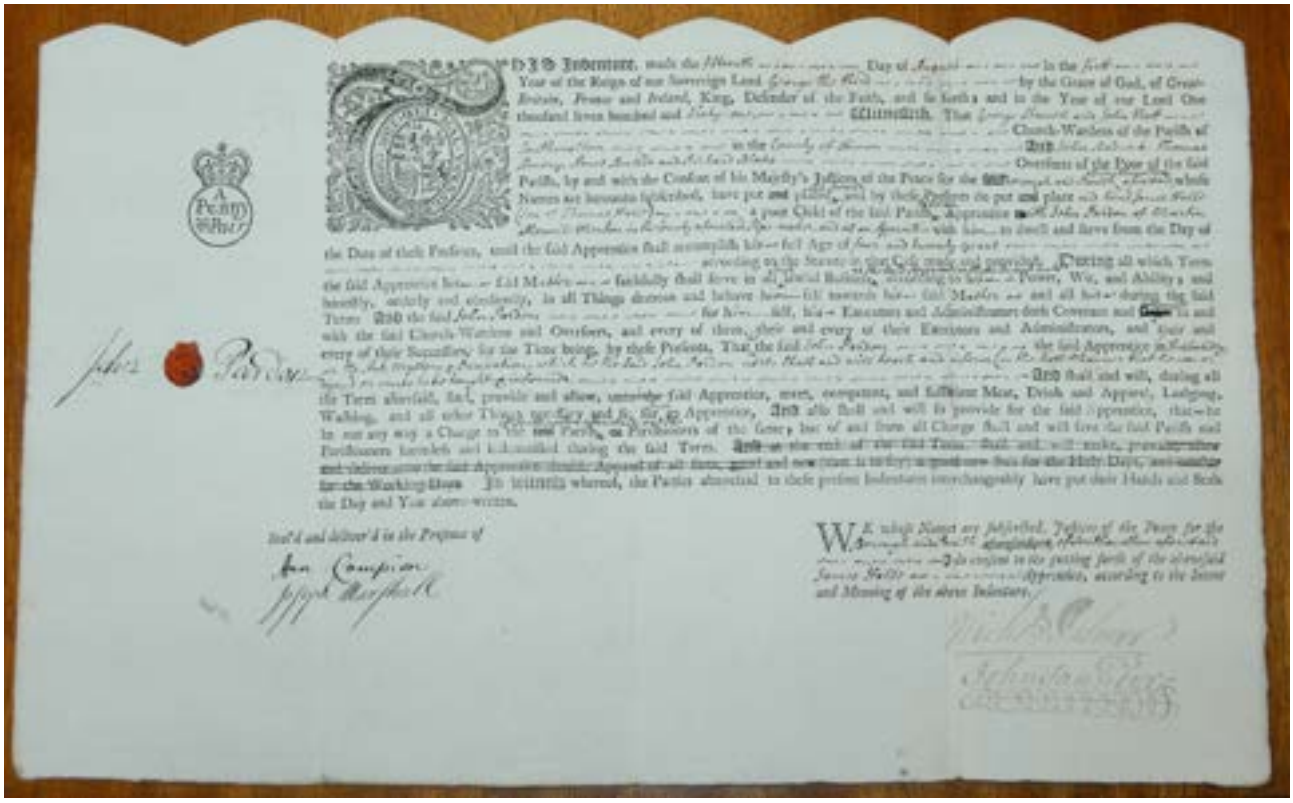

Fig. 6: Indenture of 1761

Further information is to be had from late 18th and early 19th century leases and taxation records. The Land Tax record for 1780 has John Paren (Pardon?) paying 4 shillings for 'Cott', while a document of 1782 (DRO 1926B/C/L/8/1) records the lease of a tenement in Little Potheridge to John Pardon. Land Tax records indicate that from 1786 to 1792 John Pardon paid 8 shillings a year for a holding called Pardons or Homeplace at Little Potheridge and from 1792 until 1801 John Pardon paid the same for 'Little Potheridge'. He disappears from the record in 1801, presumably having died. He is succeeded by John Mallet who is recorded as owner of Pardons alias Little Potheridge until 1809 when William Stacey appears paying 4 shillings for 'Pardons Homeplace' at the same time as paying 4 shillings for 'Cott'. From this information we might conclude that in 1782 John Pardon had doubled his holding ('Cott' plus 'Homeplace') and that under William Stacey the property was once again divided. This may suggest that 'Pardons Homeplace' was the curtilage lying north of field 613 on the 1794 map and numbered 390/391 on the tithe map, since the property exhibits both loss of elements and division in the c.50 years between the two maps. In any case John Pardon disappears from the record about 1801.

3. THE PARDON GENEALOGY by Chris Preece

The Pearen family website notes the first instance of a variant of this name (Pearne) in Merton in 1599. It also mentions the interchangeability of this surname with Peardon and Pardon. Four entries of deaths in the incomplete parish records transcribed by Dredge (1889) illustrate this. In 1772 "John Pearen otherwise Pardon" died and in 1788 "John Pearen otherwise Pardon an aged man" deceased. In 1796 John and Frances Pardon

become John and Frances Peardon in a later entry in the same year (re: deaths of their offspring).
As well as surname variation (presumably due to phonetic transcription), the proximity of these entries hints at a further difficulty regarding the identification of which Pardons were pipemakers. In between the first two, in 1787 “John Pardon aged 51” also passed away. Research by the Pearen family website suggests at least three branches of the family were living in the Merton area at the end of the 17th century. The tendency for the same names to be used for father and son as well in the other branches of the family, along with gaps in the records, makes it difficult to trace lineage. From 1696 until 1796, there are no less than five John Pearns or Peardons listed in the baptism records and five John Pearens or Pardons in the deaths, one of whom was aged 51 but does not appear in the births register.
The greater documentary evidence from the end of the 18th century means it is preferable to work backwards from the known. A useful starting point regarding the John Pardon (probably the last pipemaker of that name) who disappears from the record in 1801 (see documentary evidence above) is a Rolle family estates document of 1799 (DRO 96M/Box 14/2). This lists a John Peardon of Little Potheridge leasing four fields (one arable, 3 meadow) and importantly, lists the ages of the 'lives' (38 and 25). Assuming the former to be the man, this would mean he was born around 1761. There are only two possible candidates in the parish baptism record: a John Pearen son of Mathew and Jane baptised in 1760 and a John Pardon son of John and Joanna baptised in 1759. Neither however can be the John Pardon named in the document of 1761 (see above) as a pipe maker (NDRO 814A/PO713). This would suggest that one of these two took over from one of the John Pardons who died in 1787 and 1788 respectively. Even though the Pardon who died in 1788 was described as 'an aged man', it is unlikely he would have been setting up a pipe production business around 1700 as the typology suggests. This suggests that three generations of Pardons were probably at work in the industry.
From here on the name Pardon will be used to refer to the family, as this is the documented name of one pipemaker and of the holder of the lease at Little Potheridge. However to maintain consistency as pipes marked 'I PARN' have been previously described as 'Parn pipes' (Higgins 2006, 395) the pipes will be thus described.

4. FIELDWORK by Chris Preece

4.1 Aims and Objectives

The primary aim of the project was to locate a kiln. The general location of the area to be investigated was based on the cartographic and documentary evidence detailed above as well as the prevalence of finds noted in this area. No pipe kiln *per se was* listed as having been found in the South West in Peacey's seminal work (1996, 95-117) although since then a kiln was found at Shepherd's Wharf, Plymouth (Freeman 2000). Eighteenth century kilns are particularly rare throughout the whole country (Peacey 1996, 5).
A secondary aim was to recover the maximum amount of kiln furniture of which there is little surviving in the region (*ibid, 198-230*) and to compare it with that recorded in the rest of the country. In Devon, pipe kiln furniture in the eighteenth century is in the main represented by a few pieces of muffle and sheet from Exeter and muffle from Chudleigh (see 5.2: Glossary of terminology). Thus any finds from Little Potheridge would considerably enhance the body of evidence in Devon.
Thirdly, given that no pipemaker had been recorded from the Merton area in any of the major publications, a further aim was optimal retrieval of forms in order to devise a typology to facilitate identification for other archaeologists. This incidentally would help

identify 'unknown' pipes already published from other sites (see those listed under 6: ‘Distribution’).

4.2. Excavation Methodology

The first 5 trenches (T1, 2, 3, 4 and 5) were hand dug in order to maximise retrieval of finds for the reasons stated above. For T2 extension, a mechanical digger with a 1.6m grading bucket was used to remove topsoil and excavation was stopped for archaeological deposits. Subsequently, T2 ext. was cleaned back by hand and features investigated and recorded.

Contexts were allocated according to standard practice (i.e. Trench number as first digit; uppermost context 00. Thus Trench 4, topsoil = 400).

Standard recording procedure was followed. This included single context recording, hand drawn plans and sections at 1:20, trench plans and sections at 1:50, site plans at 1:100 and a full photographic digital record.

The spoil from all trenches was scanned for diagnostic artefacts which might have been missed and a metal detector was used as a double check.

All artefacts were washed, labelled and identified. A sample of pipe stems from each bag was analysed in terms of stem bore measurements. Sampled fragments of kiln furniture (sheet, muffle etc.) were weighed; all were counted. All identifiable pipe bowls or bowl fragments were recorded according to the new typology except where bowl fragments were ambiguous due to forms or features being similar (i.e. the later C18 roundels) and lacking the critical diagnostic element.

Most artefacts from excavated contexts were retained, except those obviously of modern date. In relation to these (e.g. farm machinery parts etc.), such artefacts were recorded on context sheets and replaced prior to backfilling.

In the case of some pipe stems from the kiln waste linear (722), and in consultation with the museum curator, once the stems had been recorded, they were replaced in the base of the excavated linear prior to backfilling. This was because it was felt that due to the sheer number of stems there was a limit to their archival value.

At the conclusion of the excavation, trenches were backfilled by machine and the site returned as near as possible to its previous state.

4.3 Excavation 2013 (Fig. 7)

T1

This trench was sited to investigate the south face of the lean-to building on the east side of the former north part of the barn. On the south wall of the lean-to was an arch which although probably rebuilt (some bricks were clearly C19, some earlier) was potentially a stoke hole (106). This was first cleared of modern rubbish. The area in front of (106) was then excavated to natural and apart from two postholes (clearly associated with more modern repair of the east face of the barn), only an irregular, water-worn, down-slope gulley was revealed. (The interior of the 'stoke hole' was then cleaned to natural (116) and revealed a slope up to the north which along with the gulley was suggestive of waste water flow down-slope rather than stoking up-slope.

T2

The rationale behind this trench was twofold: firstly to investigate the sub-circular anomalies evidenced by the geophysics (east end of trench) and secondly to ascertain if any footings of the demolished southern extension of the extant barn remained (west end

of trench). Beneath the shallow topsoil (200) was a stony layer of mid brown soil with orange lenses (201) which overlay an orange-brown layer (202). Both of the latter two contexts produced clay pipe bowls and stems as well as muffle fragments probably migrated via ploughing action. There was no evidence of features in the location of the anomalies.
In the west end of the trench was the remnant of a clay-bonded stone wall (230). This returned to the north (203) but here had been mainly robbed out. These remains were assumed to represent the southern part of the long north-south building shown on the map of 1794 (Fig. 3). In order to fully investigate this feature and with limited time remaining, a machine with grading bucket was used to open up a larger area to the south of T2.

Fig. 7: View of excavations in 2013; T2 extension nearest camera.

T2 extension
The extension enabled excavation of both north and south foundation cuts of the wall. The northern face was well made (Fig. 8) and in the base of the fill (231) of the cut (232) were two sherds of North Devon medieval coarseware suggesting an original building contemporary with the residual evidence of the medieval field system.

Fig. 8: North face of wall (230) with cut (232) post ex.

The south face of the wall however, had clearly been rebuilt and in the base of the fill (239) was a face sherd of a Bartmann (Bellarmine) jar (Fig. 9) suggestive of alterations in the late 17th century and possibly at the beginning of the Pardons' tenure. This sherd may be interpreted as a form of foundation deposit, presumably to ward off evil. The survival of Bellarmine face sherds is common, as perusal of the portable antiquities scheme will show. It may be that they were carried as charms or keepsakes, as it appears were bottle seals (Preece 2009, 51). A Bellarmine fragment found on the wreck of the slave ship 'Henrietta Marie' is suggestive of this (Steinberg 2002). The association of Bellarmines with witch bottles is also well documented (Merrifield 1987, 163-8).

Fig. 9: Bellarmine sherd from (239)

Fig. 10: Wall (230) showing north return and revetment (228). Scale 1m

Abutting the south face of the wall (Fig. 10) were the remains of a stone revetment (228), probably the base of the former hedgebank evidenced on the early mapping. This had been disturbed by a modern dump of machine parts (222) and further south by a modern drainage ditch (224). A post hole (234) had one packing stone in the base of the fill (233). To the east of the revetment a sub-circular feature (220) was filled with grey clay (220) containing C19/20 pottery as well as C18 pipe material, within which was a sub-circular arrangement of stones (238) and possibly the surrounding packing of a second post hole (244). Neither post holes had any dating evidence but may be associated with either the rebuild of the wall (230) or a possible structure such as a lean-to or porch.
To the west of the drainage ditch (224), was a large expanse of grey alluvial clay (225). A sondage next to the east facing section to a depth of 0. 5m revealed this continued unchanged. This is presumed to be the half circular feature which abuts the hedgebank on the OS map and can be interpreted as a pond.

In the NE corner, where grading began, topsoil (200) and earlier plough-soil (201) was removed to natural (204) with no features. As grading progressed south however, a compacted surface was noted (227) and here only topsoil was removed, a pattern which continued for the rest of T2 ext. S as features were revealed. Contained within (227) was a quantity of kiln waste including a sizeable fragment of muffle with prop buttresses (Fig. 27) as well as a 'bun' fragment (Fig. 32), clay pipe bowl and stem fragments, sheet fragments and 2.15 kg of pipe clay. Beneath this was a stony layer (241) containing far less kiln waste (Fig.13).

T3 (2 x 1m)
This excavation investigated the interior of the lean-to. Peacey illustrates several examples of lean-to kilns (1996, 130, 141) although these were generally larger than the lean-to on this site. However, the early eighteenth century kiln excavated at Shepherd's Wharf, Plymouth was only approximately a metre in diameter (Freeman 2000, 11) and is indicative of the small size of some pipe kilns. After modern detritus had been cleared a concrete floor was revealed over a layer of sand. This sealed a cobbled surface (Fig.11, context 307) which had a rubble/clay base over natural (314) and covered ¾ of the floor. At the north-east end there was a fill of dark soil (309) beneath which the natural (314) had been cut to form a sloping gulley which was the same as that evidenced in T1. This slope, along with four horizontal putlog holes in the north-east interior wall suggestive of support for a bench, confirmed use
of the lean-to as a privy.

Fig.11: Cobbled surface (307) in T3 (Scale 0.5m).

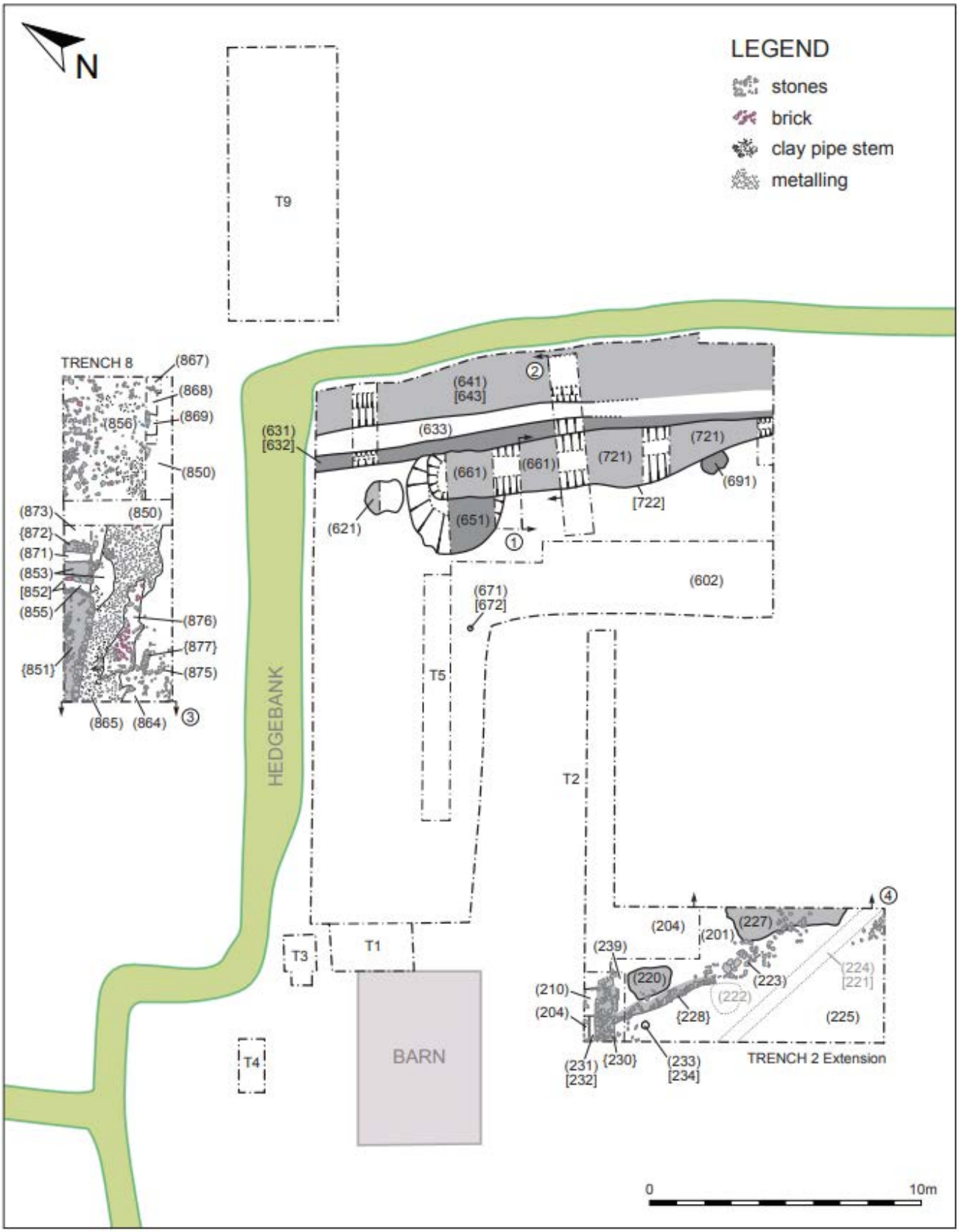

Fig. 12: Site Plan

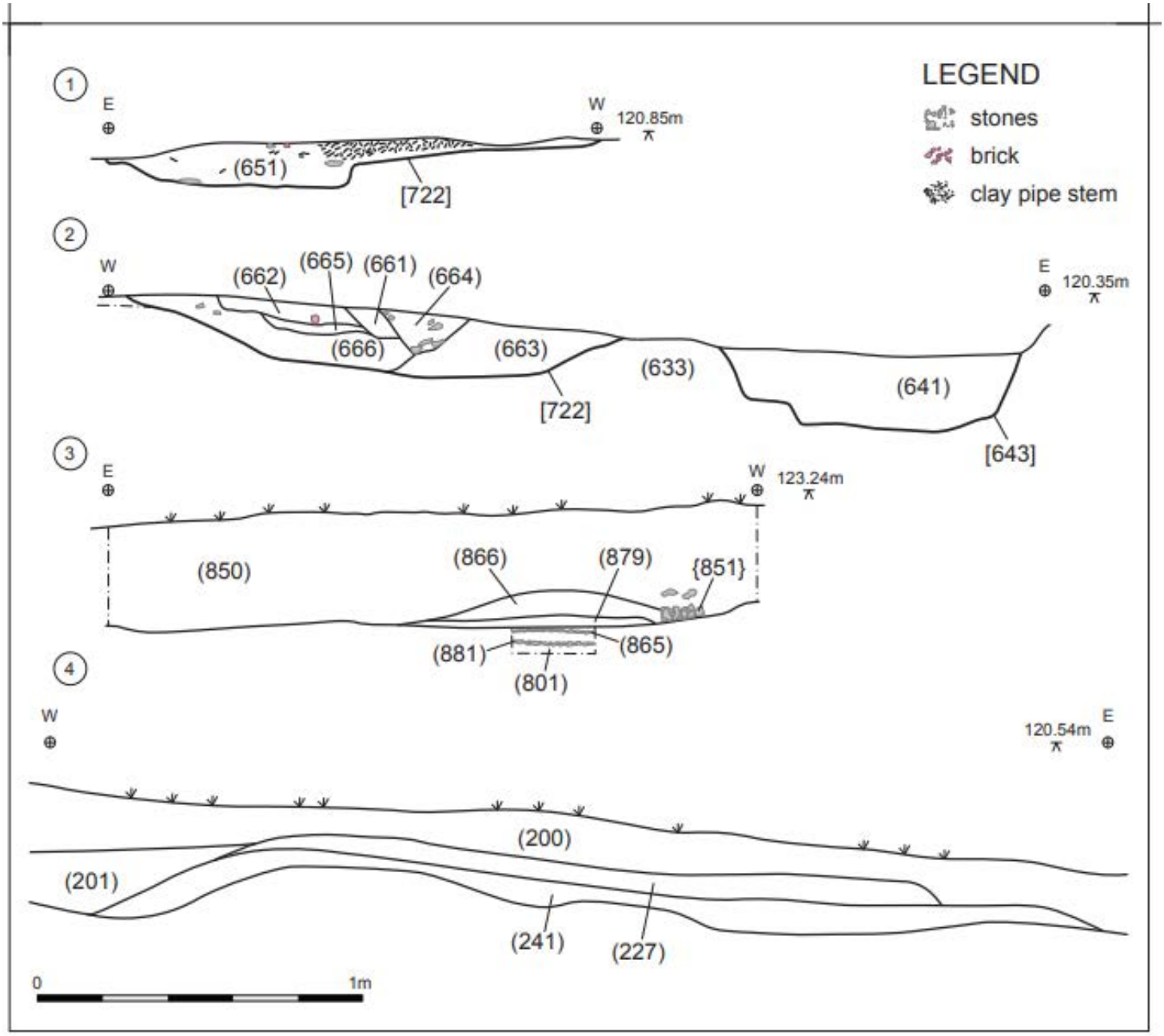

Fig. 13: Excavation sections 1-4

T4 (2 x 1m)
This trench was located inside the assumed former north part of the extant building (small barn). The purpose of the trench was to find evidence of a floor or internal structure to determine usage; Peacey details some kilns inside of, or integral to, buildings; although generally of later date (1996, 128-130). The upper layer (400), was high in humic content, in part due to leaf fall from overhanging trees. It contained modern detritus (plastic bags, shotgun cartridges, door knobs, corroded iron parts etc.) as well as pipe stem and bowl fragments and a range of pot sherds from C18/19 earthenware through to modern 'china'. Beneath this was a rough stone floor with yellow clay interstices (401), with the natural below (402). The trench was then halved and the eastern end taken down further to confirm the natural which had no finds.

T5 (9 x 1m)
This trench was sited 6m to the north of T2 and parallel with it. Its purpose was to relocate test pits dug prior to the involvement of NDAS. These had revealed pipe fragments as well as kiln waste and suggestions of pipe clay. The exact locations of these test pits were unknown however and their estimated position was based on sketches made at the time. Initially T5 was 3m in length and was hand-dug (Fig. 14). There was no great depth to this trench and only two contexts, the upper being the modern ploughsoil (500). This sealed a fairly shallow layer (503) which comprised a brownish-orange clay which probably represents an interface (containing elements of both) between the ploughsoil and the yellow/orange natural (506).
T5 was subsequently extended by 6m to the east (including a 1m baulk left to facilitate access and to provide another section for recording.
The extension of T5 had the highest proportion of bowl (1,010) and stem (4,294) fragments of any of the linear trenches, predominantly from the topsoil (500). In addition, there were 49 pieces of muffle and 1.5kg of sheet. Given the results of the 2014 season, this is perhaps not surprising, as the east end of T5 was nearest to the N/S kiln waste linear (722) and the T5 finds probably represented translocation from the waste deposit by ploughing. The same layers (500, 503) were evidenced in the east extension and three parallel plough marks were noted running N/S cutting (503).

Fig. 14: T5 during excavation

4.4 Excavation 2014

Stratascan had been commissioned in October 2013 to carry out a gradiometer survey encompassing a large area to the south, west and east of the barn as well as the field to the north. The results however, were disappointing with no obvious targets. As a result a topsoil strip was carried out in May 2014, of an area to the east of the barn where finds had been concentrated.

North/south linear features were revealed. The furthest east was presumed to be a former hedgebank (633) with ditches either side. The eastern ditch (643) had been recut and the fill (641) contained some pipe kiln waste and discarded white pipe clay. The western ditch (632) was much shallower with only a few finds in the top of the fill (631).

To the west of this was another, parallel linear feature which when cleaned back appeared to be divided into two separate contexts: (651) to the north and (721) to the south. Excavation however suggested that both were part of a single episode in which a kiln (presumably to the north) had been cleared out and the waste deposited in a purpose dug

ditch (722). Approximately 30% of the ditch was sampled via box sections (Fig. 15). The lack of silting suggested deposition straight after construction of the ditch and a single fill (721) comprising a mass of pipe bowls and stems, as well as sheet, muffle and brick fragments from 3 types. The first, a purple brown hand-made brick was similar in fabric to Type 3, an orange brick and may just represent harder or repeated firing. Type 2 however was quite distinct being made of white clay, with some crushed orange brick inclusions. In terms of size, as no complete examples were found, only the width and depth measurements were possible, the former ranging from 80-100mm and the latter 60-65mm. Several of the bricks were ash encrusted indicating use in a kiln.

A number of significant finds were made in (721) including the unusual face pipe (Type 13), the initialled wig curler (Type 66), the decorated stem with bowl (Type 39) and diagnostic pieces of kiln furniture (discussed later). Of the large quantity of pipe material recovered, Types 16, 21, 24, 25, 29, 31, 32 and 39 were the most prevalent. Of these, Types 25, 29 and 39 all had the Pardon mark. These 7 types, which span a period from 1710 to 1780, probably represent two generations of production, the latter represented by the John Pardon described as a pipemaker in the document of 1761. The earliest pipe from (722), Type 2, dates from 1690-1720. Only a handful of examples later than 1780 were found.

Two other features of note were a spread of white pipe clay (621) to the north of (722) and a smaller similar spread to the south (691).

The debris linear (722) must have been dug before the division of the Rolle field (Fig. 3). The fact that no complete bricks were found in (722) and that some Type 3 bricks (probably re-used) appear in the 2015 kiln waste suggest that the clearing out of the kiln preceded the building of the new one evidenced by the 2015 finds.

Fig. 15: Sample excavation of debris linear (722).

4.5 Excavation 2015

Excavation in 2014 of the north/south linear (722) packed with kiln debris and the down-slope nature of this linear now suggested that the kiln was more likely to have been to the north, in the field now separated by the east/west hedge-bank.

In 2015 therefore, targets to the north were sought. Bob Shrigley's geophysics survey (see NDAS website) had revealed a distinct area to the west of the north/south medieval hedgebank, suggesting deeper soil. This corresponded with the evidently made-up ground to the north of the site hut, above the hedgebank. The east end of this area corresponded in alignment with the debris linear to the south and was obviously worth investigating. The gradiometry survey had been generally disappointing and the only faint anomaly offered was a 'hotspot' to the north-east of last year's excavation where the extant east-west and north-south hedgebanks join.

Two trenches were therefore sited to investigate these targets.

T9 (10m x 4m)

This trench was targeted to locate a limited gradiometry signal. As the turf was removed however, this merely revealed the remains of a fairly modern bonfire. The trench was taken down to natural and was shallow in depth suggesting it had been not been ploughed in recent times, at least. This accords with its use as an orchard (numbered 624) on the 1794 estate map (Fig.3) and the older farmer's assertion that it had never been ploughed during his tenancy there (from c. 1960). Very few finds were recorded and those only in the shallow topsoil. No features were noted in the subsoil and this trench was therefore closed down.

Trench 8 (12m x 4m)

An area to the west was then opened up and was immediately promising. At the east end, immediately below the turf, was a spread of stone mixed with a considerable quantity of pipe stems and bowls. This was where the medieval hedgebank, noted in 2014, was expected to be and the stone probably represented the remains of the base of the hedgebank following levelling at some point in the twentieth century. This area was left undisturbed apart from a sondage which confirmed the hedgebank (868) and east ditch (867). The west ditch was excavated to natural (860) but was filled solely with (850), the made-up soil suggested by geophysics, as was the rest of the trench to the west. The topsoil in this latter area was then removed down to features. The first of these (Fig. 16), was a stone revetment (851). This was clay bonded and at its east end had been adapted into a drain (852) which was filled with (855), a dark brown soil containing kiln waste. There was some evidence the revetment had continued east of the drain. The revetment had an 'L' shaped cut (858) into natural (860) and two stem fragments were found in the fill (857). To the south of this was a dump of stones, mortar, bricks (some burnt, some mortared) and kiln waste (853). When this was removed a metalled surface was revealed (865). This ran east-west and addressed the revetment. Another spread (876) of similar composition to (853) ran east-west and sealed the surface (865).

To the east of the drain, a small pit had been dug and filled with (853) which had evidently overspilled. Redeposited natural (871) represented upcast from this pit. A compacted surface adjacent to it (872) suggested the end of a barrow run for tipping with a spread of mortar (873) to the east.

South of (876), a small section of clay bonded stone wall (877), two courses in places, sat

on a layer of lighter brown soil (864) but with no cut visible.
On the last day a sondage was made at the west end of the trench through the metalled surface which revealed another metalled surface (881) beneath it (Fig. 13).

Fig.16: T8 from south-west, showing (851)

Fig. 17: T8, recording post-ex.

4.6 Conclusions

The phases revealed by excavation of T8 in 2015 suggested demolition and clearing out of a kiln probably originally located in the north of the field in which T8 was located, and subsequent use of the southern area of the field for horticulture. Analysis of the bricks (many showing signs of repeated firing) suggested that they were of a different size to those found in 2014, hinting at a second kiln. This theory was given more substance by initial study of the pipe bowl forms in this area, most of which on initial inspection appeared to be later (for example, many of the fluted examples were found, the last in the typology). Several other forms were new, again later in date, with the Pardon initials appearing on a spur for the first time (Fig. 24).

As with previous years, the site provided some unusual finds. A rare pipe bowl dating from 1840-60 (outside the range of Pardon pipes and therefore intrusive) depicts a French Hussar.

One of the kiln bricks had a circle incised on it, divided into 12 segments (Fig.18). This might be interpreted as a 'clock' or scratch dial used to mark the time of firing. There are earlier parallels of these devices in church porches thought to have been a way of notifying congregations of the time of the next service (Crowley 1957, 176). Something like chalk or a blob of putty could have been used to mark the time.

Three seasons of excavation, even for a kiln site, have produced a huge amount of material. This has now been analysed, recorded and a paper published in PDAS (Preece 2019). Little Potheridge is important due to the quantity of kiln material produced (unparalleled anywhere in the South West, for the extensive typology of pipes and wig curlers, the fascinating associated finds and the story of the dismantling of the kiln(s) which excavation has revealed. Although the precise location of the kiln(s) has not been identified, the information gained has been considerable.

Fig 18: Kiln 'scratch dial'.

5. FINDS

5.1 Clay Pipe Typology

Although some contamination of forms was possible (i.e. pipe fragments discarded by farmers or others prior or subsequent to the documented evidence of pipe-making here), in fact, with one later exception, there were effectively no forms outside the eighteenth century, allowing for possible overlap of a decade or two at the end of the seventeenth or beginning of the nineteenth centuries. In addition, the association of many of the forms with kiln furniture etc. reinforced the validity of the typology.

Clay tobacco pipes and wig curlers (Figs 19–25)

By Heather Coleman

(Fig. 19)

1. Bowl, *c*. 1690–1720, with cut and three-quarters milled rim, internally trimmed to rear and part side. Stem bore 5/64”.

2. Bowl, *c*. 1690–1720, with cut and fully milled rim. Examples without (2) and with (2a) the heel stamp I PAR N which is incuse. Stem bore 5/64”.

3. Bowl, *c*. 1690–1720, with cut and half or three-quarter milled rim. Examples without (3) and with (3a) the heel stamp IOH PARN DO which is incuse with raised lettering. The N is back to front and the D directly below merged with the A. Both sides of the heel have a single distinctive line, perhaps an additional maker’s mark and mould flaws, all in relief (see drawing) though not always visible. Stem bore 6/64”.

4. Bowl, *c*. 1690–1720, with cut and three-quarter milled rim. On some examples the heel has been trimmed at a much steeper angle as denoted on the drawing by a line. Stem bore 5/64”–6/64”.

5. Bowl, *c*. 1690–1720, with cut and milled rim but most is missing. On some examples the rim has been trimmed at a higher level denoted on the drawing by a line. The left side of the heel has a distinctive line, perhaps an additional maker’s mark and mould flaws, all in relief (see drawing) though not always visible. On some examples the stem on plan looks thicker. Stem bore 5/64”.

6. Bowl, *c*. 1690–1720, with cut and three-quarter milled rim. Internal trimming sometimes to rear with part right side or to front with part sides. On some examples the angle of the rim or heel has been trimmed at a differing angle as denoted on the drawing by a line. Globular mould flaws sometimes visible on the left side rear of the heel and front of the bowl (see drawing). Some examples are over-fired having a more shrunken/vitreous appearance. Examples 6a and 6b occur with milling on the stem which is applied either as a band or slanted. Stem bore 5/64”–6/64”. Similar to 3.

7. Bowl, *c*. 1690–1720, with cut and three-quarter milled rim. Internal trimming to front, when applicable. On some examples the rim has been trimmed at a lower level denoted on the drawing by a line. The left side of the heel has distinctive rippled mould flaws (see drawing). Some examples are over-fired having a more shrunken/vitreous appearance. Stem bore 5/64”.

8. Bowl, *c*. 1690–1720, with cut and three-quarter milled rim, sometimes finer milling than shown. Internal trimming to front and sides, or not at all. The right side has mould flaws just above the heel, though not always visible. Some examples are over-fired having a more shrunken/vitreous appearance. Stem bore 5/64”.

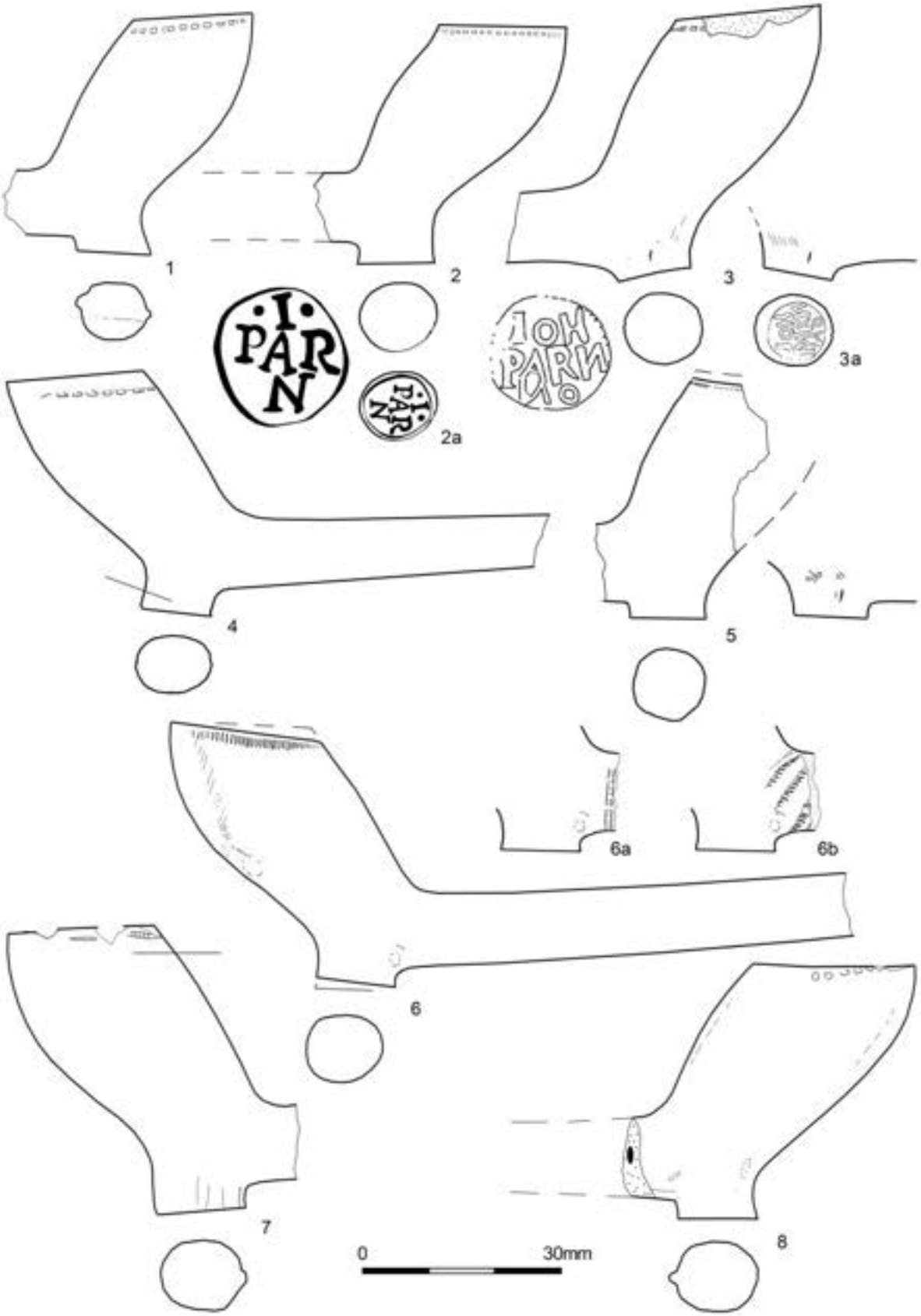

Fig. 19 (drawn by Heather Coleman)

(Fig. 20)

9. Bowl, *c*. 1690–1720, with cut and three-quarter milled rim. Internal trimming to rear and right side. The right side of the heel has mould flaws in relief (see drawing) though not always visible. Stem bore 5/64”.

10. Bowl fragment, *c*.1690–1720, with slanting oval shaped heel. Stem bore 6/64”.

11. Bowl, *c*. 1690–1720, with cut and fully milled rim. Internal trimming to front. Stem bore unmeasurable but from other fragments 5/64”.

12. Bowl, *c*. 1700–1730, with cut and three-quarter milled rim. Slight internal smoothing, usually no internal trimming though a few do have at front and rear. Stem bore 6/64”.

13. Bowl fragments, *c*. 1700–1730, composite drawing made using two pieces made from the same mould. Cut rim. A highly unusual English design depicting a face which looks towards the smoker. The detail of the hair and fabric of the head-dress is presented as a series of beads of various sizes. This sort of design was usually produced in Holland at an earlier date in the mid to late 17th century (Duco 1987, 126), but the style of heel used in this design is in keeping with other pipes from this site. Stem section round. Stem bore 5/64”.

14. Bowl, *c*. 1700–1730, with cut and three-quarter milled rim. Internal trimming all round and other examples to rear only. Stem bore 5/64”.

15. Bowl, *c*. 1700–1730, with cut and three-quarter milled rim. Stem bore 6/64”.

16. Bowl, *c*. 1710–1740, with cut and three-quarter milled rim. Internal trimming to front. Has a smaller more flared heel which sometimes has untrimmed seams. The left side of the heel has mould flaws (see drawing) though not always visible. The stem is oval in section where it joins the bowl and sometimes has a bulge just behind the heel on the underside. Stem bore 6/64”.

17. Bowl, *c*. 1700–1740, with cut and three-quarter milled rim, other examples having coarser milling than shown. Internal trimming to rear, other examples without. Has a thick spur which is sometimes squashed or bent at the tip. Stem bore 5/64”.

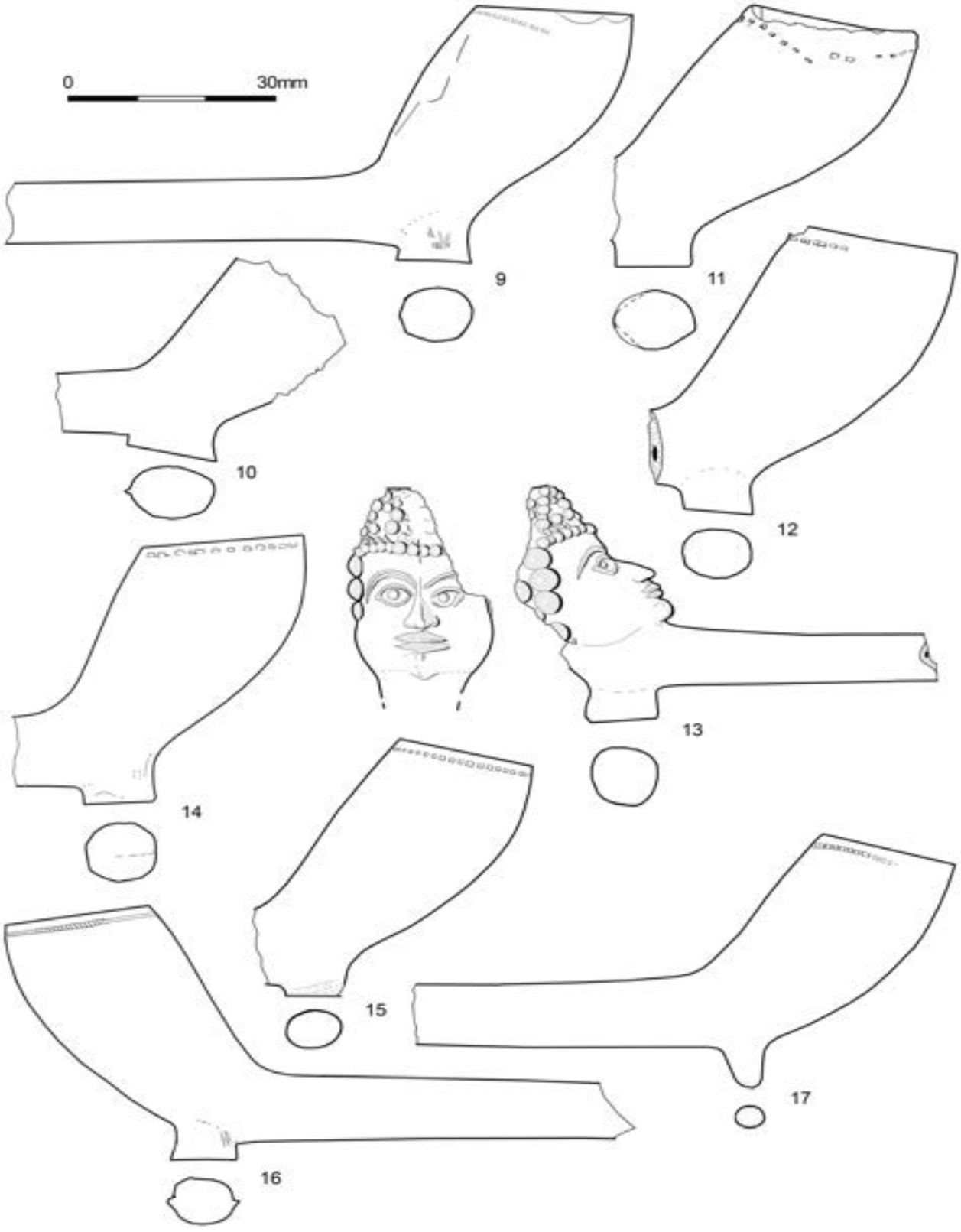

Fig 20

(Fig. 21)

18. Bowl, *c*. 1710–1730, with cut and three-quarter milled rim. The left side of the heel and part stem has mould flaws (see drawing) though not always visible. Stem bore 5/64”.

19. Bowl, *c*. 1710–1730, with cut and three-quarter milled rim. Internal trimming to rear. The right-hand side of the bowl has an off-centre relief-moulded cartouche comprising of initials IP surrounded by two rings. Stem bore 5/64”.

20. Bowl, *c*. 1710–1730, with cut and three-quarter milled rim. Internal trimming to rear. The right-hand side of the bowl has a relief-moulded cartouche comprising of initials IP with dots above and below, surrounded by two rings. Stem bore 6/64”. Similar to 19.

21. Bowl, *c*. 1710–1730, with cut and three-quarter milled rim. Some examples have no milling and appear fractionally larger with a thicker stem on plan which could account for another almost identical form. Internal trimming to rear and part sides on some examples. The right side of the stem has mould flaws (see drawing) though not always visible. Type 21a is another example where the left-hand side has a series of milled bands zig-zagging the bowl. Stem bore 6/64”.

22. Bowl fragments, *c*. 1710–1740, composite drawing made using two pieces made from the same mould. Cut rim with internal trimming to rear and right side. With relief-moulded letters PI surrounded by a ring of dots on its right-hand side. Presumably meant to read IP but the mould was apparently engraved back-to-front.

23. Bowl/Stem fragment, *c*. 1710–40, thick stem without a heel. A style similar to Bristol products of this period which enabled tighter packing in crates for export. Stem bore 5/64”.

24. Bowl, *c*. 1710–1740, with cut and three-quarter milled rim, some examples having line milling instead of toothed. Internal trimming to rear. The rear profile is very straight. The left side of the heel has mould flaws (see drawing) though not always visible. Type 24a is another example where the left-hand side has a series of applied milled bands zig-zagging the bowl. Stem bore 6/64”.

25. Bowl, *c*. 1710–1750, with cut rim. The right-hand side of the bowl has a relief-moulded cartouche comprising of initials IP surrounded by two rings. The stem is oval in section at the bowl. The heel very oval with a flared profile. Stem bore 5/64”

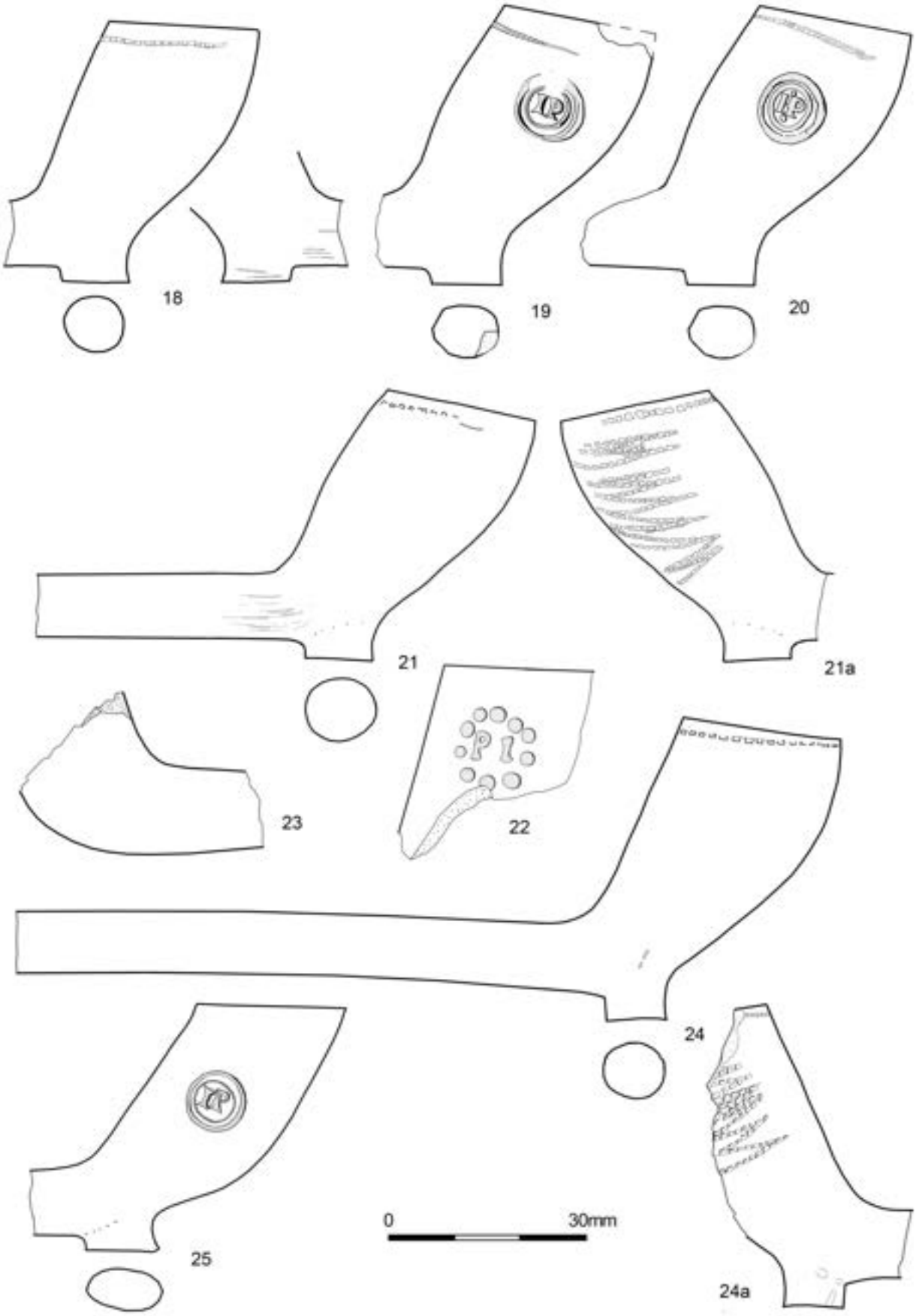

Fig. 21

(Fig. 22)

26. Bowl, *c*. 1710–1750, with cut rim. Internal trimming to rear but sometimes without. The right- hand side of the bowl has a relief-moulded cartouche comprising of initials IP surrounded by one solid ring and a ring of dots. Stem bore 6/64”.

27. Bowl, *c*. 1710–1750, with cut rim. Internal trimming to rear. The right-hand side of the bowl has a relief-moulded cartouche comprising of initials IP surrounded by one solid ring and a ring of dots. Stem bore 5/64”. Similar to 29.

28. Bowl/Stem fragment, *c*. 1710–50, similar to 23 but with a small heel which juts forward. Stem bore 6/64”.

29. Bowl, *c*. 1710–1750, with cut rim. Internal trimming to rear. The right-hand side of the bowl has a relief-moulded cartouche comprising of initials IP with a small dot above (dot not always visible), surrounded by two solid rings and a ring of dots. The left-hand side of the heel and underside of stem on this side have mould flaws (see drawing) though not always visible. Stem bore 5/64”.

30. Bowl fragment, *c*. 1710–50, with cut rim and internal trimming to rear. Right-hand side of heel rippled, either badly pressed or a mould flaw. Stem bore 5/64”.

31. Bowl, *c*. 1720–1750, with cut rim. Internal trimming to rear. The right-hand side of the bowl has mould flaws (see drawing) though not always visible. Stem bore 6/64”.

32. Bowl, *c*. 1730–1760, with cut rim. Internal trimming to rear. Composite drawing made using two pieces made from the same mould. A small heel which varies in size on examples due perhaps to tolerances in production (see 32a). The right-hand side of the bowl has mould flaws (see drawing) though not always visible. Stem bore 6/64”.

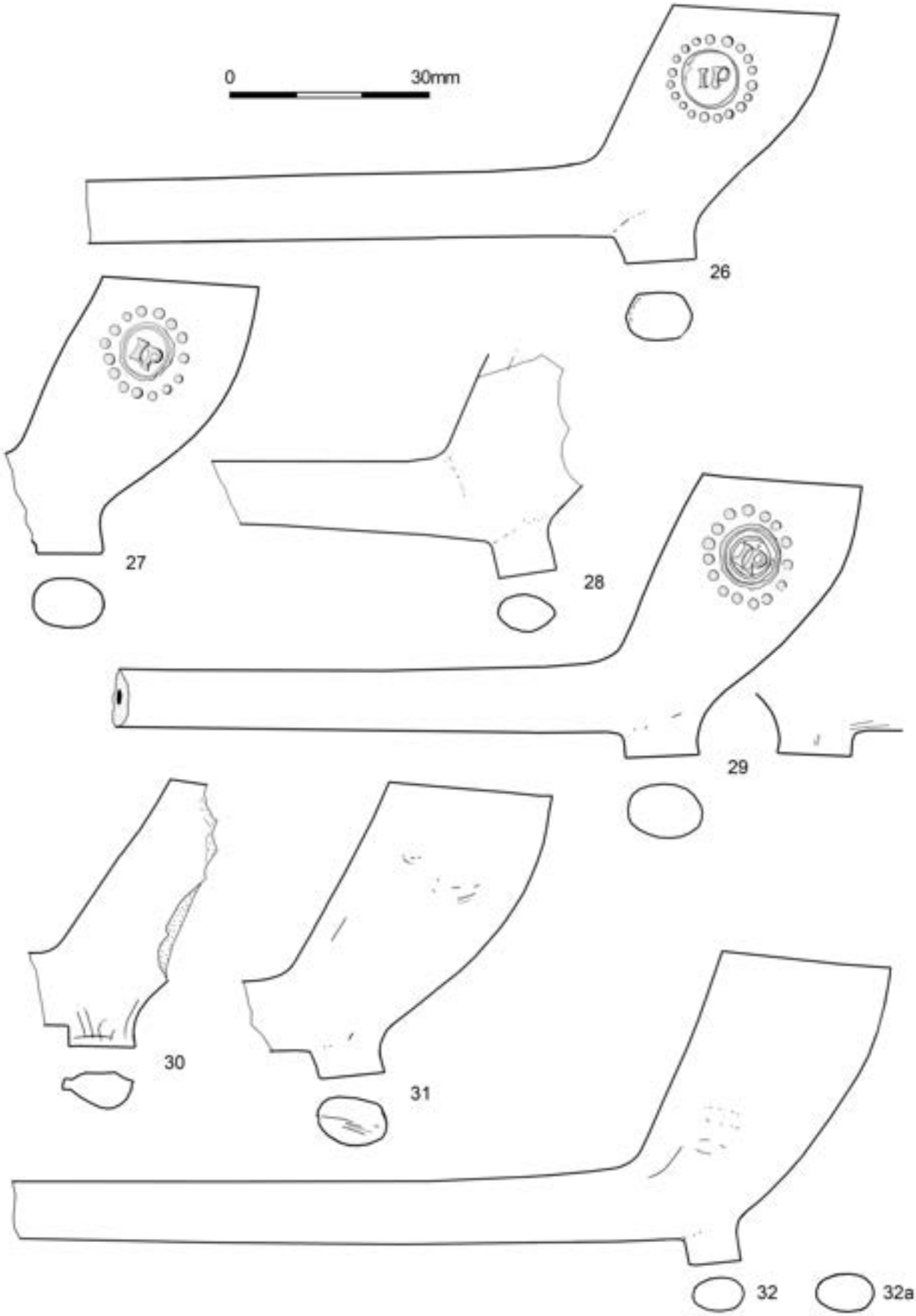

Fig. 22

(*Fig. 23)*

33. Bowl, *c*. 1730–1760, with cut rim, some examples being cut taller than others as denoted by the line on the drawing. The left-hand side of the heel has mould flaws (see drawing) though not always visible. The stem is very oval in section where it joins the bowl but round approximately 10cm further along. Stem bore 5/64”.

34. Bowl fragment, *c*. 1730–1760, with cut rim. Internal trimming to rear. The full profile shown dashed was derived from a composite of fragments. The heel is much smaller on this form. Stem bore 5/64”.

35. Bowl, *c*. 1740–1770, with cut rim. Internal trimming to rear. With poorly aligned mould halves at the spur. In some cases, the pipe was pressed in a manner that causes a thicker spur as shown by 35a, perhaps to compensate, although some are left with untidy seams. There is also a lip on the left side of the spur on some examples but this is not always the case. Stem bore 5/64”.

36. Bowl, *c*. 1740–1770, with cut rim. Internal trimming to right side. The right-hand side of the bowl has a relief-moulded maker’s mark +I+ PAR N with small crosses around the lettering, surrounded by a double line cartouche with spoked infill. Stem bore 5/64”.

37. Bowl, *c*. 1740–1780, with cut rim. Internal trimming to rear and right side. The right-hand side of the bowl has a slightly off-centre relief-moulded maker’s mark +I+ PAR +N+ with small crosses around the lettering, surrounded by a double line cartouche with serrated infill. Base of spur trimmed. Stem bore 3/64”.

38. Bowl fragment, *c*. 1750–1780. The right-hand side of the bowl has a relief-moulded maker’s mark +I+ PAR +N+ with small crosses around the lettering, surrounded by a double line cartouche with serrated infill. The letter N is backwards.

39. Bowl, *c*. 1750–1780, with cut rim. Finely produced and the right-hand side of the bowl has a relief-moulded maker’s mark +I+ PAR +N+ with small crosses around the lettering, surrounded by a double line cartouche with serrated infill. Below the cartouche is a mould flaw (see drawing) though not always visible. Stem bore 5/64”

39a. Identical bowl profile but the cartouche differs slightly with a larger N and examples have internal trimming at rear. 39b is identical to 39 including the cartouche but the spur is fully trimmed and the stem is decorated with a series of milled bands infilled between for an unknown distance with diagonally milled lines.

Note: Cartouche types 37, 38, 39, 39a are very similar and identification can be made by carefully observing the letter N and R positioning and angles that form the letters, also by angles of the serrations between the double lines. Cartouches are not always complete due to imperfect moulding or may be distorted.

40. Bowl, *c*. 1750–1780, with cut rim. Identical to 39 but plain. Stem bore 5/64”.

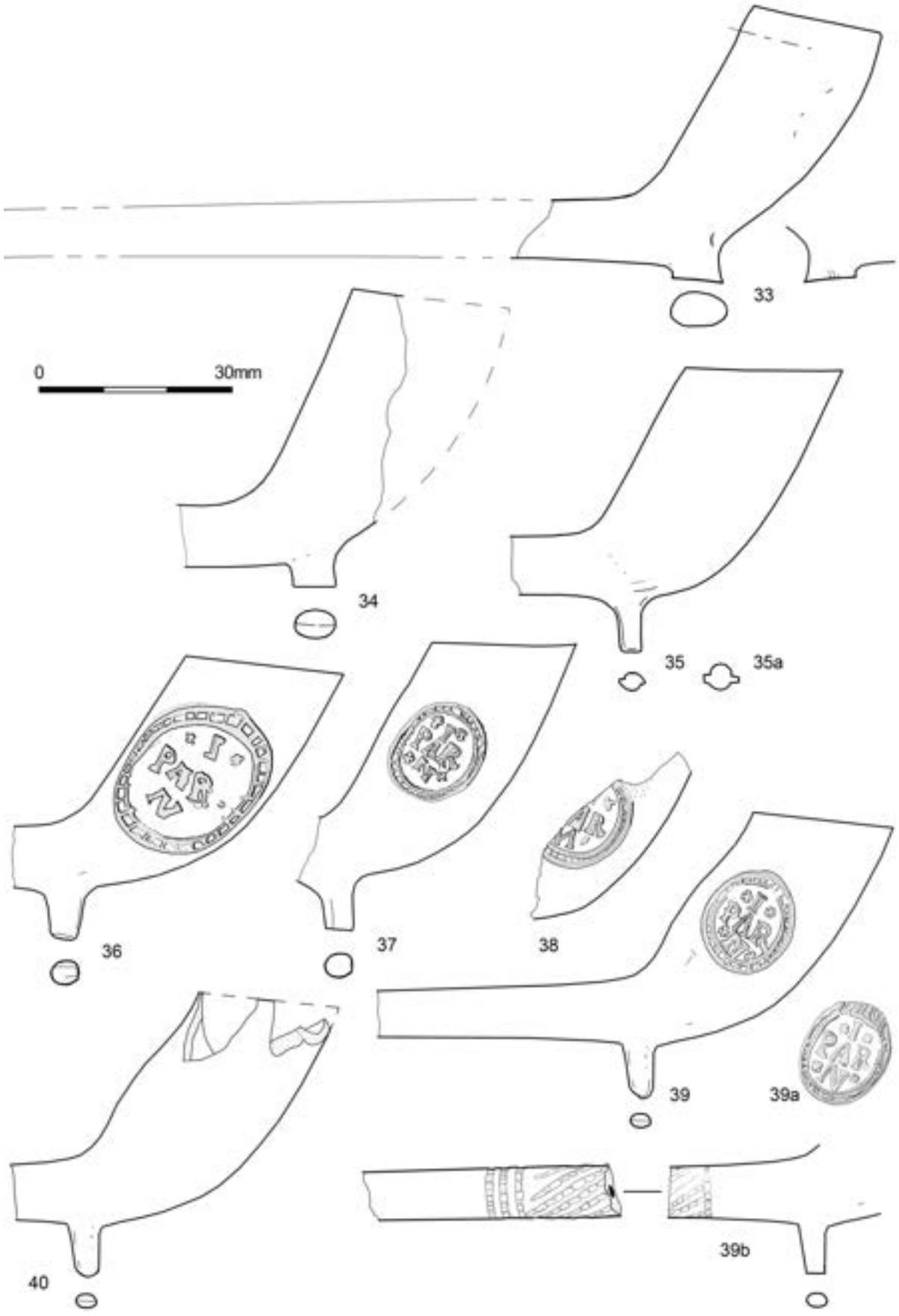

Fig. 23

(Fig. 24)

41. Bowl, *c*. 1750–1780, with cut rim. Internal trimming to rear and part sides. Stem bore 3/64”.

42. Bowl, *c*. 1760–1780, with cut rim. Spur straight sided and base cut flat. Stem bore 3/64”.

43. Bowl, *c*. 1760–1780, with cut rim which on some examples is cut lower as denoted by line on drawing. Internal trimming to rear and part sides. A more upright form with poor surface finish and globular mould flaws often visible. Poorly aligned mould halves revealed on spur. Stem bore 5/64”.

44. Bowl fragment, *c*. 1770–1800, with cut rim. Internal trimming at rear. Short spur with initials P I on sides. Likely meant to read I P but perhaps the mould was engraved back-to-front. Stem bore 3/64”.

45. Spur/stem fragment, *c*. 1770–1800, with spur and initials P I on sides. Likely meant to read I P but perhaps the mould was engraved back-to-front. Stem bore 3/64”.

46. Bowl, *c*. 1770–1800, with cut rim. Internal trimming to rear and sides. A more upright form. Poorly aligned mould halves revealed on untrimmed spur. Examples also with fully trimmed spur including bottom. Stem bore 3/64”.

47. Bowl, *c*. 1780–1810, with cut rim. Composite drawing from three pieces. Internal trimming to rear and part sides. Very crudely designed and executed with a series of ribs and finer lines between, some of which arch over the thicker ribs. Mould halves poorly aligned and sharp seams often untrimmed around the spur. The right side of the stem and spur have distinct mould flaws when visible. Stem bore 3/64”.

48. Bowl, *c*. 1780–1810, with cut rim. Composite drawing from five pieces. Internal trimming to rear and part sides. Very crudely designed and executed with a series of ribs and finer lines between similar to type 47. Mould halves poorly aligned and sharp seams often untrimmed around the spur. Spur with initials I P which are sometimes hard to make out. Stem bore 3/64”.

49. Bowl, *c*. 1780–1810, with cut rim. Internal trimming to rear and left side. Similar shape to 47 and 48 but plain with very poor irregular surface. Mould halves poorly aligned and often untrimmed around the spur. Spur with initials I P which are hard to make out. Stem bore 3/64”.

50. Stem, *c*. 1690–1720, applied alternating milled and plain bands and diagonals. Similar to type 6a, 6b. Bore 6/64”.

51. Stem, *c*. 1720–1750, boldly applied toothed diagonal lines. Bore 5/64”.

52. Stem, *c*. 1710–1760, applied milled zig-zagging bands and diagonals. This piece has encrusted clay at one end. Bore 6/64”.

53. Stem, *c*. 1730–1770, applied alternating milled and plain bands and diagonals. Bore 5/64”.

54. Stem, *c*. 1730–1750, applied plain bands with alternating milled and plain diagonals. Bore 5/64”.

55. Stem, *c*. 1730–1770, applied milled bands with alternating plain and milled diagonals. Bore 5/64”.

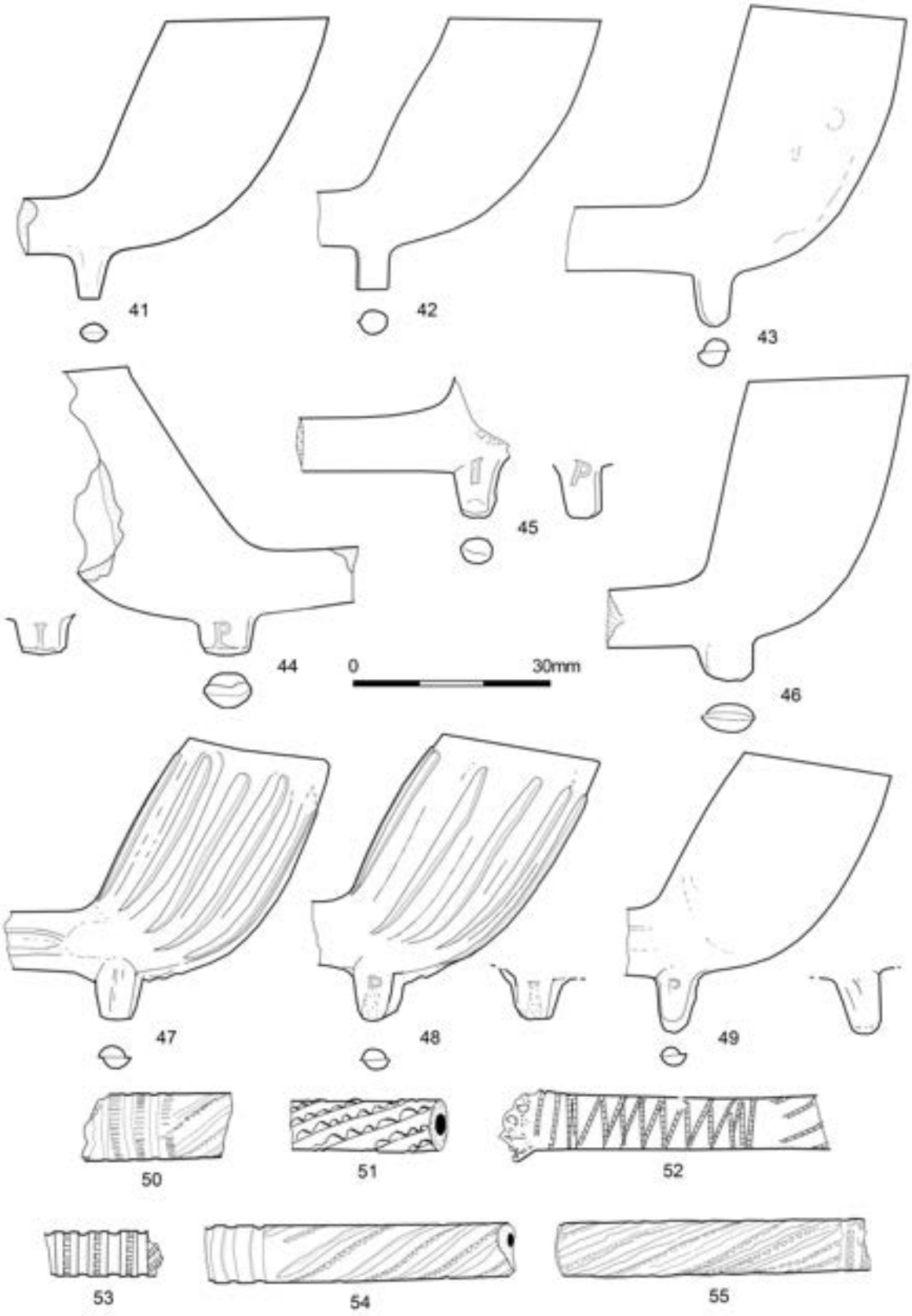

Fig. 24

(Fig. 25)

56. Stem, *c*. 1730–1770, oval in section with applied patterns of milled bands and diagonals. Bore 5/64”.

57. Stem, *c*. 1730–1770, applied milled band and diagonals. Bore 5/64”.

58. Stem, *c*. 1730–1770, oval in section with applied milled band and diagonals. Bore 5/64”.

59. Stem, *c*. 1740–1780, applied plain band and diagonals. Bore 5/64”.

60–62. Stems, *c*. 1710–1770, applied milled bands and diagonals. Bore 3/64”–5/64”.

63–72. Wig curlers, *c*. 1690–1780, Various forms all with trimmed ends. Some appear to have been turned on a jig using pin or nail to hold the clay in place while being worked on. On some the core looks torn. The majority broken so the full profile lengths not known, however type 66 was found complete and finely finished with the initials IP in relief (similar to bowl type 25) stamped onto each end and so likely of the same date. This form also occurs without initials. On Type 65 the thickness in the centre varies.

73. Pipe-clay bead, *c*.1690–1780, oval shape and section. Hole 5/64”.

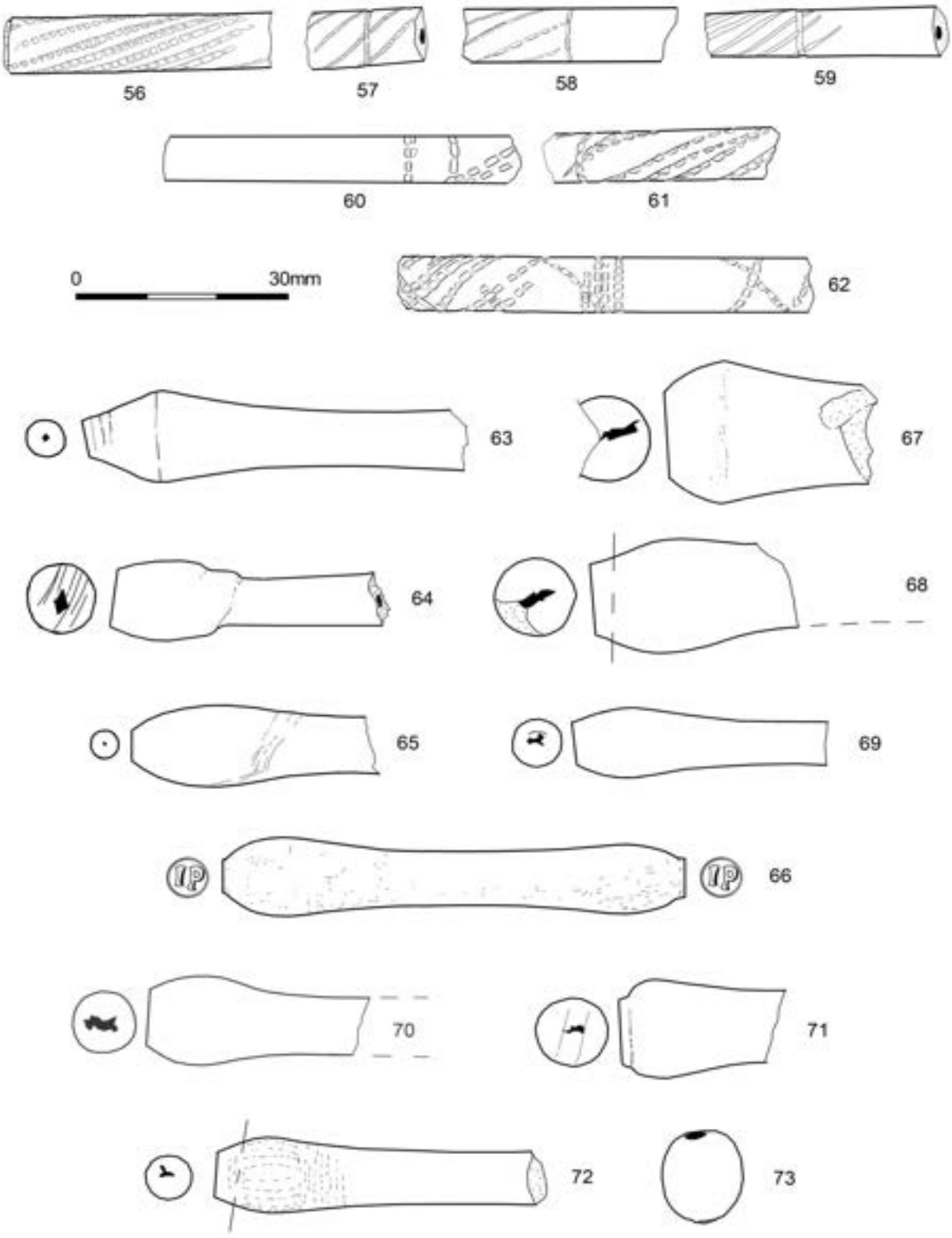

Fig. 25

Type no.+ code	2013	2014	2015	TOTAL
1 (BL)		0	7	7
2 (AE)	1	21	1	23
3 (Q)	6	12	3	21
4 (T)	4	9	0	13
5 (W)	8	1	3	12
6 (O)	36	27	57	120
7 (AD)	5	1	41	47
8 (BM)	0	6	19	25
9 (S)	3	21	1	25
10 (AI)	2	0	0	2
11 (X)	3	1	2	6
12 (AL)	5	25	2	32
13 (AX)	0	2	0	2
14 (BK)	0	4	2	6
15 (AN)	1	2	0	3
16 (R)	23	66	8	97
17 (I)	2	13	35	50
18 (BA)	0	5	0	5
19 (AO)	1	6	5	12
20 (F)	6	8	1	15
21 (M)	34	193	1	228
22 (BI)	0	0	2	2
23 (AT)	1	0	0	1
24 (P)	27	124	1	152
25 (E)	13	119	5	137
26 (G)	4	23	0	27
27 (AW)	1	18	19	38
28 (J)	1	1	0	2
29 (H)	29	260	5	294
30 (AF)	11	8	0	19
31 (N)	11	56	20	87
32 (K)	17	239	10	266
33 (L)	5	14	1	20
34 (Z)	3	3	16	22
35 (AJ)	22	48	70	140

36 (D)	4	2	19	25
37 (C)	41	47	45	133
38 (AK)	1	0	0	1
39 (A)	43	127	49	219
40 (BB)	0	1	4	5
41(BD)	0	3	34	37
42 (U)	1	2	0	3
43 (BH)	0	0	13	13
44 (BJ)	0	0	13	13
45 (BO)	0	0	2	2
46 (AV)	1	0	73	74
47 (AA)	3	0	80	83
48 (AB)	12	2	28	42
49 (BG)	0	0	36	36
50 (BE)	0	1	0	1
51 (B)	1	0	0	1
52 (AC)	1	0	0	1
53 (AH)	1	0	0	1
54 (AR)	1	0	0	1
55 (BW)	0	1	0	1
56 (AQ)	0	1	0	1
57 (AS)	0	1	0	1
58 (BF)	0	2	3	5
59 (AY)	0	1	0	1
60 (BU)	0	1	0	1
61 (BV)	0	1	0	1
62 (BT)	0	0	2	2
63 (DA)	1	0	0	1
64 (DB)	1	0	0	1
65 (AP)	2	2	0	4
66 (AZ)	0	2	0	2
67 (BN)	0	1	1	2
68 (BP)	0	0	2	2
69 (BQ)	0	0	1	1
70 (BR)	0	0	3	3
71 (BS)	0	0	1	1

72 (BX)	0	0	3	3
73 (AU)	1	0	0	1

Table 1: Number of examples of each type of bowl (1-49) and stem etc. retrieved

It was not always easy to differentiate stems which were part of reject pipes from those stems used to reinforce muffles. There did seem to be a pattern however (which has been noted in the appendix) of stems (probably from muffles) which were either varying shades of grey or alternatively beige to honey in colour.
With the bowls, diagnosis was easier and examples have been noted of smeared roundels etc. Other examples were clearly over-fired or amalgamated, perhaps due to failure of the muffle to provide protection or a failure to regulate the temperature of firing, as seen in Fig. 26.

Fig. 26: misfired discards

5.2 Kiln furniture and supplements

Glossary of terminology (taken from Peacey 1996, pp. 37 and 64-5, except where cited)
1. Sheet
“Flat or undulating piece of clay 2-10mm thick. They functioned as packing material within the kiln; they often retain impressions which are indicative of the method of their fabrication and the uses to which they were put. From these impressions it is clear that when these sheets came into contact with the pipes they were still plastic. Some (*sheets*) are flat, some rolled or folded; they occur in two fabric categories, simple pipe clay and pipe clay with added organic material” (*the latter tending to be thicker*).
2. Muffle
“A chamber, case or box of refractory material, which is built in a furnace, and used to heat articles out of direct contact with flame or other products of combustion. It serves a purpose similar to a SAGGAR, but being larger is more suitable for some purposes” (Searle 1930, 336).
3. Bun
“A group of disc or wheel shaped pieces of furniture, of circular plan, when the height is less than the diameter. Buns are known to have been used severally in conjunction with props to form a column of mushroom shaped supports within the muffle.”
4. Prop
“Any piece of kiln furniture when its height is equal to or greater than its diameter. Props were used to support or separate pipes, bats, buns, saggars or any other objects within the kiln.” (*most were circular in plan)*
5. Bat
“A fired thin slab made of fireclay or other heat-resisting material to be used in kilns for placing ware” (Rosenthal 1949, 292).
6. Dish
“Shallow open vessel, inverted, used in the same way as buns” (*often bowl shaped)*.

A lot of evidence for the form and construction of muffles was recovered. Several base fragments (19–32 mm thickness) displayed the pattern illustrated by Peacey, i.e. closely parallel stems reinforcing the fabric (1996, 26−27) but in the case of the Little Potheridge fragments more commonly a single layer only. One curved muffle base of greater thickness (42 mm) however, had a criss-cross pattern of stem reinforcement. A sufficient number of muffle wall fragments suggested a form similar to the 18th century muffle excavated at Southwark (Dean, M. 1980) and reconstructed by Peacey (1996, 28): that is a barrel-shaped vessel with 'prop buttresses' (Fig. 27). Only one example of a 'ridge deflector' was found however and there was no evidence of prop buttresses near the rim. The fabric of the walls of the Little Potheridge muffles appears similar to that detailed by Peacey – a mixture of clay, mineral inclusions and organic matter, reinforced with diagonal pipe stems (1996, 25). The internal surfaces had a white clay luting. Two fragments were suggestive of slight carination on at least one muffle vessel. As muffles were hand built, estimates of their circumference from rim fragments can be only approximate but of 8 examples from Little Potheridge, five were in the region of 400–440mm in diameter (the others being slightly less). This would make them slightly smaller than those illustrated by Peacey (1996, 20–35).

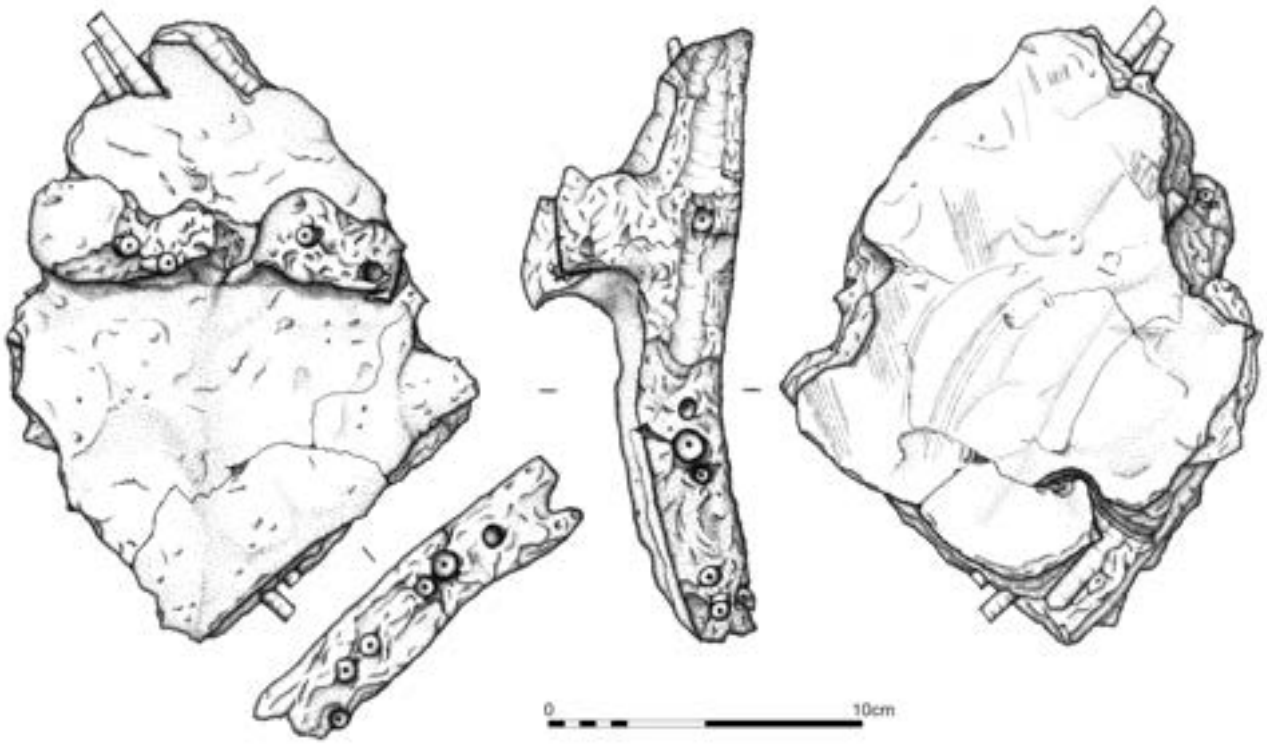

Fig. 27: Muffle wall fragment with prop buttresses (227)
(drawn by Tilia Cammegh)

Fig.28: Fragments of muffle wall showing luting.

A further two largish fragments of straight-edged muffle rim were suggestive of a box-shaped muffle with flat sides, similar to an example from Gloucester dating to the end of the 17th century (Peacey 1979, 46). This interpretation is reinforced by two large pieces of straight-edged sheet also from (721).

Industrial quantities of sheet were recovered from both topsoil and other contexts. Much was fragmentary but several pieces were informative: the majority of fragments with imprints indicated that the bowls rested on the sheet as a find made by Philip Collins previously had indicated (Fig. 29). One piece of sheet, however, showed a clear stem perforation and stem imprints. The sheet was rolled over the edge of the muffle and the bowls were placed surprisingly close to the edge. This would suggest that the upper muffles were open ended vessels (if several were stacked) which overlapped the rim of the lower muffle. Alternatively, if only two muffles were used, the upper one could have been inverted. Several pieces of sheet had an imprint of fabric similar to hessian sack on the underside (Fig. 30), presumably used as support during application of the sheet. The thickness of the sheet varied widely from 4 mm to 15 mm, often with considerable variation on one piece of sheet.

Fig. 29: Pre NDAS involvement find showing bowls adhering to sheet (photo courtesy Philip Collins).

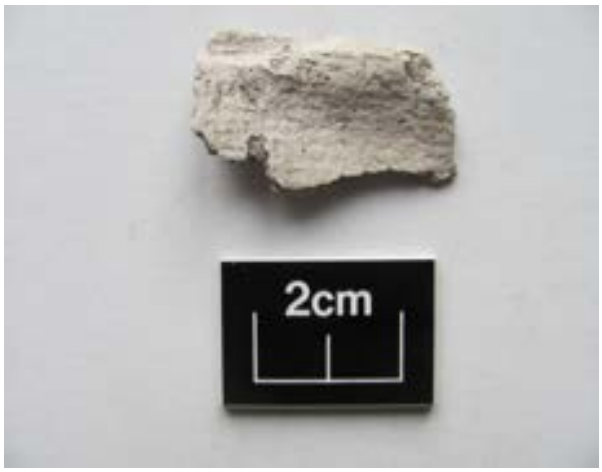

Fig. 30: sheet showing 'hessian' imprint.

Two different types of 'buns' were found, one serrated (to allow the pipe stems to slot into the grooves) and one smooth (Figs. 31 and 32). Both types are paralleled by examples illustrated by Peacey (1996, 46−49). No evidence for props *per se* was found however with which 'buns' would normally be used (*ibid,* 37) but one possible bun fragment from (651) was suggestive. The upper surface was of smoothed pure white clay (underside rough) and an opening (possibly for a prop) was approximately 60mm in diameter (Fig. 32, right).

Fig. 31: Serrated bun; pre NDAS involvement (Photo courtesy Philip Collins).

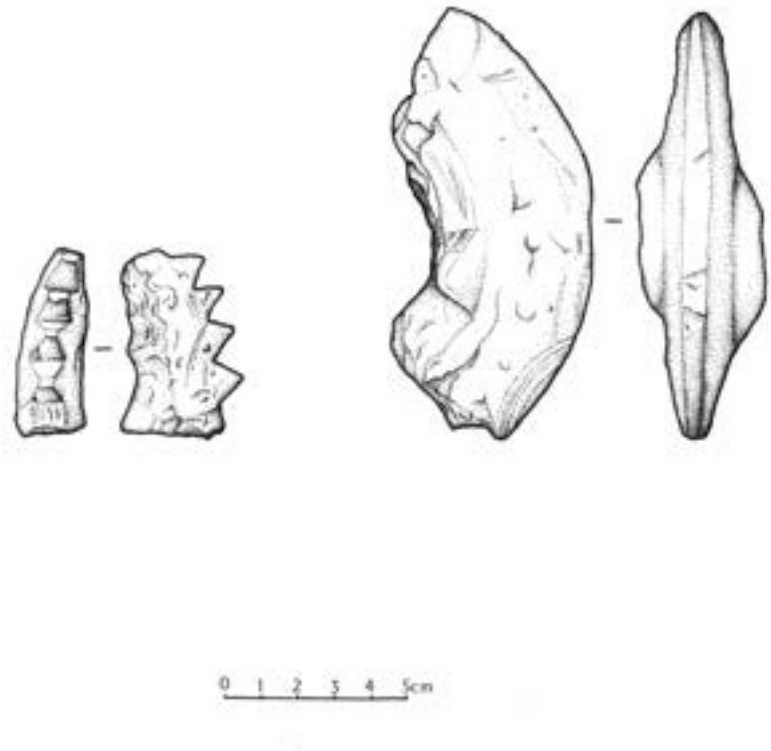

Fig. 32: Buns (left: pre-NDAS; right (227) (drawn by Tilia Cammegh)

There were some items which suggested the use of props however. Several pieces made of pipe clay (and evidently used within the muffle) had a flattish base and appeared to have been constructed around a narrow column. Similar examples have been described as socket stands (*ibid,* 82) probably used as candle holders inside the kiln. However the Little Potheridge examples have a much wider diameter hole (c. 50mm in one example) and may have been used for supporting a column which was used as a prop.

Fig 33: stem reinforcement of muffle base

More difficult to interpret still are a number of other objects of fired white clay, again used inside the muffle (unless they were made for sale). Mostly rectangular in section, some had rounded corners, others squared (Fig. 34). Peacey illustrates a few similar objects of unknown function (1996, 87c). However, items known as ‘stilts’ are still used today to keep kiln wares separated and these may have had a similar function (Fig. 35).

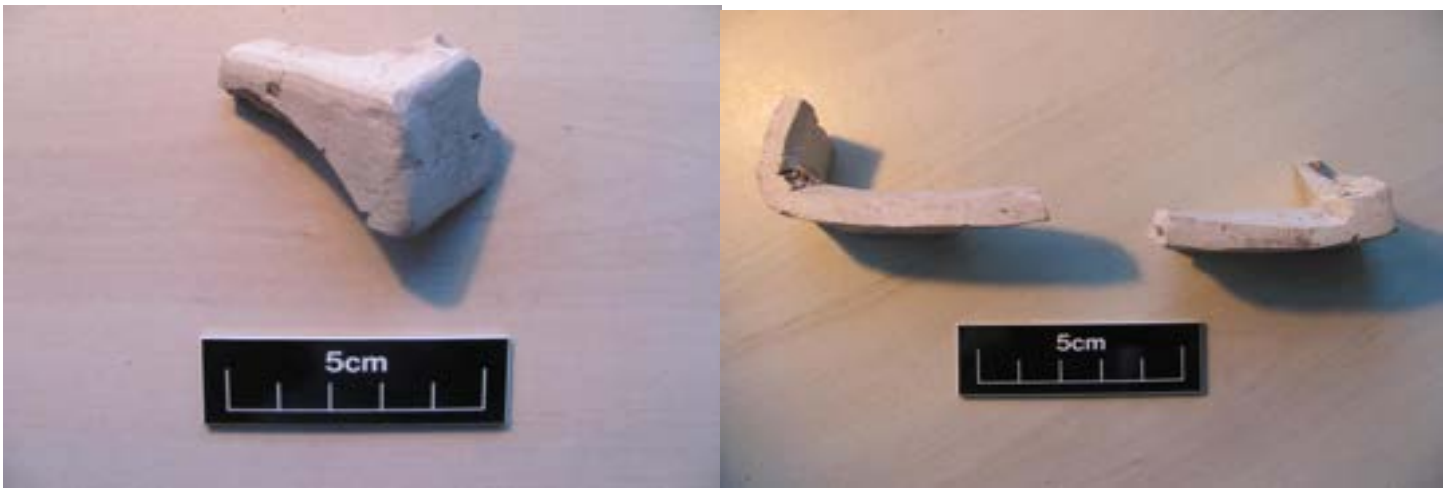

Fig. 34: possible stilts?

Fig. 35: 'Stilts' used in top loading kiln in Uzbekistan.

5.3 Structural elements

Although a number of brick fragments were found in 2013, it was not possible to categorise them with any certainty as emanating from the pipe kiln structure due to their originating from unstratified contexts or ploughsoil layers.

In 2014 however, the locating of the kiln waste linear (722) and the homogeneous (in terms of kiln/pipe debris) nature of the fill (721) ensured that any brick fragments were most likely to be associated with a kiln or kilns. This was confirmed when David Dawson examined fragments from the context (721). He was able to identify ash deposits on the faces of many brick fragments and suggest which bricks were integral to the structure and which were free-standing in the kiln. Where one side of the brick had ash deposits, it was proposed that only this face was exposed to the full force of firing and that the other sides had most probably been abutting other bricks as part of the kiln structure. With some brick fragments, ash was visible on three sides and it was mooted that these were free-standing within the kiln, possibly functioning as fire-bars. Some bricks were considerably overfired, evidence perhaps that these were originally located near the base of the kiln close to the firebox.

In 2015 many of the bricks were of a different size, quality and composition to previous examples hinting at a second kiln. In addition, many were mortared (which the 2014 bricks appeared not to be). Some of the stones associated with the bricks also had traces of

mortar as well as firing. There were also several fragments of kiln lining (or at least considerable internal patching).
Most of the bricks were in a fragmentary state but where possible, measurements of dimensions were made, with contexts noted. The measured differences may reflect different build requirements or the inconsistencies of hand made bricks. The bricks were divided into five types:

Type 1 brick: dark reddish-purple to brown. Heavily fired.
(651) 100mm x 65mm; (853) 60mm x 50mm; (866) 100mm x 60mm; 85mm x 65mm.
Type 2 brick: white clay with inclusions of quartz, crushed red brick (?) + other inclusions (e.g. tiny pebbles).
(651) 90mm; (853) 80mm x 65mm.
Type 3 brick: orange clay with few sizeable inclusions but grey/brown streaks and spots (mud-like) + black organic matter (?)
(853) 65mm; (866) 70mm x 60mm; (850) 105mm x 65mm.
Type 4 brick: orange with some white clay mixed in. Grit inclusions. This type was only found in 2015 and is suggestive of a later kiln.
(866) 100mm x 65mm
Type 5 brick: reddish orange + small inclusions. Compact matrix (unlike others which have voids, swirls etc. Much better made brick with smooth faces (almost like industrial brick).

Fig. 36: Type 1 brick showing ash encrusting.

Fig. 37: Type 2 brick

5.4 Pottery

North Devon Medieval Coarseware
A number of sherds were recovered, mostly unstratified. The exception being the sherds from the fill (231) of the wall cut. One rim sherd from topsoil (200) was similar to Allan's type 23 (Allan and Blaylock 2005, 72).

North Devon wares
A number of sherds of both gravel tempered and gravel free wares were recovered. One large fragment of a 40cm diameter bowl was similar to an example of similar broad date from Bideford (Allan et al 2005, p.191, 3a in revised type series), often described as milk pans (Grant 2005, 152). Many sherds were 'sooted' externally suggesting use for cooking. Another from (201) was a rim sherd of a carinated bowl similar to example 209 in Allan et al (2005, 185).

North Devon Sgraffito (Fig. 38)
A number of sherds were found, mainly unstratified (200/600) or within the fills (651/661/665) of the debris linear (722). Those within the linear must have a terminus ante quem of c.1780 (based on the pipe typology)

LPM13 (200)

LPM14 (600)

LPM14 (651)

LPM14 (661)

LPM14 (601)

LPM14 (665)

LPM15 (866)

Fig. 38: Sample of sgraffito sherds

5.5 Other finds

A number of noteworthy finds were made apart from those already mentioned (such as the Bellarmine fragment). Many were unstratified; these included a glass bottle seal from (200). This is a crest featuring a stag (Fig. 39) and is very similar to one listed from Cornwall in the Portable Antiquities Scheme (Record ID: CORN-EA1100) which was dated to the C17/18. This motif was associated with the Bastard family and it is interesting that it was found in the Rolle field, given the documented links of members of the Devon aristocracy (Preece 2008, 128).
A copper alloy book clasp (unstratified) is broadly dateable to the period 1400 to 1700 AD (Fig. 40).
Two pieces of post-medieval, round, lead shot were recovered, one partly flattened from (661) in the kiln waste linear (722), the other unstratified (Fig. 41).
A lightweight alloy brooch, button or mount with clasp fitting on rear was also unstratified (Fig. 42). No exact parallels were found.
A fragment, possibly part of a brooch or button (Fig. 43), with embossed decoration (apparently of lead or lead alloy) derived from (601).
Two fragments of a decorated copper alloy button or brooch (Fig. 44) were found in (621), a spread of white pipe clay.
Other small finds (not illustrated) included a copper alloy stud fastener, two buttons (one modern), a small whet stone, and a 1919 halfpenny.

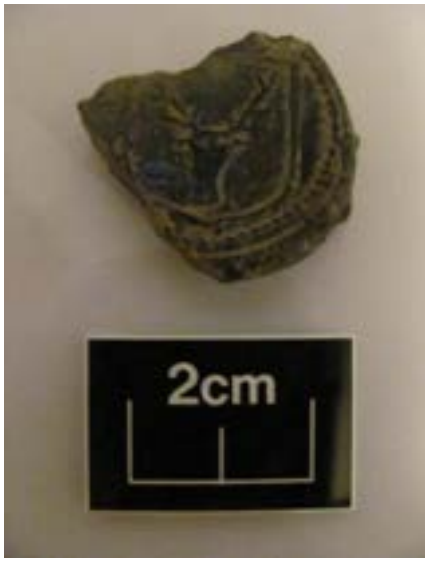

Fig. 39: Bottle seal from (200)

Fig. 40: Book clasp from (721)

Fig. 41: Lead shot (661/ unstrat.)

Fig. 42: Alloy brooch (unstrat.)

Fig. 43: Alloy brooch?

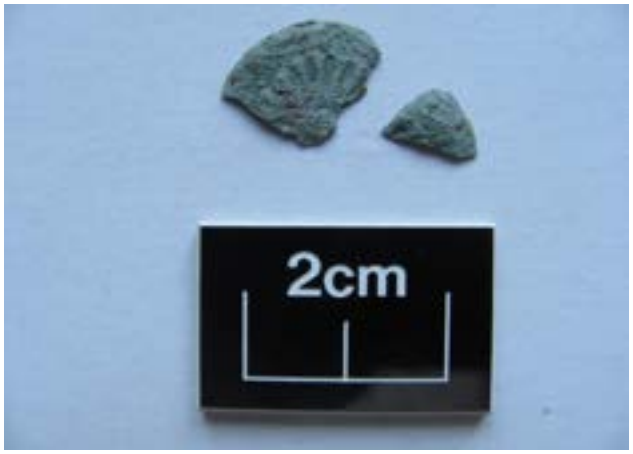

Fig. 44: Alloy button?

6. DISTRIBUTION OF PARN (PARDON) PIPES

The trade in 'pipe clay' from North Devon was established in the late 17th century (Bulley 1955, 191). Whilst it may have been advantageous to site a kiln close to the primary clay source at Peters Marland, the reason many North Devon pipe makers were based in the port towns of Bideford or Barnstaple is self-evident. Was the later Pardon lease of a property in Taddiport in 1793 prompted by a belated desire to be nearer to the major trade networks facilitated by ports? Had he heard rumours of the Rolle Canal's construction which might reduce his transport costs? (There was a meeting in Torrington to discuss the idea in 1793 but the Napoleonic War caused postponement of its implementation until 1823.)

Roads in the early 18th century were described at the time as 'vile' (White 2005, 69) and Ogilby's map (Fig. 45) shows the post roads, one of which was thus described. Hughes describes the transport of ball clay from Peters Marland in the 1790s by pack-horse trains to the quays of Weare Giffard. From there it was taken down river by barge to Bideford (2006, 66). Pardon would no doubt have been aware of this and may well have used the same method. Hughes also notes how pottery was carried in light wicker baskets and how each animal could carry between two and four hundredweight (100-250kg).

In the reverse direction (south), the road from Bideford goes via Torrington, then passes Potheridge before arriving at Hatherleigh, from whence it branches west towards Cornwall, passing close to Launceston. Another post road from Barnstaple travels south-east, passing through South Molton. Unsurprisingly, this network is of interest in regard to the distribution of Parn pipes.

The Burton Art Gallery (Bideford) has a small bag of pipes from the former Bideford Museum, three of which are Parn pipes (Types 7, 24 and 37). Great Torrington Museum also has a number of unprovenanced Parn pipes, including types 25 and 27 (the latter with a smeared cartouche), as well as incomplete bowls which are possibly types 3, 24, 21 and 39/40 (the latter has a distinctive arc of base). Parn pipes (Types 27 and 39) were also found at Launceston Castle along with stems and wig curlers some of which resemble finds from Little Potheridge (Higgins, 2006).

Another post road links Torrington with Barnstaple and then progresses to Exeter via Crediton. Although no Parn pipes have been published from Exeter where clay pipe manufacturing was apparently in decline in the second half of the eighteenth century (Arnold and Allan 1980, 306), they have been identified at Crediton. Excavations in the vicinity of Crediton Church unearthed a number of clay pipes, many from North Devon including a Parn type 37 and another possible Parn pipe with criss-cross rouletted bowl decoration (Higgins 2010, 173-4, nos. 23 and 36). In Holland Street, Barnstaple, a Parn pipe with a cartouche similar to type 26 but with a different form was documented by Grant and Jemmet (1985, 522 and 525).

From the South Molton area, two examples of a Type 39 Parn pipe were brought to NDAS for identification.

One might expect the Pardons to have exploited the export market served by the port of Bideford as well however. Despite the considerable exports in ceramics from North Devon to South Wales ports in the 17th and 18th centuries (Grant 2005, 110-123), enquiries along that coast (Carmarthen, Swansea, Cardiff and Newport) yielded no trace of Parn pipes. This may have been due to the strong influence of Bristol pipemakers but perusal of Archaeologia Cambriensis also indicated a curious dearth of C18 clay pipes from published excavations in Wales.

The North American colonies would have been another potential market, given the occurrence of North Devon pottery at a number of sites there (*ibid* 139-150). Liason with Professor Barry Gaulton in Newfoundland initially suggested that possible Parn pipes were exported there with the initials 'IP' in cartouches and on spurs. However these do not correspond precisely to any examples in the Parn/Pardon typology and it is now thought likely they are Bristol pipes.
In summary therefore, it seems on the evidence thus far, that the Parn pipes were made predominantly for a relatively local market and exploited the pack horse routes and possibly barges as means of distribution.

Fig. 45: Section of Ogilby's map of post roads showing North Devon and periphery.

7. OTHER PIPEMAKERS IN THE VICINITY

There is evidence however, that the Pardons were not the only locals exploiting the region's clay for pipemaking. Pipe bowls stamped with the initials IN (Fig. 46) and SL have also been found nearby. A possible identification for IN is John Nott who married Mary Pardon in 1777.
SL may represent Samuel Lake. This name appears several times in the Merton baptism records of the first half of the 18th century and the pipe form fits this time frame.

Fig. 46: 'IN' bowl (photo courtesy Philip Collins)

There is also evidence that pipemaking continued in Merton well into the 19th century. In 1861 Samuel Stoneman and John Balkwill, both in their teens, are recorded as pipemakers in the census (RG 9/1499).

8. DISCUSSION

Although no evidence of a kiln was found *in situ*, the typology of clay pipes and wig curlers manufactured by the Pardon family, together with the kiln assemblage, have thrown light on a little known part of North Devon where there is potential for further research regarding other pipemakers. Apart from Little Potheridge, the only other partial kiln assemblages in North Devon are from Barnstaple in the 17th (Blanchard 1988) and 19th centuries (Terry 1989).

Although marked wigcurlers are known (Higgins 2006, 412), the direct association between marked Pardon pipes and a marked Pardon wig curler confirms the long held assumption that the latter were made by pipemakers for which firm evidence has been sparse (Peacey 1996, 82).

The documentary evidence suggests that the Pardons may not have been solely making pipes. The Pearen family website lists several men as carpenters and the various leases (see above) also hint at a possible smallholding. There is evidence for pipemakers having other trades as in the case of Robert Cole, a mid 19th century pipemaker, whose pipes are widely found in Devon. He had several different jobs over the years including cabinet making (Coleman 2013, 22).

Finally, the occurrence of Parn pipes in Launceston is noteworthy. This may be due to a strong family link. In 1789 a grant of probate (CRO AP/P/3880) was recorded in the name of John Peardon of North Petherwin (near to Launceston) and in 1805 the will of another John Peardon was recorded (CRO AP/P/4186). A 'fine of lands' (a form of contrived conveyance) in 1804 (possibly related to the latter will) records John Peardon and his wife Elizabeth as 'deforciants' (DRO 49/1/36/20). Of particular note is the holding listed which includes 100 acres of land, 50 acres of pasture, 50 acres of furze and heath and three orchards. It would seem that this branch of the family at least had achieved some wealth.

Although the primary aim was not realised (the location of extant kiln structure), the secondary and tertiary aims were (the retrieval of a large amount of kiln furniture the and establishment of a pipe typology).
Given the lack of structural evidence for pipe kilns in the South West it may be that be following dismantling or disuse of kilns, the value of bricks was such that almost all were re-used. No complete kiln bricks were found, reinforcing this suggestion.
The kiln waste linear (721/722) appears to have been purpose dug and appears, in the main, to have avoided the adjacent field boundary ditch (632). The north/south alignment of the linear suggests that the waste was being deposited from a site uphill to the north and therefore suggests that the kiln was further north. The linear appears to have been filled with debris almost immediately after it was dug. There was no evidence of silting or of layers in most sections sampled.

9. ACKNOWLEDGEMENTS

Credit should first be given to Phil Collins and Heather Coleman for appreciating the importance of this site and for liaising with NDAS in order to set up the project. Phil also, along with Dave Locke, took considerable time and effort to convert the barn into a homely site hut for the diggers and a store for equipment. Phil also kindly provided us with water and a gas cooker for the essential brews without which archaeologists rarely function efficiently.
NDAS is extremely grateful to the landowners, Clinton Estates for their permission for the project and the interest and support shown by Lord Clinton and the estates surveyor, Adrian Pitts. The assistance given to NDAS by the estate farmer, Robert Nancekivill needs to be put on record. As well as forfeiting an area of his field for crops for two years running, he also allowed us to use the small barn as site hut and the farmyard and buildings for parking/storage of finds.
This project could not have taken place without generous grants given to NDAS by Devon County HES, by the Council for British Archaeology and the Devon Archaeological Society.
The project was fortunate to have a large number of volunteers (40 in total over the 3 seasons) with an average daily attendance of just under 10 and a maximum of 16 on one day. Their enthusiasm and willingness to take on a variety of tasks facilitated site management considerably. The following freely gave their time in terms of fieldwork: David Chalmers, Maurice and Diana Purkiss, Ruth Downie, Peter and Sarah Kerr, Brian Fox, Lizzie Bethune, June Aiken, Diana Warmington, Laura Collins, Mat Collins, Phil Collins, Sarah Macrae, Rosemary and Nigel Dymond, Lance Hosegood, Thor Beverley, Pat Hudson, Steve Pitcher, Mike and Mary Madders, Heather Coleman and Natalie Winter, Amelia Elvins, Pauline Allen, Dave Locke, Keith Hughes, Jane Pettifer, Patrick Moore, Jamie Barnes, Clare Kelly and Alex.
Some volunteers were from the local community and there were site visits from other interested members of the village.
Several specialists made site visits and offered useful perspectives: thanks are due to the County Archaeologist Bill Horner (and for his support of the project), as well as to Alison Mills.
Colin Humphreys and Bryn Morris of South West Archaeology were incredibly patient and professional with the digitisation of plans and sections; many thanks.
David Dawson's input was invaluable. His analysis of the bricks from the fill (721) of the debris ditch (722) confirmed that they had been used in a kiln and completed the association of all the elements of production.

Collections Officers from local museums were very cooperative and allowed perusal of their clay pipes, in particular Val Morris from Great Torrington Museum and Warren Collum of the Burton Art Gallery (Bideford),
Finally, the lead author would like to record his sincere gratitude to Derry Bryant and Bob Shrigley, not only for their roles as supervisors but also for their dedication to the project both in terms of time and help given.

Archive/Redeposition
The archive has been deposited at the Museum of Barnstaple and North Devon.
Some C19/20 finds, particularly from topsoil contexts, were redeposited on site following cataloguing. Due to the mass of pipe stems found, some of these were also redeposited in (722) prior to backfilling and in T8 in 2015, following cataloguing and stem bore sampling. Further finds (mainly C19/20) were redeposited in T3.

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APPENDIX: FINDS CLASSIFICATION

The term ‘sherd’ was used to catalogue pieces, lumps, fragments etc. Pipe stems were sampled for stem bore, and those ‘honeyed’, ‘grey’ or with laminate noted – the implication being these may have been part of a muffle. Length of stems 3”+ was noted. Random samples of muffle, sheet, slag etc were taken for weight.

Abbreviations used
NDMC = North Devon Medieval Coarseware
NDGT = North Devon Gravel Tempered (Post Medieval)
NDGF = North Devon Gravel Free (Post Medieval)
B&W = Blue and White C19/20)
dec = decorated
ext. = external
unid = unidentified
unclass = unclassified
(R) = redeposited post-ex

Trench 1
LPM13 (100)

Type	No. of sherds	Details
Pipe stems	17	5@ 5/64
C19/20	3	3 sherds 'china';
Other	12	2 grey slate tile frags (1+ peg hole)(R); 4 frags lime mortar (R); 1 frag lime green bottle glass (R); 1 tapered cylindrical whetstone with knife marks; 3 flat head nails (2”) (x2R); 1 key (ferrous).

LPM13 (101)

Type	Sherds	Details
Pipe stems	43	17 @ 5/64; 14 @ 6/64
Pipe bowls	5	
Kiln material	4	1 frag sheet; 1 frag Type 1 brick; 2 frags Type 2 brick.
Post medieval	14	3 frags dk. green bottle glass; 10 sherds NDGT (1 base; 1 rim); 1 kick up bottle frag;
C19/20 pottery	25	7 sherds 'china' (1 teacup rim)(R); 7 sherds B&W (R); 5 sherd ND ware (R); 1 sherd mustard colour; 1 striated stoneware; 2 glass necks (R); 1 glass stopper (R); frag lime mortar (R).
Other	4	2 grey tile frags (1 6-7” width); 1 frag Marland brick (R); 1 2.5” nail.

LPM13 (102)

Type	Sherds	Details
Post medieval	1	1 sherd sgraffito (?)
Other	2	1 large frag coal (R); 1 frag mortared surface (R);

LPM13 (103)

Type	Sherds	Details
Pipe stems	10	(3 sampled: 2@ 0.7, 1 @ 0.9)
Pipe bowls	2	rouletted
Kiln material	2	Frag of Type 1 brick (heavily burnt); 1 burnt frag (kiln lining?)
Post medieval	4	2 sherds NDGT; 1 base frag of jar (lt. yellow internal glaze); 1 kick up bottle base;
C19/20 pottery	6	3 sherds ‘china’; 3 B&W;
Other	15	4 lt. green bottle frags; 3 slate frags (1 + peg hole); 1 12mm stone cube; lt orange brick frag; 2 iron frags; 2 glass frags (1 bottle); 2 pieces slag.

LPM13 (104)

Type	Sherds	Details
Pipe stems	1	5/64

LPM13 (105)

Type	Sherds	Details
Pipe stems	12	3 @ 6/64
Pipe bowls	3	
Kiln material	2	Sheet frags
Post medieval	1	NDGT
C19/20	40	15 sherds B&W; 5 ‘China’; 1 Doulton (Burslem); 2 ND ware; 1 dark brown glazed; 4 stoneware; 6 transf print; 2 green bottle frags; 1 clear bottle neck; 1 iron latch; 1 strip lead; 1 flat glass;
Other	15	3 Grey slates (2 with peg holes); 1 horseshoe; 2 teeth (1 incisor); 2 bone frags; lt. orange brick frag; lime mortar frag; 3 nails; iron fitting; looped iron frag.

LPM13 (110)

Type	Sherds	Details
Pipe stems	1	Untrimmed frag 4/64
C19/20	1	Flat piece of window glass
Other	2	1 ferrous washer(?) (R); 1 lump of slag (100g)

LPM13 (113)

Type	Sherds	Details
C19/20	1	Frag of bottle glass (small bottle/vase?) C19/20

Trench 2

LPM13 (200)

Type	Sherds	Details
Pipe stems	2846	1 decorated, 1 bent; 3 glaze; 51 grey; 18 beige; 31 @ 3” length; most 5/64” or 6/64”; 4 @ 4/64”; 2 @ 7/64”.
Pipe bowls	1078	
Kiln material	1,132	1048 frags sheet, 6 rolled edges, 4 + stem/bowl impress (unweighed); 28 muffle frags; 7 fired pipe clay frags (poss kiln furniture); 6 type 1 brick; 3 frags prob. type 2 brick; 18 frags type 3 brick, some burnt; 13 frags unid, prob. brick? 2 poss. socket stands; 1 poss serrated bun frag.
Medieval	17	NDMC (3 bases; 2 rims (1 Allan type 23); 1 burnt handle (poss med.)
Post medieval	154	92 NDGT (17 rims, 3 bowl rims,1 carinated,16cm radius; many ext. burning; 4 bases); 44 NDGF (1 rim, 2 handles); 7 ND sgraffito; 7 Bristol/Staffs; 1 string rim neck of wine bottle; 2 brown stoneware (German?); 1 glass bottle seal (Bastard family?)
C19/20 pottery	181	105 china (44R); 25 B&W (6R); 3 stoneware; 1 cream glaze; 4 dk. brown glaze (1R); 1 unid. glazed earthenware; 23 mustard glaze; 1 rim chamber pot; 4 black glaze; 1 beige sherd (unid.); 9 terracotta (2R); 1 cream slip (unid.); 1 blue/yellow glaze; 1 yellow/brown; 1 lime/yellow glaze.
Other	244	1 wig curler; 24 pieces lime mortar (10 R) 4 bits limestone; 59 pieces slag (1.625kg); 6 flint flakes (grey/black/cream), 2 lt. brown flints (1 bladelet?); 4 clumps pipe clay (1 @ 175g); 4 brick frags (1R); 1 ridge tile frag; 2 floor tile frags; 15 frags coal/coke; 5 frag green glass; 21 frags dk. green bottle glass (3R); 21 frags clear glass (8R); 18 frags quartz (most R); 12 ferrous concretions (1R); 22 frags grey slate (15R); 2 pieces drainage pipe; 3 frags pinkish orange/beige (rounded tile?); 2 sherds cream wash, 1 body, 1 rim, unid. amphora?); 4 flat head nails; 1 clenched nail; 1 @ 4” nail; 1 lump concrete (R); 1 frag Marland brick; 2 frags quartz; 1 poss. whetstone. 1 lime/cream wash body sherd (amphora?); 2 grey glaze (unid.)

LPM13 (201)

Type	Sherds	Details
Pipe stems	65	5/64” or 6/64”; 1 @ 8/64”; 1 @ 7/64”; 2 @ 4/64”
Pipe bowls	38	1 type 34 + smeared roundel (reject)
Kiln material	29	28 frags sheet (2 bowl impress); 1 frag muffle.
Medieval	14+1?	14 NDMC; 1 pot handle, lime green glaze + incised line.
Post medieval	27	14 NDGT (3 blackened; 2 bowl base, 1 @ 17cm diam.; 2 rims, 1 @ 40cm diam, ext. sooted;); 11 NDGF (1 handle; 1 rim); 1 N.D. sgraffito; 1 beige (GT).
C19/20 pottery	7	1 stoneware rim; 1 white china; 1 B&W; 1 beige glaze + red lines; 2 sherds yellow glaze earthenware (1 rim); 1 beige fabric + internal lt. green glaze.
Other	23	1 poss. flint core; 1 dk.grey flint flake (gun?); 5 frags quartz; 3 frags slate; 1 piece green glass; 1 frag black bottle glass;1 lump slag (25g); 1 coal frag; 1 limestone frag; 1 charcoal frag; 1 nail; 1 floor tile (beige); 2 frags terracotta tile + lime mortar; 1 frag type 1 brick (ash coated); 2 frags type 3 brick.

LPM13 (202)

Type	Sherds	Details
Kiln material	4	4 small frags type 3 brick

LPM13 (210)

Type	Sherds	Details
Pipe stems	13	5/64” or 6/64”
Kiln material	1	Frag of fired white clay (cf. 200)
Other	100	8 frags slag (unweighed), 79 lumps of slag (1680g); 2 pieces quartz; 1 piece lime mortar; 2 frags (orange brick?); 6 pieces coal; 1 slate frag; 1 clay frag (smoke blackened)

LPM13 (220)

Type	Sherds	Details
Pipe stems	48	5/64” (20%); 6/64” (70%); 1@ 7/64”; 1 honey colour.
Pipe bowls	19	
Kiln material	27	24 sheet frags (14 @ 70g); 3 frags type 3 brick (1 + ash spatter on 4 faces);
Medieval	1	ND Med. Coarseware (rim) external blackening
Post medieval	2	4 NDGT; 2 NDGF.
C19/20 pottery	2	2 sherds china;
Other	3	Roll white fired clay; 1 piece slag (75g) clay with stem frags, grit as temper; 1 lump ferrous;

LPM13 (222)

Type	Sherds	Details
Pipe stems	418	95 (sampled) 6/64” (60%); 5/64” (40%); 4@ 3” length; 1 grey. 4@ 3” length, 3 grey, 1 beige
Pipe bowls	97	
Kiln material	100	98 frags thick/thin sheet; 1 poss muffle + stem impress, luted; 1 bowl impress + fabric impress (wt. 730g)
Medieval	2	NDMC
Post medieval	6	1 sherd NFGT; 4 NDGF; 1 brown stoneware
C19/20 pottery	16	9 B&W; 5 ‘china’ (R); flan dish sherd (R); 1 black glaze
Other	8	1 horshoe frag; 2 clear bottle glass; 2 window glass (R); 2 olive green glass frags; neck of bottle (R)

LPM13 (225)

Type	Sherds	Details
Pipe stems	158	5/64” or 6/54”
Pipe bowls	38	
Kiln material	31	24 frags sheet; 2 muffle frags (luted + stem impress); 1 muffle or brick frag; (125g); 1 frag type 1brick; 1 frag type 2 brick; 2 type 3 brick.
Post medieval	4	2 NDGT; 1 NDGF; 1 ND sgraffito;
C19/20 pottery	8	5 china (R); 2 B&W (R); 1 stoneware (R);
Other	7	Yorkshire Relish bottle; 2 slate frags (+ peg holes); flower pot frag; 2 concreted ferrous, prob nails (R); 1 unid handle (beige/orange fabric)

LPM13 (226)

Type	Sherds	Details
Pipe stems	302	6/64” (70%); 5/64” (21%); 1 @ 7/64”; 2 greyish; 1 @ 3” length
Pipe bowls	51	
Kiln material	64	61 frags sheet (wt. 320G;) 2 poss. muffle (?); 1 frag type 3 brick
Post medieval	10	7 NDGT; 2 NDGF; 1 rim sherd, beige/mustard glazed
C19/20 pottery	10	6 china (R); 2 ND ware; 1 frag green glass ®; 1 square bottle base (R).
Other	13	3 ferrous concreted (1 nail?) (R); 5 thin clear glass (R); 4 frags grey slate (R); round metal cap;

LPM13 (227)

Type	Sherds	Details
Pipe stems	1282	9 @ 3” length; 21 grey; 3 beige (from muffle?). 9 @5/64”; 20 @6/64”; 1 @ 7/64”
Pipe bowls	368	

Kiln material	700	686 frags sheet (3276g); 8 muffle frags(1 wall + buttresses); 2 frags type 1 brick; 1 frag type 3 brick; 2 fired clay frags (1 rounded curved – stilt?*);* 1/3 frag of 'bun'.
Medieval	2	NDMC
Post medieval	23	17 NDGT (5 rims 4 cook pots); 6 NDGF (1 flat base 40cm diam.)
C19/20 pottery	2	1 B&W; 1 beige stoneware
Other	28	Mass of pipe clay (2.15kg); lump of pliable pipe clay; 3 coal frags; 2 clear glass (1 bottle, 1 window); 8 orange brick frags; 3 brick frags with pipe clay lining; 1 slate frag; 9 lumps slag.

LPM13 (229)

Type	Sherds	Details
Pipe stems	2	(5/64")
Pipe bowls	1	Frag.
Kiln material	3	Small frags sheet
Medieval	2	NDMC
Other	3	1 frag clear glass; 1 frag dk. grey slate; 1 frag slag (25g)

LPM13 (231)

Type	Sherds	Details
Medieval	2	NDMC

LPM13 (235)

Type	Sherds	Details
Pipe stems	192	5/64" or 6/64"
Pipe bowls	36	
Kiln material	43	3 frags thin sheet (3-4mm, 25g); 29 frags sheet (5.5 – 11mm, 225g, 1 + fabric impress); 7 frags muffle (150g) 4 frags type 3 brick (2 + ash splatter)
Medieval	1	NDMC
Post medieval	3	1 NDGT; 1 NDGF; 1 sgraffito
C19/20 pottery	1	'china'
Other	1	1 frag roof slate (R);

LPM13 (236)

Type	Sherds	Details
Medieval	1	NDMC
Post medieval	2	1 NDGT; 1 NDGF

LPM13 (239)

Type	Sherds	Details
Pipe stems	44	
Pipe bowls	5	
Kiln material	17	13 frags sheet (90g); 2 frags muffle; 1 frag poss.

		candle stand; 1 frag fired pipe clay+ inclusions Bowl frag/grit etc.)
Medieval	1	NDMC
Post medieval	2	ND sgraffito?; Bellarmine face sherd
C19/20 pottery	5	3 ‘china’; 2 earthenware
Other	4	2 slate frags; 1 brick frag; lime mortar sample from E/W wall.

LPM13 (240)

Type	Sherds	Details
Pipe stems	26	
Pipe bowls	12	
Kiln material	12	sheet etc. (60g)
Post medieval	1	NDGT (ccoking pot)
Other	3	slate frags (1@ 4” width)

LPM13 (243)

Type	Sherds	Details
Pipe stems	17	5/64” or 6/54”
Pipe bowls	4	
Kiln material	23	17 frags sheet (80g); 1 muffle; 5 frags Type 3 brick (3 + ash splatter)

Trench 3

LPM13 (301/2)

Type	Sherds	Details
Other	1	sample of skim of grey mortar (301) adhered to lime mortar (302) below.

LPM13 (303)

Type	Sherds	Details
Post-medieval	1	Grey stoneware jar base
Other	2	Frags of brick (Marland?)

LPM13 (305)

Type	Sherds	Details
Other	1	Lime mortar sample

LPM13 (309)

Type	Sherds	Details
Pipe stems	2	
Kiln material	2	Small frags sheet;
C19/20 pottery	10	5 B&W; 2 ‘china’; George Jones plate sherd; stoneware wall/base (same as 303?); teracotta handle
Other	11	Slate frag; bone frags (chicken?); iron plate + 2 nails; Marland brick frag; glass jar rim (C19/20); 4 frags window glass; 1” thick tile (?)

LPM13 (310)

Type	Sherds	Details
Pipe stems	3	
Other	2	Lime mortar; slate frag.

LPM13 (311)

Type	Sherds	Details
Pipe stems	1	
Kiln material	1	Sheet frag
Post medieval	1	'HSED' bottle frag (torpedo?)
Other	3	Coal frag + concreted iron; slate frag; quartz frag

LPM13 (312)

Type	Sherds	Details
Pipe stems	4	
Pipe bowls	1	
Kiln material	4	3 small frags of sheet or muffle; 1 clinker like clay/slag frag.

Trench 4

LPM13 (400)

Type	Sherds	Details
Pipe stems	141	
Pipe bowls	31	
Kiln material	14 3 2 25 2 9 2	thin sheet (5mm or less) thicker sheet (5-15mm) one + hessian impression & imprint of sub-square object + bowl impression Other sheet frags (wt. 135g) thick pieces (muffle?) fragments (undiagnosed) muffle wall fragments (one + interior luted/exterior ash spattered)
Post medieval	3	1 Bristol/Staffs; base of cooking pot (int. glaze); 2 ND cooking pots (one ext. blackened)
C19/20 pottery	16	4 glazed (2 bases); 8 'china'; 1 b&w; 1 earthenware; 1 chamber pot (?); 1 stoneware;
Other	22	coal; bronze bolt cap; 5 ½ " nails, one clenched (2); 2" nails (3); 3 frags. fired white clay; roof slate + peg hole (7"x4"); limestone (?) frag.; 3 lt. coloured burnt frags. 1 h/m brick frag.; 6 burnt clay frags.;

Trench 5

LPM13 (500)

Type	Sherds	Details
Pipe stems	4,294	(4/64” – 6/64” + odd 7/64”)
Pipe bowls	1010	
Kiln material	814	293 frags sheet (some rolled edge, bowl impress, 4-12mm thickness); c. 49 frags muffle (some luted, stem impress); 459 frags (either muffle or sheet, undistinguished); 10 kiln brick frags (3 type 1, 2 type 2, 6 type 3); 3 fired white clay (2 unid. 1 poss socket stand)
Medieval	3	3 sherds NDMC
Post medieval	88	10 sherds Bristol/Staffs; 40 sherds NDGT (5 rims, 1 handle); 16 sherds NDGF; 16 sherds ND ware undistinguished; 5 sherds ND sgraffito (2 bases); 1 sherd grey/beige glaze (unid.)
C19/C20 pottery	68	23 sherds B & W (R); 32 sherds 'china'(R); 6 sherds ND ware (R); 1 sherd black glaze; 2 sherds yellow glaze earthenware; I rim sherd ext. green glaze; 2 fine earthenware sherds (unid.); 1 sherd stoneware.
Other	119	7 frags. of transp. glass (R); 5 frags dk.green bottle glass (C18?); 5 frags green glass (R); 7 pieces of coal (R); 1 frag quartz; 6 grey slate frags (R); 1 ferrous concretion (nail?) (R); 4 frags limestone; 4 frags lime mortar; 50 frags slag (14 @ 650g); 1 frag charcoal; 3 frags lime mortar; frag fired pipe clay; 16 frags brick (undistinguished); 4 frags hand made brick (unclassified); 1 poss gun flint; 2 flint flakes; poss whetstone.

LPM13 (501)

Type	Sherds	Details
Pipe stems	183	5/64” or 6/64”
Pipe bowls	2	
Kiln material	4	sheet
Post medieval	1	ND (internal glaze)

LPM13 (503)

Type	Sherds	Details
Pipe stems	4	6/64”

Trench 6

LPM14 (600)

Type	Sherds	Details
Pipe stems	75	5 beige; 4 grey. 9 @ 3”; 5 @ 4”. 2 @ 4/64”; 15 @ 5/64”; 6 @ 6/64”.
Pipe bowls	88	35 whole
Kiln material	33	13 frags sheet (175g); 14 frags muffle; 2 frags

		type 1 brick; 1 frag type 2 brick (?) + lump of white clay; 3 frags type 3.
Medieval	3	NDMC
Post medieval	19	C18 bottle frag.; 2 sherds Bristol/Staffs; 1 sherd ND sgraffito; 2 sherds Delft; 9 sherds NDGT (2 bowl frags, 1rim); 4 sherds NDGF.
C19/20 pottery	3	2 sherds white china; 1 sherd black glaze
Other	18	6 frags slag; 1 frag limestone; 2 frags lime mortar; 5 frags glass (2 clear, 1 green); 2 charred nut frags (walnut?); 2 ferrous concretions.

LPM14 (601)

Type	Sherds	Details
Pipe stems	522	11 beige; 8 grey. 16 @ 3” length; 4 @ 4”. 5 @ 4/64”; 35 @ 5/64”; 19 @ 6/64” (Sample of 223 frags = 835g).
Pipe bowls	108	11 complete from sample of 57
Kiln material	177	5 frags thin sheet (4-5mm), 16 frags thick sheet (8-12mm, bowl impress, thumb print), total wt. 160g; 113 sheet frags (650g); 11 frags muffle; 2 frags type 1 brick, 1 + ash spatter; 8 frags type 2 brick (1 + ash spatter); 18 frags type 3 brick; 1 lump of fired clay + pipe frags; 1 lump white clay + multiple inclusions, v. reduced one side; 2 frags fired white clay (1 stand?).
Medieval	14	14 sherds NDMC
Post medieval	29	10 sherds NDGT; 5 sherds NDGF; 3 sherds ND coarseware (1 cream slip); 3 sherds ND sgraffito (1 base, 1 handle); 3 sherds Bristol/Staffs; 4 sherds B&W (R); 1 sherd china.
C19/20 pottery	15	15 sherds ND glazed (R)
Other	13	3 lumps slag (2 @ 160g); 4 sherds unid. earthenware; 1 wavy edged shed + cream slip; 1 frag clear glass; 1 green bottle glass frag; 1 nail (5”); 2 lumps concretion (400g)

LPM14 (621)

Type	Sherds	Details
Pipe stems	43	3 @ 3” length. 6 @ 5/64” bore.
Pipe bowls	6	1 complete
Kiln material	10	8 frags sheet (25g); 2 frags muffle
C19/20 pottery	2	2 sherds ND earthenware
Other	2	1 frag lime mortar; 1 nail

LPM14 (631)

Type	Sherds	Details
Pipe stems	8	All 5/64” save 1 @ 4/64”.
Pipe bowls	1	
Kiln material	2	2 frags sheet;

Post medieval	3	2 sherd NDGF; 1 sherd NDGT
Other	4	3 frags coal; frag unid. fired clay

LPM14 (641)

Type	Sherds	Details
Pipe stems	1170	47 beige; 98 grey (many laminated, some + glaze). 20 @ 3”; 1 @ 4”. 8 @ 4/64”; 50 @ 5/64”; 14 @ 6/64”; 2 @ 7/64”
Pipe bowls	208	2 poss from muffle (1 heavily encrusted, 1 glaze). 5 small frags R.
Kiln material	324	224 frags sheet (1555g, 5 + rolled edges); 7 frags sheet unweighed); 6 frags muffle (4 luted, 2 stem impress); 81 muffle frags (1 + buttress; 1020g); piece of muffle wall, 30mm thick + stem reinforce + glaze spatter; 4 frags type 2 brick; 2 frags type 3 brick;
Post medieval	11	2 NDGF; 5 NDGT; 1 N.D. sgraffito; 2 Bristol/Staffs; 1 sherd yelleow glaze + dec. glaze external.
Other	2	1 frag slag (330g); 1 piece fired white clay;

LPM14 (651)

Type	Sherds	Details
Pipe stems	7,963	150 beige; 149 grey (several laminated; 1 untrimmed stem; 1 patch of green glaze). 263 @ 3”; 54 @ 4”; 10 @ 5”; 3 @ 6”. 26 @ 4/64”; 172 @ 5/64”; 48 @ 6/64”; 12 @ 7/64”.
Pipe bowls	1,467	98 complete; 2 rejects with smeared roundels.
Kiln material	1919	1811 sheet frags (2 + muffle impress); 59 frags muffle. 11 frags type 1 brick; 24 frags type 2 brick + 2 poss frags (4 + fired faces; 2 ash spatter); 12 frags type 3 brick (2 + sides reduced, 1 ash spatter); 1 poss. bun frag (or socket stand?); 1 fired white clay (poss applied strip or roll?)
Medieval	1	NDMC
Post medieval	23	6 Bristol/Staffs; 3 Delft ware; 6 NDGF; 4 NDGT; 2 ND sgraffito (1 rim); 1 reddish/brown stoneware; 1 (unid) orange/beige + chocolate ext. slip, int. green glaze
C19/20 pottery	1	mustard glaze
Other	19	3 frags slag; 1 frag coal; iron door bolt; 1 frag green bottle glass; 1 frag window glass; 1 unid frag dark grey fired material; 3 lumps fired pipe clay (75g); 1 lump concretion; 3 unid white clay frags (stilts?); 2 frags quartz.

LPM14 (661)

Type	Sherds	Details
Pipe stems	1516	26 beige; 58 grey (some laminated; 1 + glaze from muffle). 89 @ 3”; 28 @ 4”; 1 @ 5”. 4 @

		4/64”; 72 @ 5/64”; 12 @ 6/64”; 1 @ 7/64”.
Pipe bowls	198	37 complete
Kiln material	271	242 frags sheet (2140g); 12 frags muffle (8 @ 875g, 1 rim frag – saggar?); 6 frags muffle (2 bases, 1 curved edge). 1 frag type 1 brick; 8 frags type 2 brick + 3 poss frags; 1 frag type 3 brick. 1 poss. dish frag (irreg. circumference).
Post medieval	4	1 sherd ND sgraffito; 3 sherds NDGT (1 bowl rim)
Other	2	1 wig curler end; 1 frag clear glass;

LPM14 (662)

Type	Sherds	Details
Pipe stems	38	2 beige; 9 grey (several laminated). 1 @ 3”. 5 @ 5/64”
Pipe bowls	11	3 complete
Kiln material	30	13 frags sheet (130g); 15 frags muffle (1kg); 2 frags type 1 brick
Post medieval	4	1 sherd ND sgraffito; 3 ND earthenware.

LPM14 (663)

Type	Sherds	Details
Pipe stems	222	5 beige; 13 grey to blackened; (several laminated). 10 @ 3”2 @ 4”.
Pipe bowls	31	5 complete
Kiln material	101	39 frags sheet (255g; 1 rounded edge); 35 frags muffle (310g, 1 buttress) + 14 small frags (5 with luting); 4 frags type 1 brick; 4 frags type 2 brick (reduced faces); 5 pieces fired white clay (unid.).
Post medieval	4	1 sherd ND sgraffito; 3 sherds NDGT (1 rim)
Other	1	I lump slag (35g);

LPM14 (664)

Type	Sherds	Details
Pipe stems	120	8 beige; 17 grey (one bent, several laminated). 14 @ 3”; 3 @ 4”; 2 @ 5”. 2 @ 4/64”; 12 @ 5/64”; 1 @ 6/64”.
Pipe bowls	39	10 complete
Kiln material	234	130 frags sheet (1150g); 67 frags muffle (2.975 kg, 1 rim approx 42cm; 2 bases + parallel stem reinforcement 10-20mm thickness); 34 frags type 2 brick (some v. small frags poss lime mortar/bonding); 2 frags type 3 brick; 1 brick frag too blackened for i.d.
Medieval	1	NDMC
Post medieval	2	2 sherds ND sgraffito.
C19/20 pottery	1	1 ND earthenware.
Other	1	1 frag reddish sandstone (? fired end).

LPM14 (665)

Type	Sherds	Details
Pipe stems	21	2 beige; 2 grey. 2 @ 3”. 4 @ 5/64”; 1 @ 6/64”
Pipe bowls	3	1 complete
Kiln material	19	14 frags sheet (100g); 2 frags muffle (75g); 2 frags type 2 brick; 1 frag of v. burnt, encrusted brick (unid.).
Post medieval	1	1 ND sgraffito (rim)
C19/20 pottery	1	Caramel brown glaze (base)

LPM14 (666)

Type	Sherds	Details
Pipe stems	247	25 beige; 24 grey; (several laminated). 10 @ 3”; 9 @ 4”. 15 @ 5/64”; 10 @ 6/64”.
Pipe bowls	34	7 complete
Kiln material	352	205 frags sheet; 138 frags muffle (wall, buttress, 2 rims, luting); 3 frags type 1 brick; 4 frags type 2 brick; 2 frags type 3 brick.
Post medieval	8	2 sherds NDGF (1 jug rim?); 3 sherds NDGT (1 bowl?); 1 sherd ND sgraffito; 1 sherd Bristol/Staffs (base); 1 sherd poss Somerset ware + internal green trailed glaze (J. Allan i.d.).
Other	7	1 frag fired white clay; 2 frags grey slate; 4 lumps slag (3 @ 25g);

LPM14 (681)

Type	Sherds	Details
Pipe stems	45	2 beige; 1 grey. 3 @ 3”; 1 @ 4”. 2 @ 4/64”; 9 @ 5/64”
Pipe bowls	21	3 complete
Kiln material	94	18 sheet frags (1 rolled edge; sample 12 = 65g); 30 muffle frags (sample: 12 @ 300g; 5 heavily fired; 2 conjoining bases – saggar?). 17 frags type 1 brick (3 ash encrusted); 8 frags type 2 brick (3 + ash); 18 frags type 3 brick (5 + ash); 3 frags heavily fired (firebars?).
Post medieval	3	1 sherd NDGT(ext burnt); 1 sherd grey fabric + traces internal glaze;1 sherd porcelain(?)
Other	1	1 lump slag

Trench 7

LPM14 (721)

Type	Sherds	Details
Pipe stems	7,499	1 dec. 145 grey, 151 beige. 471 @ 3” length; 195 @ 4”; 43 @ 5”; 5 @ 6”. Sample: 23 @ 4/64”; 176 @ 5/64”; 125 @ 6/64”; 25 @ 7/64”
Pipe bowls	1,570	279 complete. Sample of 337 (45 complete; weight 1,720g)
Kiln material	2399	2133 frags sheet; 123 frags muffle (7 @ 375g; 1

		large frag, 42mm thick, base + stem reinforce; 1 frag of round base); 37 type 1 brick; 63 type 2 brick; 36 type 3 brick; 3 frags white clay (1 rectang section) kiln furniture? 4 frags possible firebar.
Medieval	2	NDMC
Post medieval	41	25 NDGT (2 rims,1 bowl base, 1 jug neck); 2 NDGF; 1 ND sgraffito; 9 Bristol/Staffs;1 frag orange earthenware + int glaze + incised dec.; 1 orange earthenware + beige slip; 2 handles + pt body grey fineware, bifid handle, int glaze.
C19/20 pottery	1	1 B&W
Other	11	5 lumps slag (770g); unid. frag fired white clay; 1 lump ferrous concretion + stem/bowl frags; 3 sheep teeth; 2 frags grey slate.

LPM14 (723)

Type	Sherds	Details
Pipe stems	2709	30 beige; 35 greyish. 48 @ 3" length; 13 @ 4"; 2 @ 5". Sample: 1 @ 4/64"; 43 @ 5/64"; 13 @ 6/64"; 2 @7/64".
Pipe bowls	663	
Kiln material	829	809 frags sheet (3840g), 6 + bowl impress, 7 edges 2 rolled; 1 large frag muffle wall (approx diam 40cm, with stem reinforce), 10 frags muffle (2 luted); 1 frag type 1 brick; 1 frag type 2 brick; 1 frag type 3 brick (all with spatter of cream glazing + ash); 6 pieces kiln lining (?).
Medieval	1	NDMC
Post medieval	3	3 NDGT (part of handle)
Other	1	Lump of slag (280g)

LPM14 (724)

Type	Sherds	Details
Pipe stems	2	
Pipe bowls	1	complete
Kiln material	9	1 frag sheet; 2 frags type 1 brick (hard fired); 6 frags type 2 brick (hard fired, glazed, ash spatter)
Other	1	Lump of slag (275g)

Trench 8

LPM15 (850)

Type	Sherds	Details
Pipe stems	10,484	(sample of 628 (R) = 2kg); 446 honeyed; 149 grey/burnt; 22 @ 4/64"; 127 @ 5/64"; 42 @ 6/64"; 8 @ 7/64"; 126 @ 3"; 33 @ 4"; 1 @ 5".
Pipe bowls	1749	75 near complete; sample of 1104 frags = 2.75kg; mainly types 27, 39, 47 and 48.
Kiln material	1275	912 frags sheet (7.1kg); 280 muffle frags (6.03kg); 2 frags muffle rim; 2 frags 'bars (?); 2 prop

		buttresses; 11 frags type 1 brick; 35 frags type 2 brick; 16 frags type 3 brick; 13 frags type 4 brick; 2 frags fired white clay, one curved, both smooth.
Medieval	29	NDMC
Post medieval	95	1 base sherd ND sgraffito + 4 prob sgraffito (traces white slip or yellow glaze); 4 sherds stoneware (2 Bellarmine?); 6 sherds NDGF; 8 sherds NDGT; 14 sherds Bristol/Staffs; 29 sherds ND glazed earthenware (C18-20); 2 sherds yellow int glaze; 2 sherds Basaltes (C18); 2 dk green glass kick up bases (C18), neck rim and 23 other bottle frags (prob C18)
C19/20 pottery	284	171 sherds ND ware (most glazed); 8 sherds white/B&W; 78 sherds china; 13 sherds mustard glaze; 4 sherds stoneware; 1 white lid; 9 sherds unid earthenware (prob ND).
Other	87	36 frags slag (2.280kg); 3 frags coke/cinder(?); 2 frags coal; 7 frags lime mortar; manufactured tile frag and 2 brick frags (prob. Marland); 3 ferrous concretions; gas lamp primer (R); Vict/Georgian copper alloy teaspoon (R); 1 frag bottle glass; 9 frags other glass; 1 rim earthenware (unid); 1 brick frag; 4 Vict bottle frags; 10 bowl frags (unclass); stone frag + ash spatter; 2 frags grey slate;1 tile frag with orange glaze; 2 lumps fired white clay.

LPM15 (853)

Type	Sherds	Details
Pipe stems	530	14 grey/burnt; 8 plain but laminated; 10 honeyed; 6 @ 4/64”; 23 @ 5/64”; 2 @6/64”; 3 @ 3”; 4 @ 4”; 1 @ 5”; 1 @ 7” (part bowl but no tip of stem),
Pipe bowls	2	
Kiln material	387	70 frags sheet; 93 frags muffle (1 base?, 2 rims, 8 heavily burnt); 1 frag prop buttress; 1 type 1 brick + scratch dial; 27 frags type 1 brick (3 mortared); 93 frags type 2 brick (3 heavily burnt); 52 frags type 3 brick (3 mortared; 1 reused); 26 frags type 4 brick (4 mortared); 1 type 5 brick; 1 frag grey brick (fired in kiln? D. Dawson); 1 frag stone + ash spatter; 10 frags of patching/kiln lining (1.8kg); 8 frags fired white clay (stands?); 3 frags fired clay + inclusions.
Medieval	2	NDMC
Post medieval	2	1 sherd NDGT; 1 sherd NDGF.
C19/20 pottery	24	12 sherds ND ware; 1 sherd china; 11 sherd B&W.
Other	159	1 nail; 7 lumps slag (1 = 530g); 137 lumps of lime mortar (some + joint imprints, smooth faces or brick impressions; 97 = 1.45kg); 3 frags grey mortar; 1 frag burnt mortar + brick impression; 1

		frag limestone (R); 1 frag poss floor tile (heavily burnt); 1 bone frag; 1 sherd beige earthenware (unid); 2 frags bottle glass (R); 1 sherd + ribbing (unid); 1 sherd lt orange (unid); 1 frag coal; 1 canine (pig?);

LPM15 (855)

Type	Sherds	Details
Pipe stems	85	4 grey; 2 beige; 2 @ 4/64”; 2 @ 5/64”; 1 @ 6/64”; 1 @ 3”
Kiln material	14	6 frags sheet; I rim frag (poss muffle); 5 muffle frags; 2 frags type 2 brick
Post medieval	1	1 sherd Delft?
Other	30	29 frags lime plaster? (one side smooth); 1 frag green glass.

LPM15 (856)

Type	Sherds	Details
Pipe stems	176	3 grey; 13 honeyed (some laminated); 2 @ 4/64”; 8 @ 5/64”; 2 @ 3”.
Pipe bowls	1	
Kiln material	15	12 frags sheet; 2 frags type 1 brick; 1 frag type 2 brick;
Medieval	1	1 sherd prob ND sgraffito (trace of white slip)
Post medieval	1	1 sherd china;
Other	3	2 lumps slag (750g); 1 sherd unid. earthenware;

LPM15 (857)

Type	Sherds	Details
Pipe stems	2	Both 4/64”
Other	1	1 frag lt green window glass (1.5mm thick).

LPM15 (859)

Type	Sherds	Details
Pipe stems	20	1 @ 4/64”; 2 @ 5/64”.
Pipe bowls	4	
Kiln material	5	4 frags sheet; 1 frag type 1 brick

LPM15 (861)

Type	Sherds	Details
Pipe stems	10	1 honeyed + laminate; 3 @ 5/64”
Kiln material	7	1 frag sheet; 4 frags muffle; 1 frag poss type 3 brick; I frag type 4 brick.
Other	4	4 frags whitish clay (poss mortar)

LPM15 (865)

Type	Sherds	Details
Pipe stems	32	2 grey; 2 @ 4/64”; 1 @ 5/64”; 1 @ 3”
Kiln material	7	7 frags sheet (80g)

C19/20 pottery	1	ND ware
Other	1	1 frag slag.

LPM15 (866)

Type	Sherds	Details
Pipe stems	397	14 grey; 4 beige (+ laminate); 12 @4/64”; 10 @ 5/64”; 51 @ 3”; 10 @ 4”; 1 @ 5”; 1 @ 6”; 1 @ 7” (higher proportion of longer stems from this context).
Kiln material	122	42 frags sheet (400g); 41 frags muffle (2 rims; 1 prop buttress, 1 box shaped base); 16 frags type 1 brick (most ash spattered); 7 frags type 2 brick; 6 frags type 3 brick; 7 frags type 4 brick (most + ash); 2 frags internal kiln lining (encrusted); 1 frag fired white clay + flat base (support?)
Post medieval	9	1 frag ND ware (unclass); 1 Sherd NDGF (base); 3 sherds NDGT (2 bases); 4 sherds ND sgraffito.
C19/20 pottery	10	10 frags ND glazed earthenware (R)
Other	19	1 frag kick up bottle base (C18?); 1 sherd beige ware (unid.); 4 sherds yellow glaze (unid, 1 handle); 2 sherds ridged (int) + ext trailed slip; 1 frag modern cement + aggregate (unid); 6 frags lime mortar (some + faced sides – plaster?); 2 frags slag (105g); 2 frags coal

LPM15 (867)

Type	Sherds	Details
Pipe stems	323	4 grey; 28 beige/brown; 1 @ 4/64”; 9 @ 5/64”; 2 @ 3”; 2 @ 4”.
Pipe bowls	1	
Kiln material	39	38 frags sheet (175g); 1 muffle frag.
Medieval	1	NDMC
Other	3	2 frags lime mortar (1 plaster?); 1 sherd (unid) lt. orange ext. beige glaze int. + ribbing.

LPM15 (876)

Type	Sherds	Details
Pipe stems	158	9 grey (2 + laminate); 2 @ 4/64”; 8 @ 5/64”.
Kiln material	84	11 frags sheet (135g); 17 frags muffle (280g); 2 frags type 1 brick (encrusted); 31 frags type 2 brick (many encrusted); 4 frags type 3 brick; 18 frags type 4 brick; 1 frag type 5 brick + ash encrust;
Post medieval	4	1 sherd Bristol/Staffs; 3 sherds NDGT;
C19/20 pottery	6	1 sherd B&W; 5 sherds ND ware.
Other	3	1 poss brick frag + white glaze on 2 faces; 1 lump lime mortar; 1 frag slag + stem impress (75g).

LPM15 (878)

Type	Sherds	Details
Pipe stems	143	8 grey (some + laminate); 4 @ 4/64”; 7 @ 5/64”; 1 @ 6/64”; 15 @ 3”; 5 @ 4”; 1 @ 5”
Pipe bowls	4	

LPM15 (879)

Type	Sherds	Details
Pipe stems	31	2 grey/burnt; 3 @ 4/64”; 1 @ 5/64”.
Post medieval	1	1 sherd Bristol/Staffs
Other	3	1 frag kick up bottle base (C18?); 2 frags slag (300g)

LPM15 (881)

Type	Sherds	Details
Pipe stems	8	1 @ 4/64”; 1 @ 5/64”.
Pipe bowls	3	All complete
Kiln material	3	1 frag sheet (+ rim impress); 1 frag muffle; 1 frag type 1 brick;
Other	7	1 poss whetstone; 4 frags slag (1 kg); 1 frag slate; 1 frag lt green window glass;

LPM15 (Sample taken from spread by side of road (south of L.P. farm)

Type	Sherds	Details
Pipe stems	1	5”
Pipe bowls	4	2 type 27; 2 type 39.
Kiln material	6	frag of sheet + bowl impress; 4 frags of sheet; frag muffle base.