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Archaeological Services

An Archaeological Excavation at Coleorton Pottery, Nottingham Road, Lount,
Leicestershire

NGR: SK 3860 1920

Tim Higgins



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**An Archaeological Excavation at the
Former Lisk Controls site Nottingham Road, Lount Leicestershire**

NGR: SP 3860 1920

Tim Higgins

For: Bellway Homes (East Midlands) Limited

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Pottery David Barker

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An Archaeological Evaluation and Excavation at the Former Lisk Controls site Nottingham Road, Lount, Leicestershire NGR SK 3860 1920

Tim Higgins

Summary

An archaeological field evaluation by trial trenching and subsequent excavation was undertaken on land at the former Lisk Controls site, Nottingham Road, Leicestershire by the University Of Leicester Archaeological Services (ULAS) between 28th February–4th April 2012. The potential of the site was highlighted from an archaeological desk-based and historic building assessment which indicated that the site was located close to known medieval remains and was on the site of a former pottery factory. A limited trial trenching evaluation undertaken prior to the demolition of the factory had identified the base of a pottery kiln and associated structures.

A second evaluation was carried out once the demolition of the factory buildings was complete. This indicated that further kiln features were present within the proposed area for a new residential development. Two excavation areas were examined and five kiln bases and associated structures were revealed. Two of the kilns were mid to late 19th century up-draft kilns and the remaining three were down-draft kilns dated to the early 20th century.

The site archive will be held by Leicestershire County Council under accession number X.A90.2011.

1. Introduction

Planning permission has been granted to Bellway Homes (East Midlands) Ltd. for the demolition of the factory building and development of the site for 30 houses with access and landscaping on land at the Former Lisk Controls site, Nottingham Road, Lount, Leicestershire (Planning application No. 11/00415/FULM; NGR SK 3860 1920, Figure 1).

This report presents the results of the archaeological trial trenching and subsequent excavation undertaken between 28th February and the 4th of April 2011. It addresses the requirements of the Leicestershire County Council, Historic and Natural Environment Team (LCCHNET) as archaeological advisors to the planning authority for a programme of archaeological work. Further evaluation by trial trenching and appropriate archaeological recording was undertaken. The fieldwork was carried out in accordance with the then current Planning Policy Statement 5 (PPS5) Policy HE6.

The development area lies within the parish of Coleorton, on the south side of the Nottingham Road, and opposite the village of Lount, c.2.5miles north-east of Ashby-de-la-Zouch in the district of northwest Leicestershire (Figure 1). The site is centred on SK 3860 1920 and covers an area of approximately two hectares, which formerly had centrally placed factory buildings.

The former factory comprised of a north-south aligned nine bay brick-built structure, with a north-light roof with corrugated panel roof, to the south. The north-western extent of the factory comprised a five-bay brick-built structure with a north-light roof. Further office style buildings were present to the north and west, which had been added between 1960 and 1984. A concrete prefabricated warehouse type structure was located to the south-west which was identifiable on the 1984 OS map, and probably dated from the early 1980s.

Following Planning policy Statement 5 (PPS5) Policy HE6, the Leicestershire County Council, Historic and Natural Environment Team (LCCHNET), as archaeological advisors to the planning authority, required that a historic building recording, evaluation by trial trenching and appropriate archaeological recording was to be undertaken (Appendix 3). The University of Leicester Archaeological Services were commissioned by Bellway Homes (East Midlands) Ltd. to undertake an archaeological desk-based assessment and an archaeological standing building survey (to English Heritage Level 2) of the application area (Hunt 2011; Richards and Hyam 2012).

The proposed redevelopment required the demolition of the existing buildings of the former Coleorton Pottery. The building survey indicated that only limited structural remains of the earliest Pottery building survived within the proposed development area and these were used as offices (Figures 3 and 4). The survey recorded elements of this building, most notably the re-used oak king post trusses. The remainder of the buildings, which dated mainly from the early years of the 20th century, contained a number of interesting features. These include iron columns and raised marks on the timber trusses. Evidence of the later use of the buildings was also recorded.

Prior to the demolition of the factory an archaeological field evaluation by trial trenching was undertaken in 2011 (Higgins 2011). A total of seven trenches was excavated, one of which contained archaeological remains that comprised a 19th century brick foundations for circular kiln base and another possible rectangular kiln structure. The kiln base contained pottery industry waste including biscuit fired pottery and kiln furniture, all associated with pottery manufacture. Further trenching to the south was negative.

Following demolition, a second evaluation was undertaken which located more kiln bases (Appendix 3). The planning authority required a scheme of targeted archaeological investigation and recording, including provision for appropriate scientific and environmental sampling to be undertaken in view of the potential impact of the development upon archaeological remains.

2. Geology and Topography

The site lies within the parish of Coleorton on the south-eastern side of Nottingham Road, opposite the village of Lount, approximately 2.5 miles north-east of Ashby-de-la-Zouch in the district of North West Leicestershire (Figure 1).

The Ordnance Survey Geological Survey of England and Wales (Solid and Drift), Sheet 141 (Loughborough), shows that the underlying geology is likely to be Pennine Lower Coal Measures Formation, containing mudstone, sandstone and siltstones.

The site covers approximately 2 hectares and lies at a height of around 108m aOD. The factory is situated on land that is largely flat, with a slight fall to the south. Part of the western side of the site inclines to a height of around 111m aOD (Figure 2). The site consists of a brown field site with a centrally placed factory building.

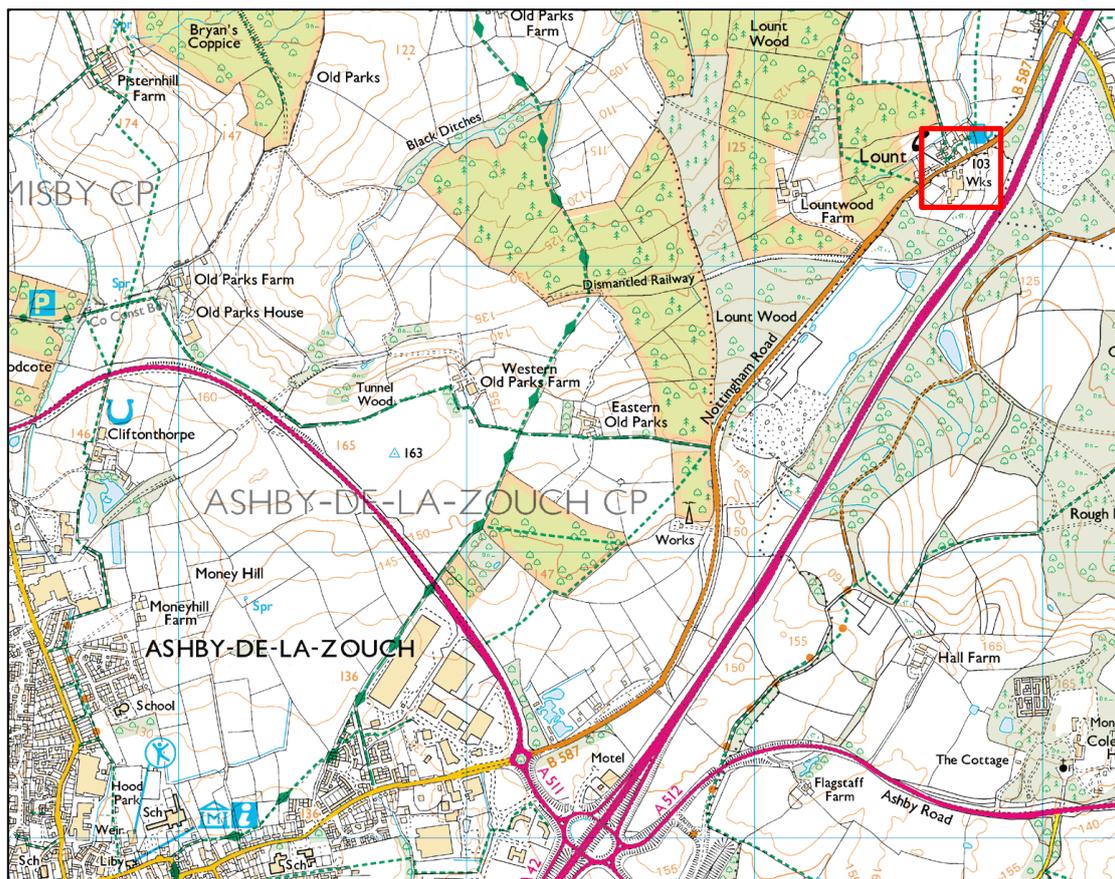


Figure 1. Location of site at Lount (outlined). Scale 1:50,000.

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3. Historical and Archaeological Background (from Hunt 2011)

The site was part of the Beaumont Estate and was first leased for coalmine works prior to the change to the manufacture of pottery in 1835 (Stewart 2013). The Pottery itself was located in this particular area because of the local availability of raw materials, including clay, used in the manufacture of the pottery wares, plus a supply of coal to fire the ovens. The Coleorton Pottery had access to its own clay and coal pit or quarry which was situated approximately half a mile south, on the east side of the main Nottingham to Ashby Road.

The Coleorton Pottery was operated by a company called Wilson and Proudman, who manufactured yellow ware and other domestic wares. The census from 1841 lists Thomas Wilson, John Wilson and George Proudman as pot makers at Lount. During that same year the company changed ownership, with George Proudman no longer a partner, following a dispute with George Beaumont, but he continued to be employed at the Pottery. In the same year, Elizabeth Wilson took ownership of the company following the death of her husband who was either Thomas or John Wilson. The company is now known as Wilson and Co. In 1843 George Proudman left the company. By 1851 the ownership of the company had passed on to a Thomas Wilson, following the death of his mother, Elizabeth Wilson and continues under the same title.

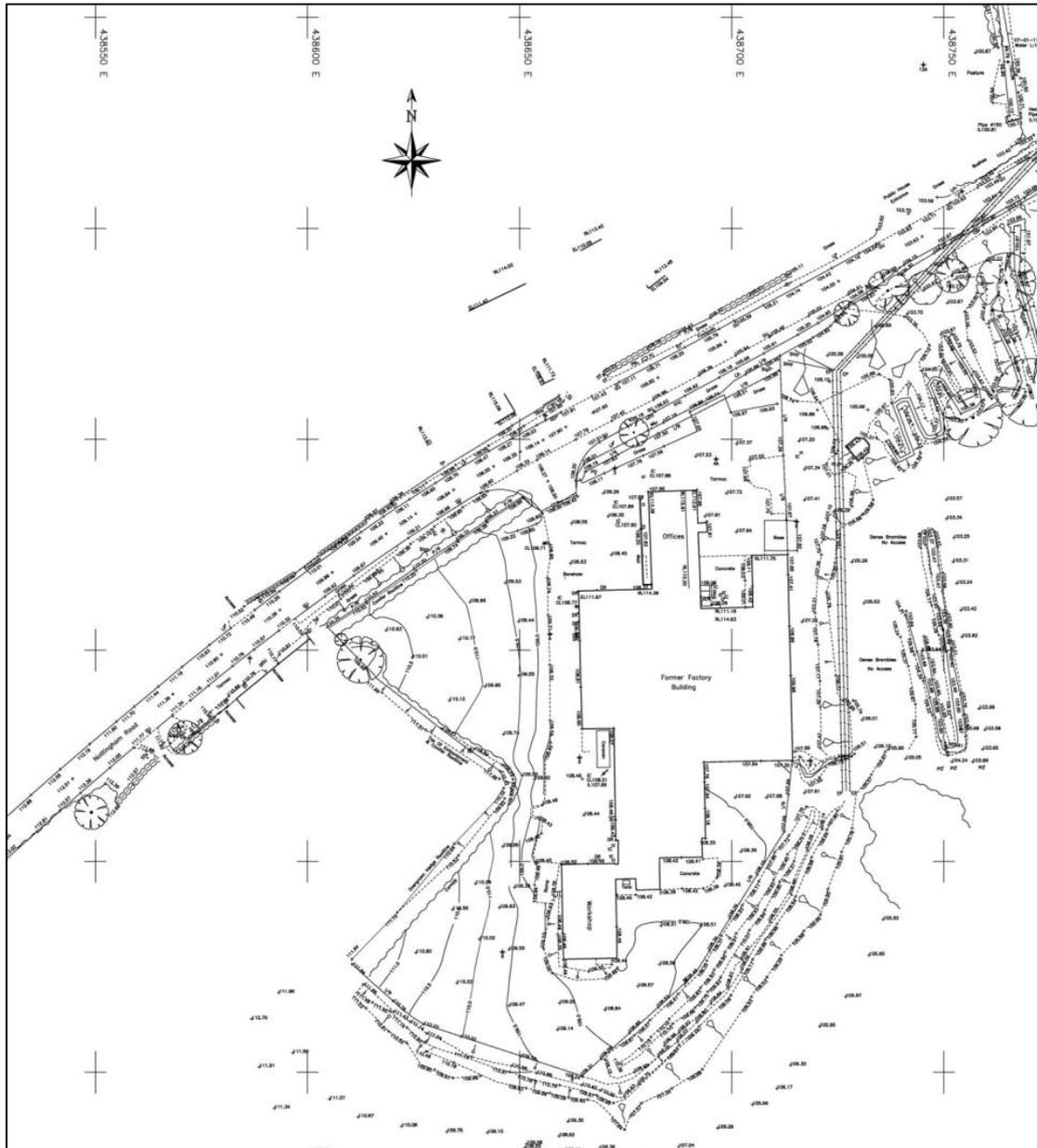


Figure 2. Topographic Survey of assessment area and factory prior to demolition, provided by developer. 50m grid.

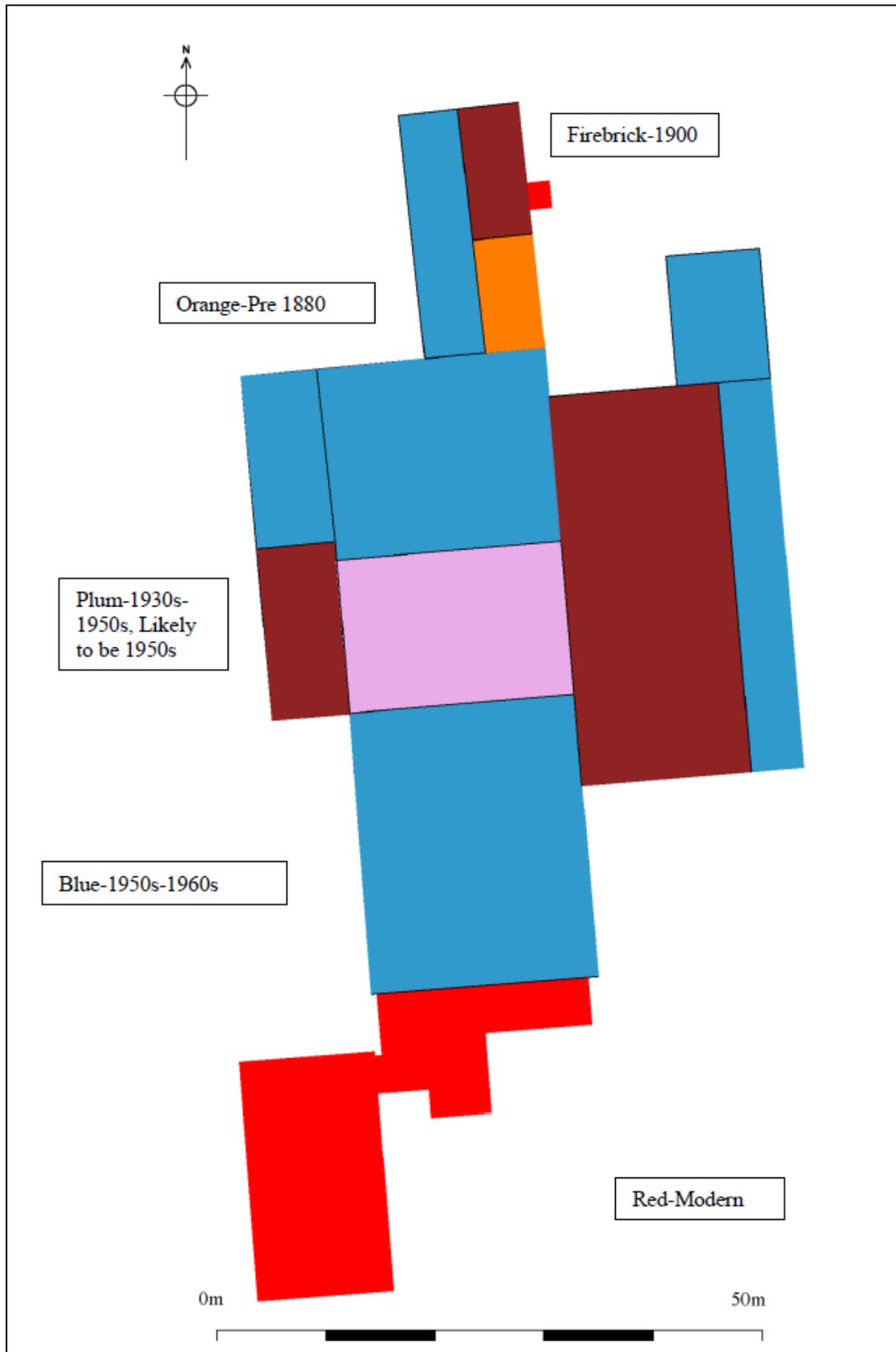


Figure 3. Elements of the Pottery buildings that were still standing identified during a building survey (Richards and Hyam 2012).

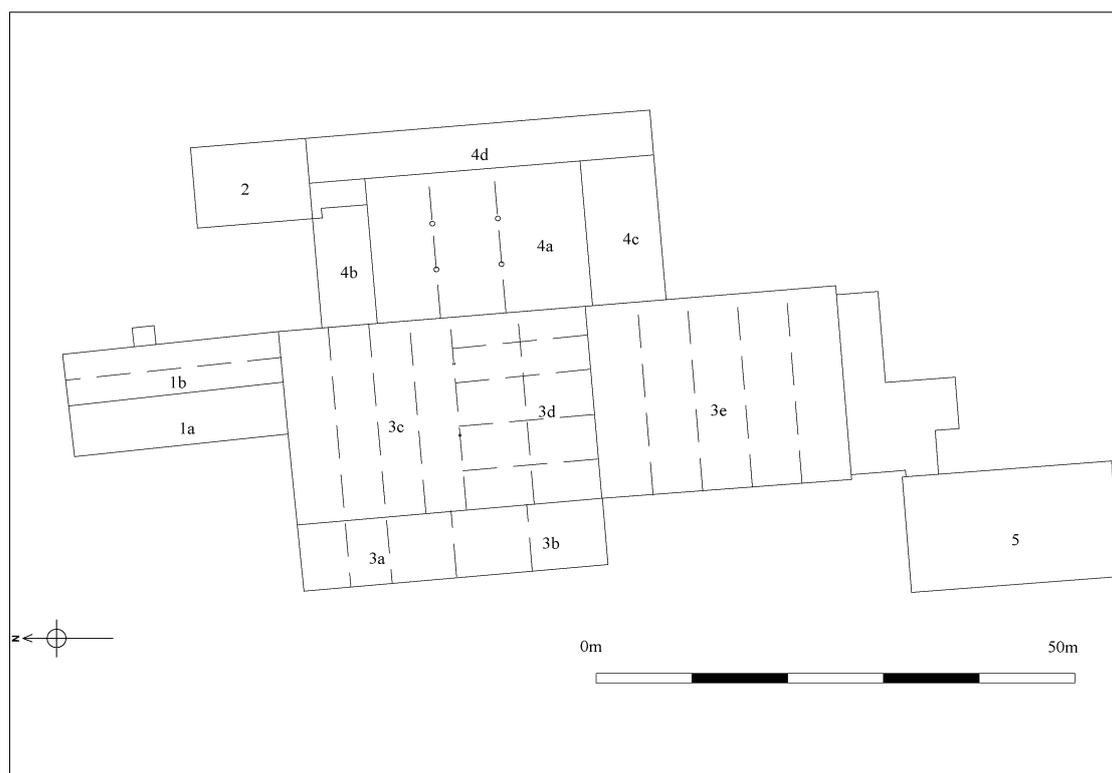


Figure 4. Block plan of recorded buildings, showing principle divisions (Richards and Hyam 2012).

The earliest available map of the area is the 1841 tithe map of Coleorton and tithe award, which records that the land belongs to Sir Henry Beaumont (Figure 6). The map indicates that the area of the Pottery had two enclosures with a number of small rectangular buildings located towards the northern end of the site, close to the road. These are assumed to be the Pottery works.

The census returns suggest that the Pottery was at its peak, with the largest workforce, between 1851 and 1881. The census also lists brick makers and pipe makers, as well as pot makers, indicating perhaps diversity and overlapping trades and products within the pottery.

After the death of Thomas in 1877, his brothers William and John Wilson carried on as 'Wilson Brothers'. In the 1881 census a William Wilson is listed as an earthenware master who employed 17 men, 11 young women and three boys at the Potworks, Coleorton. The size of the workforce suggests a large scale production, which is possibly reflected in the 1st edition Ordnance Survey (OS) map of 1882 (Figure 6). While the boundaries remained the same as those seen in the 1841 tithe map, what has changed is the appearance of the series of buildings occupying the front of the site, with a further L-shaped building close to the centre. There were also now three circular structures on the map, which were believed to be pottery kilns with associated buildings attached.

There is a major change in 1885 when the Pottery works are leased to a company known as Stewart Brothers, who produced yellow ware and Rockingham ware on the site until 1898. The lease of the Pottery works is then taken on by a company known as Grinhaff Brent & Co. until 1904. The products made during this period were Leicestershire Fireproof red ware, buff lustre and mottled ware, plus an 'Ashby Grained ware'. For a short time, following a fire at Granville Pottery in Hanley, it was thought that Minerva Art ware by Carlo Manzoni had also been produced on the site by this company.

The 1903 2nd edition OS map is very similar to the 1882 edition but the site has expanded and now has two additional kilns and a larger rectangular building to the south of the original group (Figure 11). A company called Mason Cash & Co. from Church Gresley leased the Pottery site in 1904, but

this was only to obtain the clay. The manufacture of pottery on the ceased during this period and hence the pottery buildings fell into disuse and disrepair.

A William Oram Trivett took over the lease in 1911 and was the first to call the site the Lount Pottery. Following making necessary repairs to the buildings, Trivett manufactured yellow ware, fire proof ware, general domestic ware and art pottery, and he called his firm The Trivett Pottery Co. Ltd.

Trivett surrendered the lease in 1919 and it is then taken over by The Clay Ring Co., a firm who were based in Ravensbury, Earlsfield, London. This company introduced the manufacture of earthenware components for gas mantles and other lighting equipment. The 1923 edition of the OS map shows that further development had taken place on the site including the addition of a third kiln to the south and a building aligned east-west immediately to the south of the original group.

The Clay Ring Co. Ltd surrendered the lease in 1928, which was taken up by a new company, Coleorton Pottery Co. Ltd. The company produced the usual class of goods but the managing director a Mr. J. R. Kemp was an electrical engineer and the firm branched out into electrical lighting equipment including, for example, the manufacture of table lamps. William Oram Trivett returned as art director in an attempt by the firm to spread its manufacture base as wide as possible but in 1935 the firm went into liquidation and surrendered the lease. In 1936 a new company, Coleorton Pottery Ltd., took over the site to manufacture garden pottery and ornamental ware for sale by the Beaumont Estate. This was the last time that any type of ceramic goods was made on the site and the production ceased in 1938.

The Pottery buildings became a food store for the firm Bakker Brits Ltd., who held it until 1948. Lisk Industrial Controls occupied the site until 2007 producing engineering and electrical components. By 1960 the OS map shows that the central building has expanded but the older buildings on the northern part of the site have started to disappear. The 1984 edition of the OS map shows the site with the older buildings having been demolished and a single large factory building covering most of the site.

4. Archaeological Objectives

The main objectives of the excavation were:

- To identify the presence/absence of any archaeological deposits.
- To establish the character, extent and date range for any archaeological deposits to be affected by the proposed ground works through sample excavation.
- To record any archaeological deposits to be affected by the ground works.
- To produce an archive and report of any results.

Within the stated project objectives, the principal aim of the excavation was to establish the nature, extent, date, depth, significance and state of preservation of archaeological deposits on the site in order to determine the potential impact upon them from the proposed development.

5. Methodology

Following the demolition of the factory, approximately 248m² of additional trenching was excavated, comprising seven excavated trenches varying between 12m to 30m in length (see Appendix 3). All trenches were 1.6m wide and the length and orientation of the trenches are outlined in the Trench Summaries (Table 1 Appendix 3). The trenches were positioned to provide a targeted sample in order

to examine the potential for further kilns bases, or associated structures, within the proposed development area.

The demolition rubble and overlying layers were removed under full archaeological supervision by a JCB excavator until either the top of archaeological deposits or natural undisturbed substratum was reached, or to a maximum safe depth given the specific site conditions.

The bases and sections of the trenches were cleaned in areas where potential archaeology was observed. Archaeological remains were recorded and sample excavation was undertaken in order to determine the character and date of any remains. These trenches revealed another four circular kiln bases and the remains of a workshop floor.

Following the evaluation, discussions were held with the Principal Planning Archaeologist at Leicester County Council as advisor to the planning authority on site with both the client and ULAS. It was decided that, in view of the potential impact of the development upon archaeological remains, the planning authority required that a scheme of targeted archaeological investigation and recording, including provision for appropriate scientific and environmental sampling should be undertaken.

Open area machine stripping was undertaken targeting the five known kiln bases and workshop structures identified during both evaluations (Figure 5). Demolition and overburden layers were removed in level spits by mechanical excavator, equipped with a flat-bladed ditching bucket, under constant archaeological supervision until archaeological levels or undisturbed natural substratum was reached. The minimum depths to the archaeological deposits were expected to be approximately 0.10m to 0.50m (Higgins 2011).

During general stripping of untargeted areas, the exposed surfaces were observed for two further floors associated with workshop structures, a chimney base and another potential kiln. Once the extent of significant archaeological remains had been identified there followed a programme of excavation and recording, using additional personnel. All archaeological deposits revealed were hand cleaned and planned in full extent, using an appropriate method (e.g. DGPS or total station EDM).

Archaeological remains were recorded and sample excavation was undertaken in order to determine the character and date of any remains. Bulk soil samples were taken as appropriate in order to evaluate the environmental potential of the site. Archaeological deposit cuts are indicated by square brackets e.g. [09], while those that are fills are indicated by round brackets e.g. (07).

All the work followed the Institute for Archaeologists (IfA) *Code of Conduct (2010)* and *Standard and Guidance for Archaeological Field Evaluations and excavations (2008)*.

6. The Site Sequence

The development of the Pottery works is described by phase, based on the excavated and documentary information, with detailed descriptions of the archaeological deposits provided in Appendix 1.

The following is a summary of the main findings of the excavations and building survey.

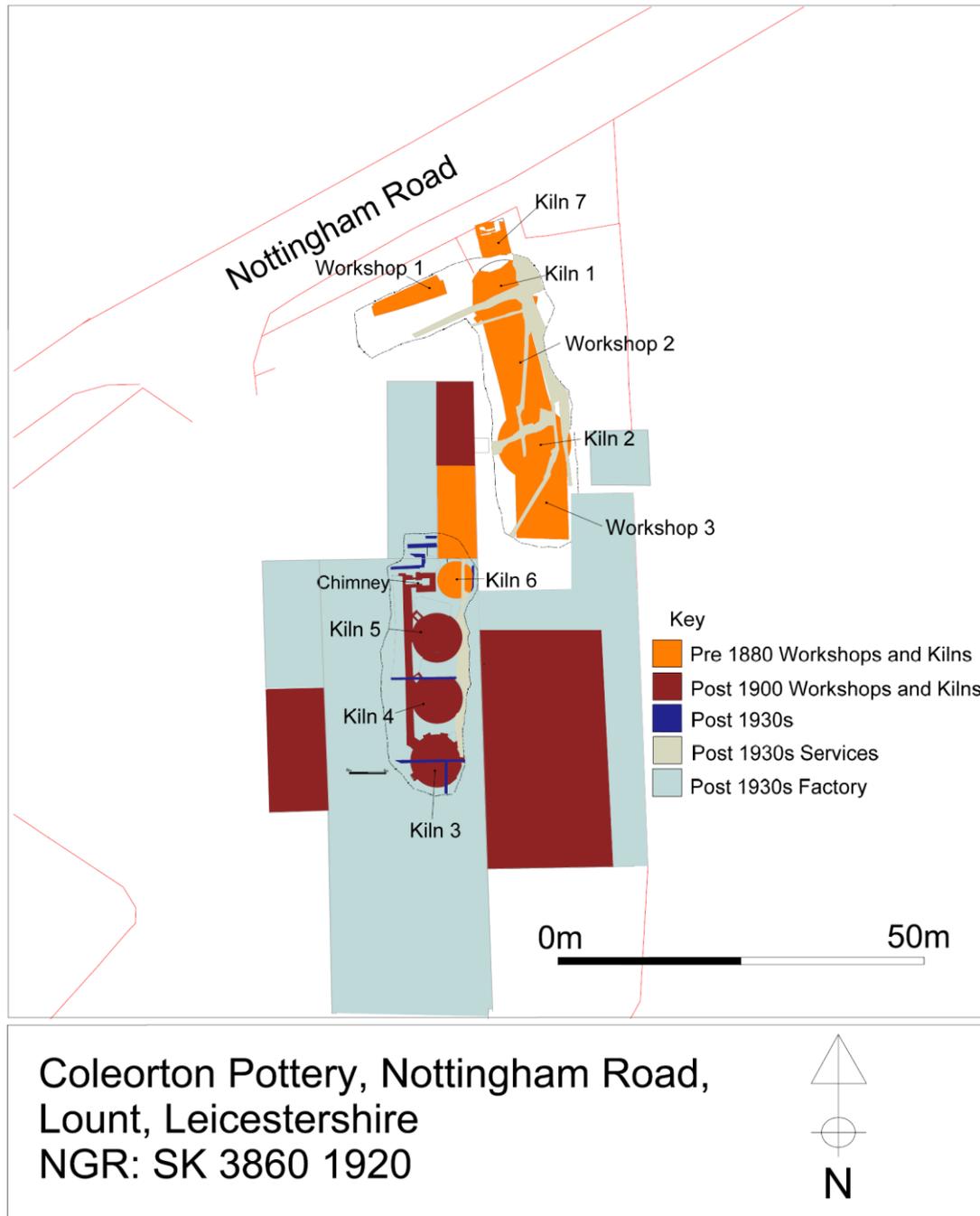


Figure 5. Location plan of the Pottery kilns found during the excavations combined with elements of Pottery buildings identified during the building survey.

Period 1: Coleorton Pottery, 19th century

Phase 1 Early to Mid-19th Century Pottery Manufacture

The two evaluations and subsequent excavation undertaken by ULAS have revealed evidence of seven kiln structures and floors of three workshops, dating to the late 19th to early 20th century. In addition to these, evidence for the early to mid-19th century pottery manufacture period was located beneath two of the kilns. Coleorton Pottery was part of an extensive group of pottery industries that grew to prominence during the 19th century within the Ashby Woulds area, straddling the Derbyshire–Leicestershire border (Smith 1965, 142). The large expansion of the coal industry stimulated the growth of brick and earthenware manufacture in two ways. Firstly, coal mining unearthed quantities of clays of varying properties and, secondly, there was much unsaleable coal which could be used in the kilns (Nixon 1969, 88). By the turn of the 18th century, brick and earthenware manufacture at Church Gresley and Swadlincote was becoming established. The Swadlincote area had three large firms, including John Knowles and Co. (Wooden Box), that were producing refractory and stoneware products (Nixon 1969, 88)

Phase 1.1: Pre-1830s Occupation

Two pottery sherds of uncertain medieval date were found as unstratified material in context (101) suggesting medieval activity on or near the site. The unstratified material also contained a sherd of white salt glazed stoneware which dates to the mid-18th century. A cream ware plate edge from a layer located below kiln 1, [132], (Figure 5) was dated to between *c.*1790 and, at the latest, the 1820s (Barker Appendix 2). Both salt glazed stone ware and cream ware sherds are thought to have been brought in, rather than manufactured at the Pottery. No evidence of the previous coalmine works that was believed to have been present on the site prior to the Pottery were found during the archaeological excavations.

The Coleorton Pottery was established in 1836 by Sir George Howland Willoughby Beaumont 8th Baronet whose seat was Coleorton Hall. The lease for Coleorton Pottery was assigned in 1838 by Sir George Beaumont and Mr. Benjamin Walker to Messrs. T. Wilson Senior and George Proudman (Stewart 2013, 26). This development included its own clay and coal quarry located approximately half mile south from the Pottery on the east side of the main Nottingham to Ashby Road.

The earliest available map of the area is the 1841 tithe map of Coleorton. This shows the development area covering parts of two enclosures with a number of small buildings which the tithe award records as belonging to Sir Henry Beaumont (Figure 6; Hunt 2011, Figure 3).

Phase 1.2 Earlier Kiln Structures 1830s to 1880s. Kilns 1 and 2

An east-west section was excavated across Kiln 1 (Figures 5 and 7) which revealed two layers of clay made ground, (162) and (182), at the base of the section overlying the natural substratum. Sealing the clay was a probable foundation or bedding layer (132) which was cut by a pit [134]. Finds associated with this pit suggest a date from the second quarter of 19th century (Barker Appendix 2). Both the pit feature and the foundation layers were cut by two brick foundations (160) and (161) which were thought to be an earlier phase of kiln. The ceramics found under Kiln 1 dated to the second quarter of the 19th century and comprised refined yellow wares. These vessel forms consisted of baking dishes, pans, jugs, basins and chamber pots and a high proportion were decorated. Yellow ware manufacture started in the 1820s-1830s and 57% of all the sherds recovered during these excavations were of this vessel type (Barker Appendix 2). Kiln furniture found within this phase included hand-formed stilts with brown glazed contact scars suggesting they supported Rockingham ware vessels.

Another section excavated across Kiln 2 revealed a convex layer of made ground (149) overlying the natural substratum (Figures 5 and 8). This layer appeared to be cut by the remnants of brick

foundations (151), and can be interpreted as an earlier kiln foundation. The layer below the kiln floor (148) produced pottery that was no later than the mid-19th century. The ceramic vessels found under Kiln 2 included more yellow ware along with other ceramic vessels, including fine and coarse redware and earthenware brown salt-glazed stoneware bottles (Barker Appendix 2).

The archaeological evidence appears to suggest that ceramic manufacture had started on the site in the early to mid-19th century. The brick foundations found directly under Kilns 1 and 2 may be possible remnants of early kilns and, along with the ceramics, are possibly associated with the period when Wilson & Proudman began to manufacture pottery on the site.



Figure 6. Detail of 1841 tithe map of Coleorton Pottery, with assessment area outlined. Scale Unknown.

Kiln 1 Foundations Section 3.01

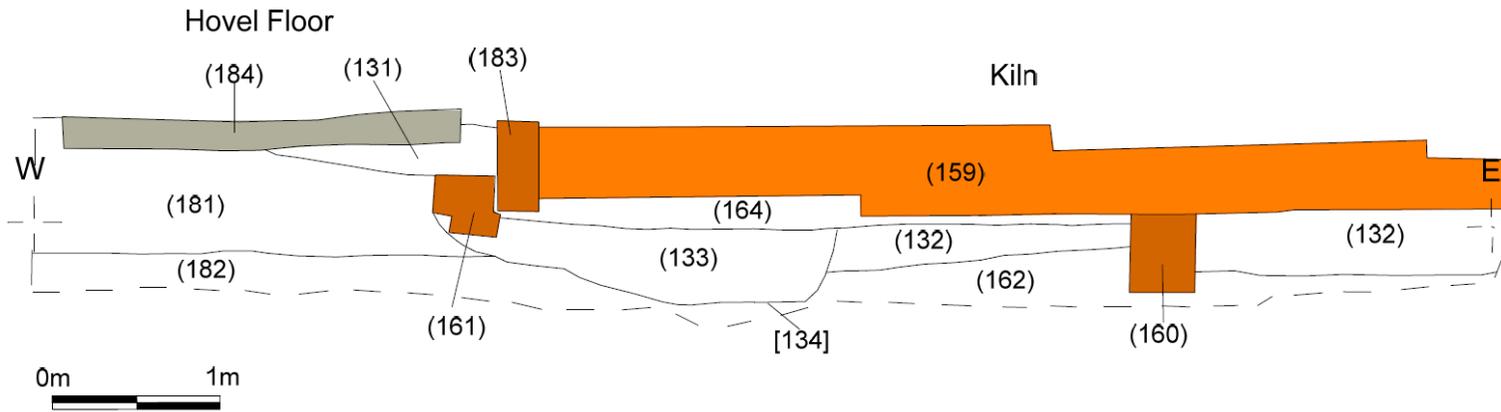


Figure 7. Excavated section across Kiln 1.

Kiln 2 Foundations Section 8.01

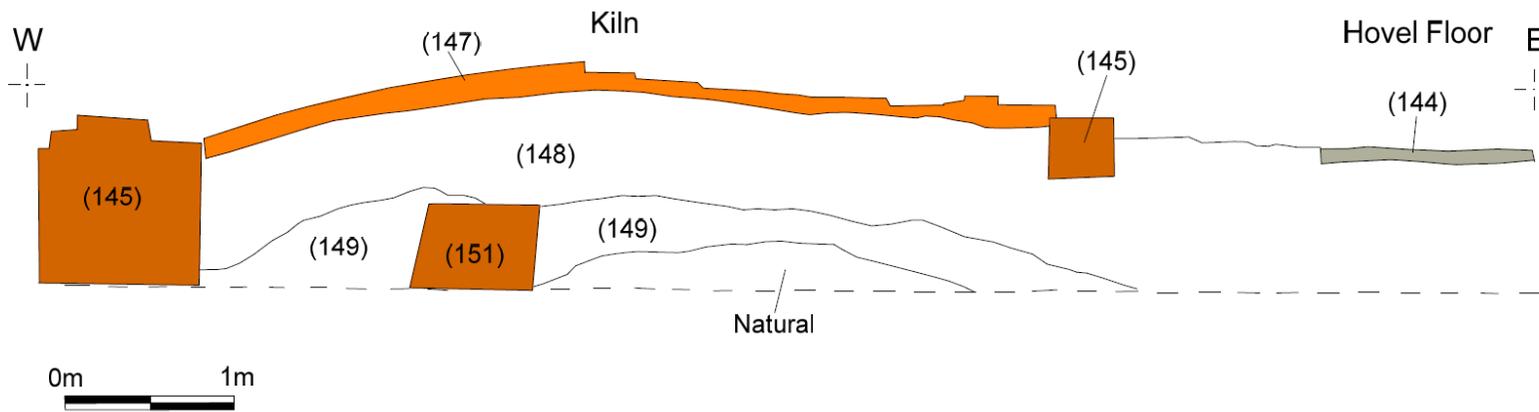


Figure 8. Excavated section across Kiln 2.

Phase 2 Mid to Late 19th Century Construction of the Up-draft Kilns

The next available map of the site is the 1st edition Ordnance Survey map of 1882 (Hunt 2011, Figure 4). A series of buildings are shown occupying the front of the site, which appear to be associated with the excavated Kiln 7 and Workshop (Figure 5). To the east, another group of buildings is depicted, which include two circular pottery kilns and, between them, an adjoining rectangular structure. These structures are believed to be the excavated Kilns 1 and 2 with associated building Workshop 2 (Figure 10).

A further L-shaped building is depicted close to centre of the site with another smaller circular structure located at its southern end. The location is consistent with it being the excavated Kiln 6 (Figure 5).

Kiln 1

Kiln structure 1 was located in the north-western corner of the site and is in the same location as one of the circular structures featured on the 1882 OS map (Figure 9). The Kiln 1 structure is one of two circular features which can be discerned on the map and are connected by a rectangular building aligned north to south (Workshop 2).

Parts of the structure were missing due to truncation by modern services, although enough of the structure remained to extrapolate the diameter and other details of the kiln (Figure 10). The whole structure measured 9.3m in diameter, and survived to a height of between two and four brick courses. The kiln structure comprised an outer hovel wall, a circular hovel floor or walk way, a kiln floor and ash pits. An entrance way into the hovel was located at the southern end of the structure leading into Workshop 2. Under a repair to the hovel floor, finds of Thomas Arrowsmith Kiln furniture from (131) provide a *terminus post quem* of post-1884 (Barker Appendix 2). The repair to the hovel floor may indicate that it once formed another entrance into the hovel.

Kiln 2

Kiln 2 was located in the north-west corner of the site and matches the location of a second circular structure located towards the front of the site, depicted on the 1882 OS map (Figure 9). This kiln structure was located directly to the south of Kiln 1 and both were connected by an adjoining rectangular structure Workshop 2.

Unfortunately, parts of the structure were again missing due to some truncation by modern services, but substantial part of the structure remained to be able to interpret some details of the kiln. The hovel and kiln structure measured 9.70m in diameter, and survived to a height of between two and four brick courses. The structure comprised a hovel wall, hovel floor or walks way, kiln floor and kiln walls (Plate 4). Two entrance ways to the hovel were revealed with the northernmost forming a passageway into the rectangular structure (Workshop 2). Only seven ash pits survived but their locations suggest there may have been ten originally. The finds from the ash pit fills included both moulded yellow ware mixing bowls with internal slip coats and machine-made stilts which indicates that the ash pit went out of use after 1884 and most likely during the 20th century (Barker Appendix 2).

Kilns 1 and 2 were both up-draft kilns which were generally circular structures with several fire boxes located around the base. The flames and heat would travel upwards through fire boxes into the central kiln chamber and be drawn upwards and through the holes in the crown of the Kiln (Rhodes 1968).

The development of cast iron grates for fuel burning brought about a considerable improvement. The coal or wood would be held on the iron bars within the fire boxes, and air for combustion entered from below. Ashes drop through the grate and are collected below in the ash pit, where they can be

raked out from time to time. This arrangement is similar to the disposition of elements in any coal burning furnace or stove as it brings the air to all surfaces of the fuel (Rhodes 1968).

Larger up-draft kilns would have had an additional chimney constructed over the top of the kiln, and this would create a stronger draft which would increase the temperatures and improved efficiency. These types of kiln were widely used for earthenware and porcelain manufacture. The wares were set in saggars to protect them from direct contact with the flames. The updraft pottery kiln grew to become a high, bottle-shaped kiln with sometimes an additional a bisque pottery (unglazed) chamber inserted above (Rhodes 1968).

The two up-draft kilns on this site were both hovel kilns which represented a further phase of development in up draft kiln technology. These kilns comprised a bottle-shape chimney or 'hovel' constructed outside and over the main part of the kiln or oven and not resting on it. The hovels could be large enough to cover the whole kiln like a hat, and the men tending the fires worked within the hovel (Rhodes 1969). This larger additional chimney constructed over the entire kiln would create a stronger draft which would generate even higher temperatures and increased efficiency. It is likely that the pottery would receive their biscuit and glost (lead glaze) firings in the factory's two large up draft kilns.

Located to the north-west of the circular Kiln 1, excavations had revealed the foundations and floor surface of a rectangular building (Workshop 1), which corresponds with part of a series of buildings depicted on the Ordnance Survey Map of 1882 and occupied the Nottingham Road frontage area (Figures 9 and 10; Plate 8).

Kiln 7

Directly to the east of Workshop 1, a foundation for a possible rectangular kiln or oven was located (Kiln 7; Figure 10 and Plate 7). The rectangular Kiln 7 may be remnants of a muffle furnace which was a front-loading box-type oven or kiln used for high-temperature applications such as enamel coatings. Equally the structure could be a hot-house or green-house. This was a heated room containing green ware where unfired clay was dried to a clay hard state and put in storage prior to firing.

Excavations revealed a second workshop structure (Workshop 2; Figure 10 and Plate 9) which was the linear building located between the Kilns 1 and 2, a connecting structure which appears on the 1882 Ordnance Survey map. The excavations undertaken within the structure provided evidence which suggests that this building post-dates the kilns in construction. The workshop measured 13.40m long, 6.15m wide and survived to height of at least five brick courses.

Located immediately to the south of the circular Kiln structure 2 was another adjoining rectangular brick structure, thought to be a floor and foundation for a third workshop (Workshop 3; Figure 10 and Plate 10). The workshop had a concrete rather than a brick floor, which would suggest that the building is likely to be of either late 19th or early 20th century date. Workshop 3 does not appear on any of the Ordnance survey maps. This indicates that it may have been perhaps a temporary structure erected between the compilation of the 1882 and 1903 OS maps and later replaced by a much larger building (see Building 4 Phase 3; Figure 4), which was erected in the 20th century. The function of these three workshops is unknown but it is likely they were used for various activities associated with pottery manufacture.

Kiln 6

Excavations revealed a circular brick structure at the southern end of the L-shaped building towards the centre of the site (Kiln 6; Figure 5). Kiln structure 6 was thought to be the same as the small circular structure depicted on 1882 OS map (Figure 9). Kiln 6 measured 5.0m in diameter and its

circular shape would suggest it was once a kiln (Figure 12). However there was no evidence for firing or other features associated with kilns within, or below, the structure. The structure may have been modified at some unspecified date and a new floor surface (114) may have been inserted later and thus removed any kiln or oven features (Plates 5 and 6). The kiln or oven may have been used as a hot-house, storage or preparation room. Although no datable evidence was found during the excavation Kiln 6 dates to at least 1882 based on the cartographic evidence.

Based on the cartographic evidence and finds found under the up-draft kilns, the four kilns and three workshops are thought to date from the late 19th century. The Hovel floor in Kiln 1 had been repaired and the Thomas Arrowsmith kiln furniture found associated with that repair suggested a post-1884 date.

By the 1840s the name of the company had changed and was trading under 'Wilson & Co.' and by the 1870s the name would change again to 'Wilson Brothers'. It is thought that the four kilns and associated workshops were all constructed during this period of ownership.



Figure 9. Lount First Edition OS Map 1882.

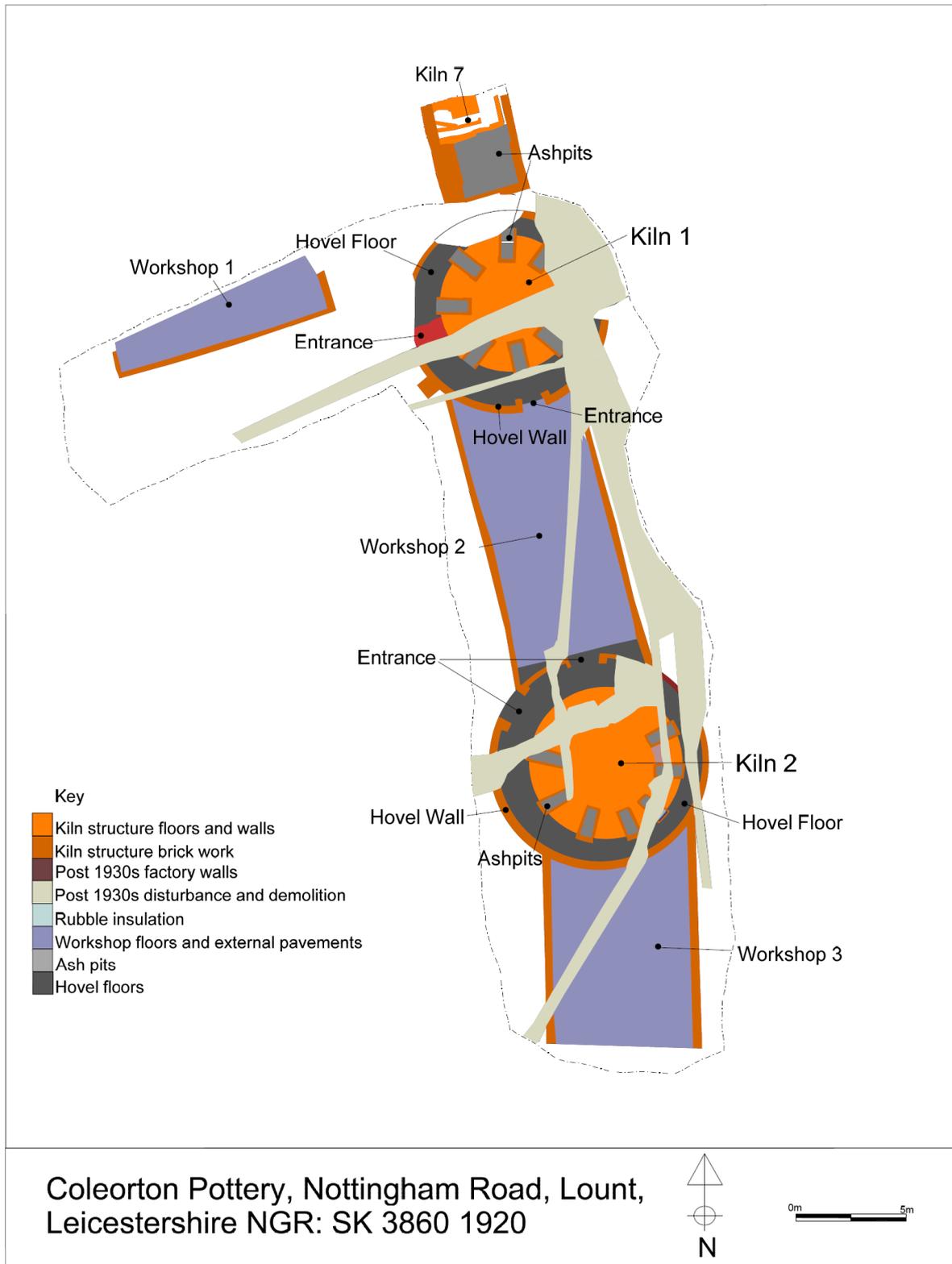


Figure 10. Plan of Kilns 1 and 2 with Workshops 1, 2 and 3.

Period 2 Coleorton Pottery Late 19th to Early 20th century

Phase 3: Late 19th to Early 20th Century Pottery Expansion and Construction of the Down-Draft Kilns

By the late 1800s to early 1900s a radical redevelopment and expansion of the original group of pottery buildings had occurred. The development took place mainly towards the southern half of the site. The 2nd edition 1903 OS map now depicts two additional kilns and a larger roughly rectangular building to the south-east, with another smaller rectangular building located to the south-west (Figure 11). The L-shaped building, which was part of the original group, is altered and has an extension running northwards.

The building survey undertaken prior to demolition revealed that parts of Building 4 (three bays 4a, 4b, and 4c, Figure 4) dates to the late 19th century and may be part of the larger rectangular structure located on the east side of the two new kilns depicted on the Ordnance survey map of 1903. The survey revealed that there were a number of blocked windows in the eastern wall, confirming that the room (4d) is a later addition. These windows are those seen in an undated internal photograph of Coleorton Pottery (Richards and Hyam 2012, Figure 6). The building survey also revealed that Building 3b had an appearance of a late 19th or very early 20th century build. This was thought to be part of the rectangular structure located towards the west of the two new kilns depicted on the second Ordnance survey map of 1903 (Richards and Hyam 2012, 7).

The survey had identified Building 1b as the earliest remaining standing structure. It is believed that the 1903 Ordnance Survey map appears to show the southern portion of Building 1b as a new extension to the L-shaped structure located towards the centre of the pottery works (Figure 11). The survey suggests that the northern part is perhaps an extension as it is only depicted after 1923 Ordnance Survey map (Richards and Hyam 2012, 7).

Kiln 3

Excavations revealed Kiln 3 which is in the location of the southerly of two new circular features that are depicted on the 1903 OS map, to the south-west corner of the Pottery site and aligned north-south (Figures 11 and 12). The kiln measured 7.0m in diameter and contained ten ash pits (171) of which five were intact. A section excavated across the kiln revealed that it was an elaborate down-draft kiln constructed on a foundation of a brick rubble insulation layer (152). At the centre of the kiln was a large central collecting circular brick flue or chimney (165) and directly to the north-west was a connecting diagonal collecting subterranean flue (156) that drew off the collected heat, which would then lead to an underground flue and chimney (Figure 12; Plates 12-13). The circular kiln was then constructed over the top of the central collecting circular and subterranean flues. Above this, was an elaborate interconnecting flue structure constructed within the kiln's brick floor and comprising orange brown refractory bricks. The central collecting circular brick flue (165) was capped by a very large orange brown refractory tile. Inserted into the outer kiln wall was a ring of ash pits that would have been located directly under the fire boxes. A photograph taken in c.1929 indicates that this kiln had an additional chimney on top (Stewart 2013). This would suggest the kiln had additional up-draft capability or was perhaps converted from up-draft to a down-draft kiln.

The combination of sherds of 'art pottery' with coloured glazes and moulded yellow wares from context (152), situated beneath Kiln 3, suggest a later, probably 20th century, date. The presence of an impressed 'Lount Ware' mark on one of the yellow ware bases seems to confirm this, and probably dates to the years 1911–1919 when The Trivett Pottery Co. Ltd. operated from the Coleorton works (Barker Appendix 2).



Figure 11. Second Edition Ordnance Survey 1903.

Kiln 4

Kiln 4 was located to the south-west corner of the Lount Pottery site and was the northerly of the two north-south aligned circular features depicted on the 1903 OS map (Figures 11 and 12). The kiln measured 7.0m in diameter and the northern edge of the kiln was partially damaged by the insertion of the later wall (Plate 14). A section was excavated across the centre of the kiln and revealed that the kiln was constructed on a foundation of a brick rubble insulation layer (171) 0.30m deep. At the centre of the kiln, a large collecting circular brick flue or chimney (172) had been constructed (Plate 15). Directly to the north-west was a connecting subterranean flue (173) that drew off the collected heat which led to an underground flue and chimney. The flue comprised a linear brick vaulted arch structure aligned north-west to south-east that measured 0.80m high and 0.90m wide. A circular kiln was constructed over the top of the collecting circular flue or chimney and flue passage. Inside the kiln were the remains of what would have been an elaborate interconnecting flue structure within this down-draught kiln. Refractory bricks had been used in the construction and are almost identical to the arrangement of flues and structures found in Kiln 3.

A kiln brick floor comprising orange brown refractory bricks and half bricks laid in random pattern and one course deep overlay the flue structure. There were no visible ash pit foundations inserted into the perimeter of the kiln and they may have been removed when it was demolished. The outer wall did have patches of burning signs of intense heat, which could indicate the location of fire pits.

Subterranean Flue Structure and Chimney

As part of the down-draft structure a large connecting subterranean linear flue (134) had been constructed directly to the west of kilns 3, 4 and 5 (Fig 12; Plate 16). The principal function of this flue was to gather up heat for exhaust through a chimney. The heat had been gathered up and drawn away from individual diagonal flue passages constructed under each kiln, which were all connected to the large linear flue (134) (Plate 17). The heat was drawn along the flue by a chimney (116), which was found at the northern end of the main subterranean flue structure, comprising a chimney stack, base and connecting flue.

The conversion of the new kilns from up-draft to down-draft kilns demonstrates a major technological advancement for pottery works. These new kilns along with a major expansion of the factory floor space represented a significant investment in the Coleorton pottery works.

It was during this period that the Pottery works would change ownership, as documentary sources indicate the site was operated by 'Stewart Brothers' from 1885 to 1898. The site would continue to manufacture yellow ware and Rockingham ware (Stewart 2013, 35). From 1898 until 1904 the Pottery works were leased to Grinhaff Brent & Co. who made Leicestershire Fireproof red ware, buff, lustre and mottled ware plus an 'Ashby Grained ware'. Evidence of this type of ceramic was recovered from beneath Kiln 3 (152) and was marked Lount Ware/ England/ Leadless glaze/ Fire Proof (Barker Appendix 2).

Records from this period suggest that 'Minerva Art ware by Carlo Manzoni' was produced at this site for short while following a fire at the Granville Pottery in Hanley. The product was also advertised for sale by Coleorton Pottery Company (Stewart 2013). Evidence of this type of production was not found on the site and only 11 sherds of 'Art ware' were recovered from under Kiln 3 (152).

Mason Cash occupied the Pottery in 1904, but it appears that the Pottery was only used for the removal of the clay resource associated with pottery, which was taken for use at their factory based in Church Gresley (Stewart 2013, 49).

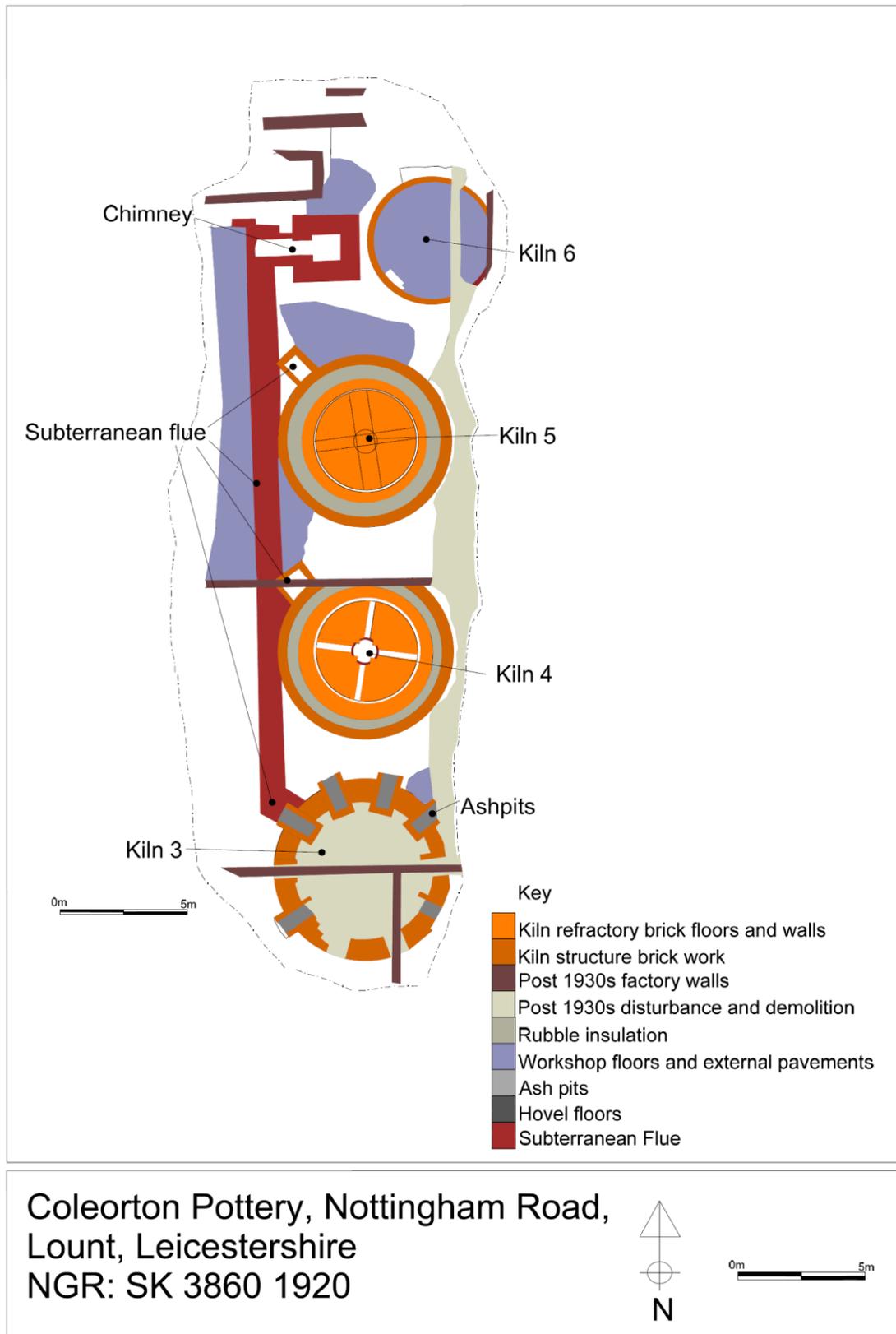


Figure 12. Plan of Kilns 3, 4, 5 and 6.

Phase 4: Early 20th Century, Final Phase of Pottery Manufacture

Kiln 5

The last major development on the site appears to be the construction of a third new down-draft kiln. Kiln 5 was also located in the south-west corner of the pottery site and can be identified as a third circular feature that appears on a 1923 OS map, located directly to the north of Kilns 3 and 4 and adjacent to the flue structure chimney (Figure 13). This kiln measured 7.0m in diameter and the centre of the kiln was sealed beneath demolition debris which was removed with machine and hand excavation which revealed in plan some of the internal down-draught flues (Plates 19 and 20).

Excavations revealed a plan of the kiln structure with, at the centre, a large circular brick collecting flue and, directly to the north-west, a connecting subterranean flue that drew off the collected heat which led to a further underground flue and chimney. A circular kiln was constructed over the top of the collecting circular down flue and subterranean flue passage. Inside the kiln were the remains of what would have been an elaborate interconnecting flue structure within this down-draught kiln and are almost identical to the arrangement of flues and structures found within Kiln 4.

As was the case with Kiln 4 there were no visible ash pit foundations inserted into the perimeter of the kiln, and they may have been removed when it was demolished. The outer wall of the kiln did show areas of burning, which may signify signs of intense heat from the location of fire pits. The cartographic evidence suggests that this kiln may have been the last major development on the site.

An undated photograph believed to date from the very late 1920s or early 1930s (Richards and Hyam 2012, Figure 8) shows the Coleorton Pottery workforce seated and standing in front of a workshop and two kilns (Kilns 3 and 4; Plate 18). The photograph is taken looking eastward and the kilns behind the workforce appear to be Kilns 3 and 4. The kiln on the left of the photograph is clearly a downdraft kiln (Kiln 4), comprising a cylindrical firing chamber with a low domed roof and a separate free-standing chimney served by a subterranean flue. Kilns of this type are often associated with the firing of unglazed bricks and tiles, or salt-glazed stoneware vessels or drain pipes (D. Barker pers. comm.). The kiln on the right is Kiln 3 and the building in the back ground is Building 4a (Richards and Hyam 2012, 8). Kiln 3 appears to be a larger bottle up-draft kiln that has had an additional chimney constructed over the top of it. (For a comparison between updraft and downdraft kilns see Appendix 4).

The Pottery goes into a period of disuse and disrepair in the early 1900s. The Pottery works were leased to a company Mason Cash & Co. based in Church Gresley but that company only appeared to be using the site for access to the nearby clay pit and no manufacturing took place.

The pottery works were eventually reactivated by William Oram Trivett in 1911. A new company was set up called Trivett Pottery Co. Ltd and their products would be generally 'yellow ware', 'fireproof ware', general domestic ware and art pottery (Stewart 2013: 49). This company was the first to use the term 'Lount Ware' on their products. It would have been during this period of ownership that the three down-draft kilns were constructed.

The lease was surrendered by Trivett and was taken over by The Clay Ring Co. who manufactured earthenware components for gas mantles and other lighting equipment. The firm was based in Ravensbury, Earlsfield, London (D. Ash pers.comm.). However, there was no conclusive evidence recovered during the excavations for these products being produced at the factory and only two fragments were recovered that may be earthenware components for gas mantles and other lighting equipment (Barker Appendix 2). In 1915 and 1929 the Pottery was visited by representatives of the *Pottery Gazette* and they reported that the Pottery had been engaged in the production of utilitarian wares, cane ware and artistic ornamental pieces. The 1929 report also stated that during the First World War the company also manufactured acid proof chemical ware for war purposes, such as acid valves, used in the manufacture of munitions (Stewart 2013: 57). There are a small number of substantial ceramic items from the excavation which have not yet been identified and these could be examples of acid valves that were produced on site. The report also states that electricity had been introduced in relation to the manufacturing methods. Electricity was being used in the clay forming processes and now powered the jollies and lathes (Stewart 2013: 57).

Coleorton Pottery works would change lease holders again in 1928 when the Clay Ring Company surrendered the lease which was taken up by Coleorton Pottery Co. Ltd. to manufacture the usual range of goods, but, as the Managing Director, a Mr. J. R. Kemp, was an electrical engineer the firm branched out into electrical lighting equipment including table lamps. In 1935 Mr. Trivett returned briefly as art director in an attempt by the firm to spread its manufacturing base as wide as possible but in 1935 the firm went into liquidation and surrendered the lease (Stewart 2013).

The last time that any type of ceramic goods was made on this site was when a new company Coleorton Pottery Ltd. took over the site to manufacture garden pottery and ornamental ware for sale by the Beaumont Estate, but production ceased in 1938 (Stewart 2013).

The majority of the wares (approximately 304 sherds or 57%) recovered are of refined yellow ware. Yellow ware forms in the Coleorton assemblage include dishes, baking dishes, bowls, basins, chamber pots, mugs, a possible jug, blacking pots, oval dishes or pans in a range of sizes and a large number of moulded mixing bowls with diagnostic moulded exterior bodies and rims. The production of a wide range of sanitary wares by the yellow ware potteries of South Derbyshire is well-known and five sherds of yellow ware toilet bowls - four from [101] and a fifth from [141] – were recovered.

Brown-glazed Rockingham wares are another type well associated with the south Derbyshire potteries. Although documented as a product at Coleorton, Rockingham wares make up only 25% of the ceramics recovered. The range of forms is extremely limited, comprising for the most part plain bodied teapots and covers. However, three further Rockingham sherds have applied moulded reliefs – or sprigs – in white clay with additional under-glaze colours. These appear to be the type of ware known to collectors as ‘Measham Ware’ or ‘Barge Ware’, so-named because of the use of vessels of this type on canal boats and its sale to boat people from a shop in Measham in Leicestershire (Lewis 1969: 167). Most Measham Ware was produced in Church Gresley and Woodville, Derbyshire, between c.1870 and 1914. The possibility that the decorative so-called ‘Measham Ware’ was made at the factory is noteworthy and may suggest the wider manufacture of this type (Barker Appendix 2).

A single sherd of horticultural ware from [101] is probably a flower pot. Despite the rouletted decoration, too little of this large form survives for a positive identification. This may be the

sole piece of physical evidence for the latest production at Coleorton, the ‘garden pottery and ornamental ware’ made between 1936 and 1938 by the Coleorton Pottery Ltd. (Stewart 2013).

A limited range of material which might be described as ‘art pottery’ has been recovered, 55 sherds, although none of it is particularly diagnostic and the terminology to adequately describe it is lacking. None of the forms were particularly diagnostic, but include plant pots, bowls, vases and other forms in buff or orange fabrics and with coloured glazes in blue, turquoise, and green (Barker Appendix 2).

It is unclear whether any of the white-bodied earthenware, or whiteware, sherds were made at Coleorton. Possible candidates for manufacture here are two coarser white-bodied sherds which have the appearance of sponge dish liners with a flanged rim and perforations, but the identification is far from certain and it is not impossible that these are examples of the ‘earthenware components for gas mantles and other lighting equipment’ or of the ‘electrical lighting equipment’ which are documented as products of the Clay Ring Co. (1919-28) and the Coleorton Pottery Co. Ltd. (1928-36) respectively (Stewart 2013). Two further sherds with opaque white glazes are of uncertain forms and may be items of sanitary, electrical or other industrial wares.

Some of the material recovered from the excavation hints at the manufacture of salt-glazed wares at Coleorton. This is not incontrovertible proof of salt-glaze stoneware manufacture at Coleorton, but there is a possibility that this took place at some time later in the factory’s life (Barker Appendix 2).

A number of distinctive stilts and spurs recovered from the excavation are mass-produced, machine-made items bought-in from specialist kiln furniture manufacturers operating in the north Staffordshire Potteries. The presence of Staffordshire-made kiln furniture on this and other manufacturing sites throughout the British Isles - and beyond - underlines the importance of this area to pottery manufacturers across much of the globe. The Staffordshire industry was sufficiently large and well-established to support the full range of essential ancillary trades, including, from the mid-19th century, the manufacture of stilts, spurs and other items of kiln furniture. Pottery factories in north Staffordshire and beyond would have found it more economical and efficient to buy in these items en masse than to attempt their manufacture themselves (Barker Appendix 2).

All the finds found associated with all the kilns suggest that they all were decommissioned in the 20th century which was consistent with pottery works records of production (Barker Appendix 2).

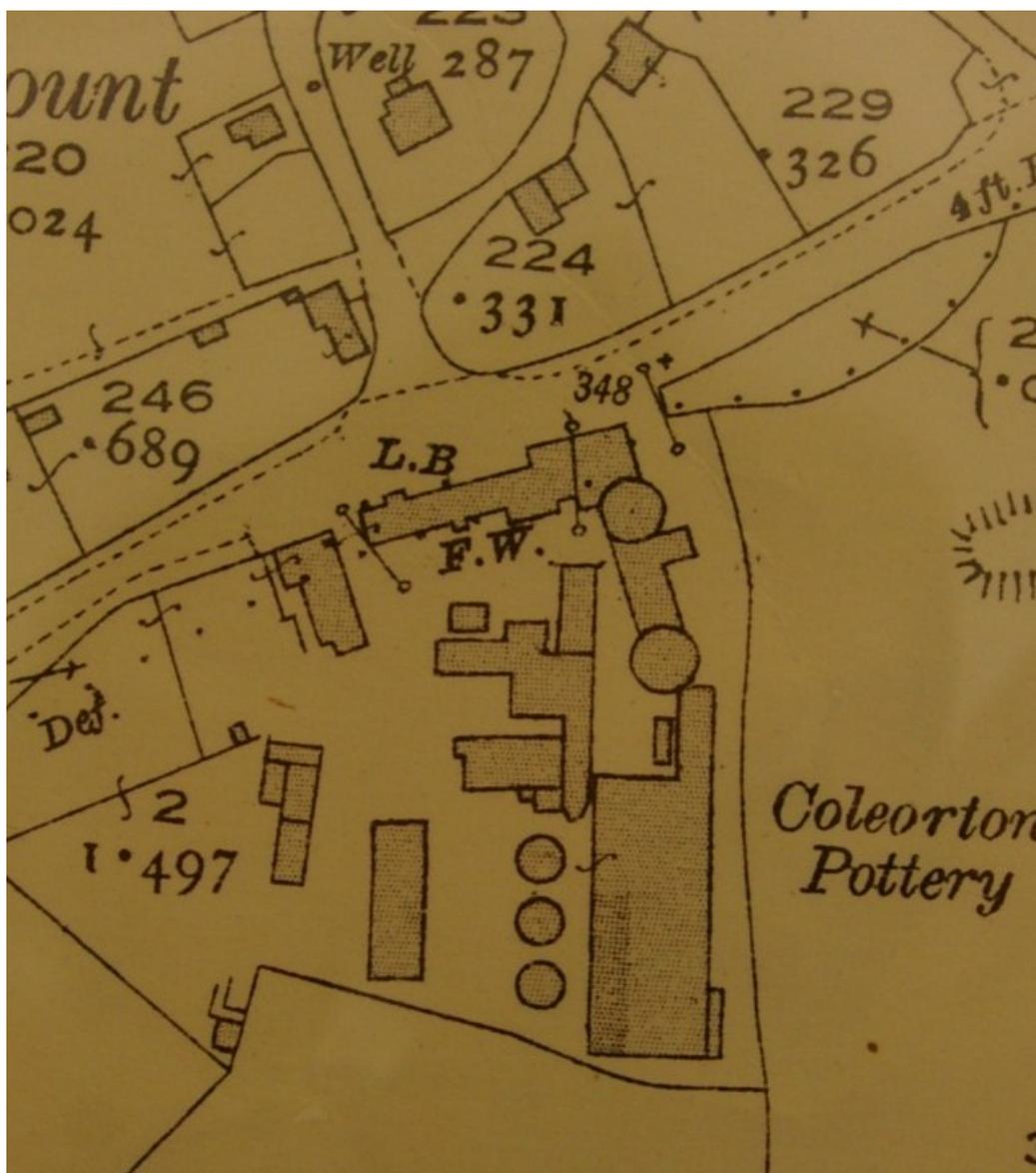


Figure 13. OS Map 1923.

Period 3 Occupation of the site in the 20th century

Phase 5 Post Pottery Occupation

The Pottery works finally closed in 1938 and during Second World War the site was used for the storage of tinned foods. There was not a large assemblage of ceramics found during the excavations, which was in operation for 100 years, even for a factory of a comparatively modest size. The bulk of the waste material which must have been generated over the life of the factory may have been deposited 'off-site' and in locations still to be identified. Alternatively, the waste material may have been removed during the war to be used as hardcore in the construction of airfields. During the Second World War, South Derbyshire Potteries were often stripped of their waste material that had been generated over many years and had been deposited round the various factories. The material was used as hardcore material to support various newly constructed military airfields within the region (S. Brown and J. Spavold pers. comm.).

During the post-war years the buildings went through periods of occupation and of being empty. By 1960 the central building in Ordnance Survey map has expanded but the older buildings on the northern part of the site have started to disappear (Figure 14). The longest occupation in post-war years was by Lisk Industrial Controls who remained at the site until 2007, producing engineering and electrical components. After a period of dereliction, the site was taken over by Bradnor Investments, who renovated and occupied the northernmost buildings as office space and maintained the remainder for plant workshops and storage (Richards and Hyam 2012: 3).

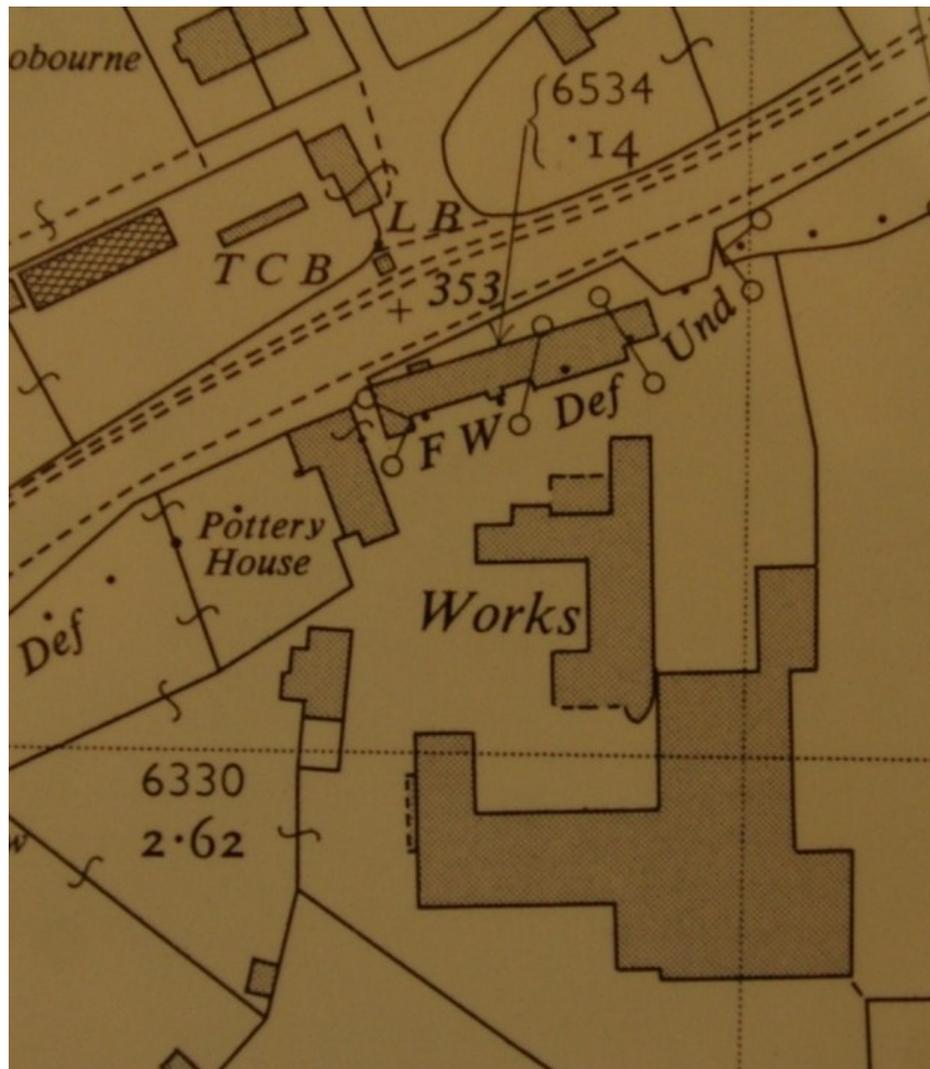


Figure14. 1960 Edition Ordnance Survey.

7. Conclusion

The excavation at Lount has provided significant information on the evolution of Coleorton Pottery industry. It has been a rare opportunity to excavate kiln bases in Leicestershire which had far fewer pottery works compared to, for example, north Staffordshire. The kilns developed from up-draft to down-draft types between c.1880 and 1920.

Together with the south Derbyshire industry centred on Swadlincote and Church Gresley, Coleorton was a significant manufacturer of yellow ware during the 19th century (Campion 2006: 250). During the 20th century industrial wares including gas mantles and electrical insulators were added to the range of products. The pottery recovered was not a large assemblage from a factory which was operation for 100 years, even a factory of a comparatively modest size. It is clear that the bulk of the waste material which must have been generated over the life of the factory must have been deposited 'off-site' and in locations still to be identified. Nevertheless, these finds do add to the picture of the Pottery, its products and the wider industrial context within which it functioned. Indeed, in some cases it may be that the archaeological evidence is all that exists for certain aspect of manufacture, although it may be that the significance of this is only fully realised after a thorough study of extant wares in collections

8. Archive and Publication

The site archive will be held by Leicestershire County Council under accession number X.A90 2011.

The content of the paper archive consists of:

- 1 Unbound A4 copy of this report
- 6 A4 Trench recording sheets
- 1 A4 Context summary sheet
- 32 A5 Context Sheets
- 2 A4 Photo record sheets
- 1 A4 Drawing Record
- 1 A4 Sample Index
- 4 A2 Plan and section drawing sheets
- Black and white contact print & 51 Black and white picture negatives
- A4 Colour digital contact print & 1 CD of 51 digital photos

A record of the project will be submitted to the Oasis project under the code universi1-195369. Oasis is an online index to grey literature reports. A summary of the work will be submitted for publication in *the Transactions of the Leicestershire Archaeological and Historical Society* in due course.

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Appendix 1. Excavation Results

Period 1 Coleorton Pottery 19th Century

Phase 1. Early to Mid-19th Century Early Pottery Manufacture

- *Phase 1.1. Pre 1830s Occupation*

Two pottery sherds of uncertain medieval date were found as unstratified material in context (101) which suggests either medieval occupancy or they had been brought to the site. The unstratified material also contained a sherd of white salt glazed stoneware which dates to the mid-18th century. A cream ware plate edge from [132], a layer located below Kiln 1, was dated to between *c.*1790 and the 1820s at the latest (Barker Appendix 2). Both salt glazed stone ware and cream ware sherds are thought to have been brought to, rather than made at the pottery. No evidence of the previous coalmine works that were thought to have occupied site prior to the pottery were found during the archaeological excavations.

- *Phase 1.2. Earlier Kiln Structures 1830s to 1880s*

The two evaluations and excavation revealed a total of seven various kiln structures and the foundations and floors of three workshops (Figure 5). Kilns 1, 2, 6 and 7 along with pottery workshop structures 1 and 2 are thought to be on the 1st edition Ordnance Survey map of 1882 (Figure 9). The 1882 OS map a series of buildings are shown occupying the front of the site, with a further L-shaped building close to the centre (Hunt 2011). These included three circular structures that were thought to be kilns. The building survey of the factory building that was undertaken prior to demolition had identified parts of the factory building as pre-1880 structures (Figures 3 and 4). Both Kilns 1 and 2 were machine excavated under archaeological supervision to establish whether there was any evidence of earlier kiln structures located under the foundations.

Deposits beneath Kiln 1 (Figures 5 and 7)

Buried soil layers (162), (182), (132) and (181)

Early Kiln Brick Foundations (160), (161)

Pit cut [163] fill (133)

Mortar spread (164)

An east-west section was cut across the kiln and revealed two layers at the base of the section overlying the natural substratum. Layer (182) comprised a greyish orange or olive silty-clay mixed with frequent charcoal flecks and measured 0.20m deep. Another layer (162) was found on the east side and comprised burnt reddish brown clay 0.20m deep overlying the natural clay. Sealing these clay layers was a foundation or bedding layer which comprised compacted reddish brown clay and mortar (132). The foundation layer was cut by a possible pit [134] seen in section and measuring 1.28m wide and 0.30m deep. The fill (133) comprised broken pottery wasters and bricks mixed with charcoal and grey silt. Finds found associated with this pit suggest as date from the second quarter of 19th century (Barker Appendix 2). Both the pit feature and the foundation layers were cut by two brick foundations (160) and (161). The common red brick walls were three courses 0.30m high and 0.25m wide. The foundations were thought to be an early phase of kiln and were sealed by mortar spread (164) 0.10m thick and 1.40m wide.

Deposits beneath Kiln 2 (Figures 5 and 8)

Buried soil layers (149) and (148)

Early Kiln Brick Foundations (151)

The section excavated across Kiln 2 reached natural substrata at a depth 0.90m below the surface of the kiln (Figure 8). Overlying this was a convex layer of made ground (149) that comprised mid-reddish brown clay and measured up to 0.50m thick. This layer appear to be cut by the remnants of brick foundations (151), which comprised full and half bricks that measured 260mm by 110mm by 0.90mm. The foundation appears to be laid in a random fashion and was thought to be remnants of earlier kiln foundation. A layer of made ground (148) was found sealing the brick foundations.

Phase 2. Mid to Late 19th Century Construction of the Up-Draft Kilns

Kiln 1 (Plates 1 and 2 and Figure 10)

Hovel wall (186)

Hovel floor (185) (184)

Kiln Structure (159)

Ash pits (130)

Spread cinder and ash (131)

Kiln 1 was located in the north-west corner of the site and matches the location of the northern circular structure located towards the front of the site first depicted on the 1882 OS map (Figure 9). Kiln1 is one of two circular features which can be seen on the 1882 OS and are linked by a rectangular building aligned north to south which was thought to be Workshop 2 (see below).

Parts of the structure were missing due to truncation by modern services, but enough of the structure remained to help determine the diameter and other details of the kiln. The whole structure measured 9.30m in diameter, and survived to a height of between two and four brick courses. The kiln structure comprised a hovel wall (186), hovel floor or walk way kiln floor (185) and ash pits. The outer hovel wall structure (186) had been constructed with common red bricks, measuring 260mm x 110mm x 90mm as circular structure that enclosed the whole of the kiln. An entrance to the hovel was located at the southern end of the structure. Inside the hovel structure circular brick floor surface was found surrounding the kiln structure (159). The floor comprised of either dark orange or grey brown coloured bricks, measuring 260mm x 110mm x 90mm and laid on their ends. Both the hovel floor and the entrance to the hovel were well worn and on the west side the hovel floor appears to have been repaired with red bricks (184). The sub-circular floor surface varied in width and measured only 0.80m on the north-east side compared to 1.50m wide on the south-east side. This variation in width can be accounted for as the position of circular kiln structure was located off centre and towards the north-east side of the hovel.

The kiln structure measured 6.3m in diameter with the wall of the kiln constructed with common red bricks, measuring 260mm x 110 x 70mm and laid with a mixture headers and stretchers surviving to a height of one course only. The kiln's structure floor measured 6.0m in diameter, survived to a height of four courses and constructed with orange refractory bricks measuring 260mm x 110mm x 0.70mm laid in fairly random pattern with mix of headers and stretchers. The bricks appeared to have been burnt and had been subjected to intense heat. The kiln floor surface was constructed with a moderate dome shape and surviving courses of brick are thought to be floor surfaces re-laid or re-built several times. Only four ash pits survived intact although there were the damaged remains of three others (Plate 3). It was likely that kiln would originally have had ten radiating fire boxes. The interiors of the ash pits (130) were heavily coated with ash and clinker and many of the bricks had been subjected to intense heat. The amount of clinker found within the ash pits suggests the fuel used to heat the kilns was probably coal. Finds found within the ash pits suggested a late second half of the 19th century or later date (Barker Appendix 2).

It is thought that the kiln had two entrances. The first was located at the southern end and was a passageway in to the rectangular structure (Workshop 2) and the hovel brick floor was well worn. A second entrance way was thought to be located on the west side and was an external entrance to the hovel and coincides with a repair to a hovel brick floor (184). A spread of ash and clinker (131) was present beneath the hovel floor repair (184). It measured 0.10m thick and 0.85m wide and the presence of a machine-made spur bearing the mark of stilt and spur manufacturer Thomas Arrowsmith indicated a post-1884 deposition date for the repair (Barker Appendix 2).



Plate 1. Kilns 1 and 2 with workshops looking south.

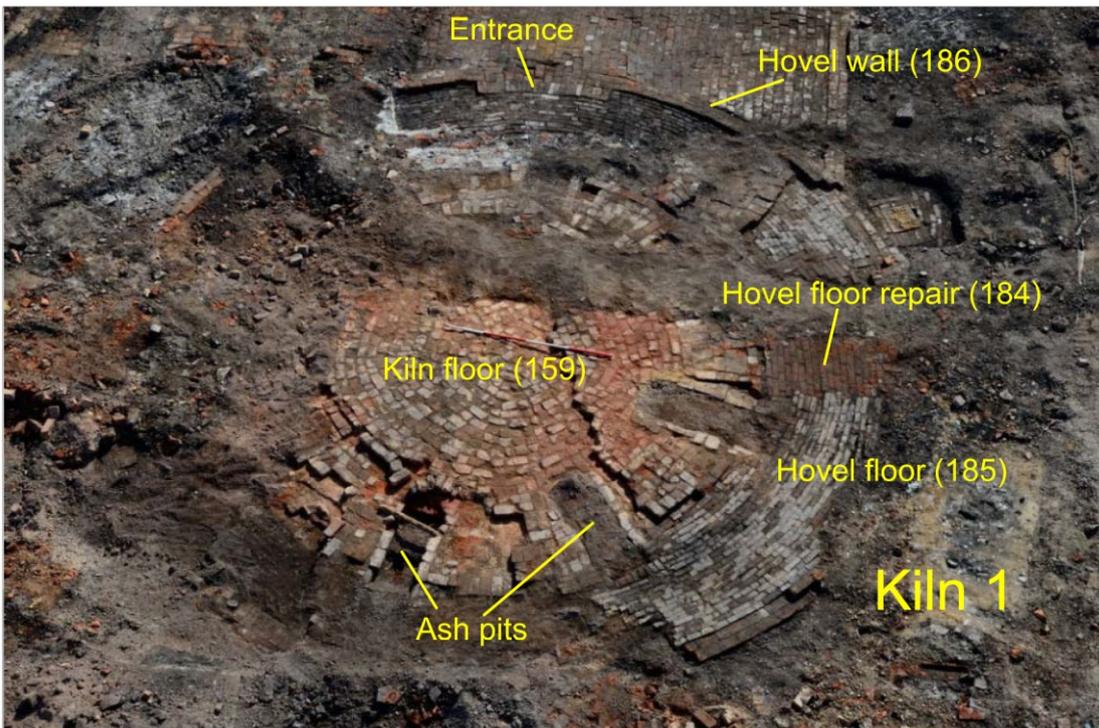


Plate 2. Kiln 1.



Plate 3. Kiln 1 and excavated ash pit.

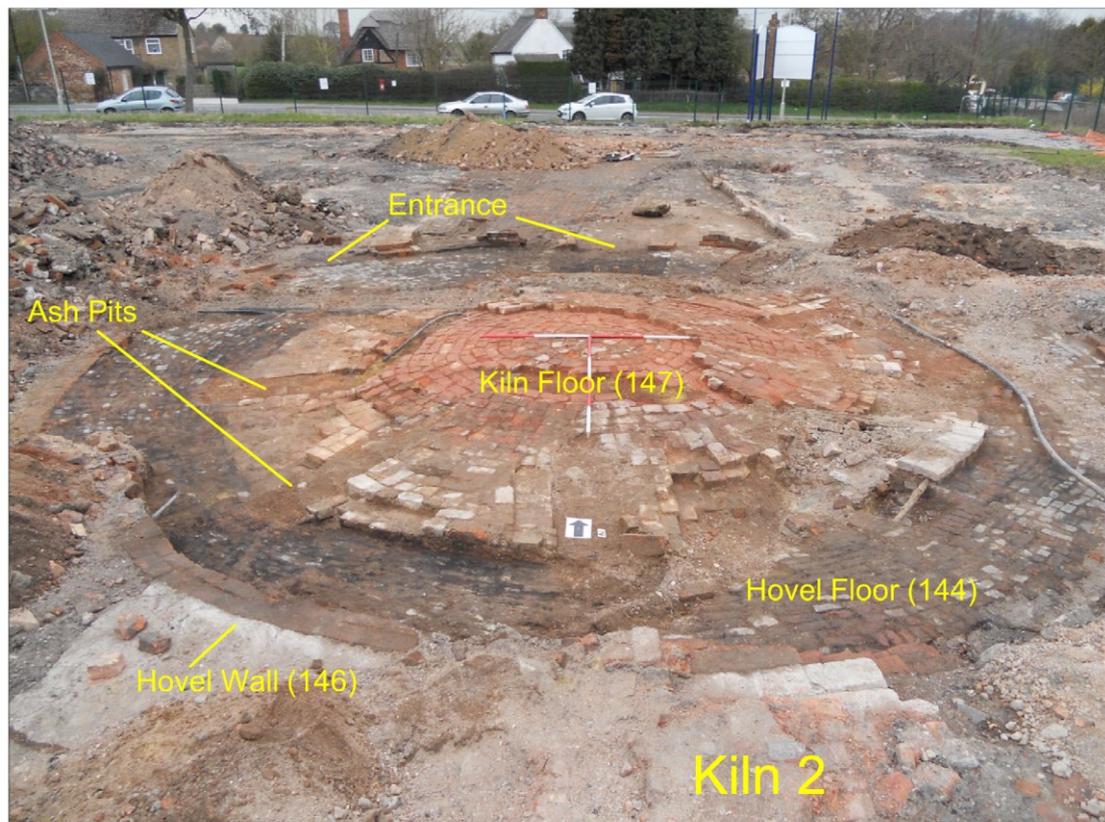


Plate 4. Kiln 2.

Kiln 2 (Figure 10; Plate 4)

Kiln Structure (147) (145)

Hovel Floor (144)

Hovel wall (146)

Ash pit (135) (136)

Kiln 2 was located in the north-west corner of the site and matches the location of a second circular structure located towards the front of the site first depicted on the 1882 OS map (Figure 4). This kiln structure was located towards south of Kiln 1 and both were linked by an adjoining rectangular structure (see Workshop 2 below)

Unfortunately, parts of the structure were missing due to some truncation by modern services, but a substantial part of the structure remained intact so that the excavations could determine some structural details. The whole hovel and kiln structure measured 9.70m in diameter, and survived to a height of between two and four brick courses. The structure comprised a hovel wall (146), hovel floor or walk way (144), kiln floor (147), walls (145), (135) and (136). The outer hovel wall (146) had been constructed with common red bricks, measuring 260mm x 110mm x 90mm as circular structure that enclosed the whole of the kiln. Two entrance ways to hovel were revealed during the excavation. The first was located at the northern end and was a passageway in to the rectangular structure (Workshop 2). A second entrance way was revealed on the north-west side and was thought to be an external entrance to the hovel. Inside the hovel structure circular brick floor surface was found surrounding the kiln structure. The floor (144) comprised of either dark orange or grey brown bricks, measuring 260mm x 110mm x 90mm and laid on their ends. Both the hovel floor and the entrance ways into the hovel were well worn.

The position of the circular kiln structure within the hovel was located off centre and towards the south-east side of the hovel. Subsequently the circular hovel brick floor surface varied in width and measured only 0.80m on the south-east side compared to 1.40m wide on the north-west side. The kiln structure measured 7.00m in diameter with the wall (145) of the kiln was constructed with common red bricks, measuring 260mm x 110mm x 70mm and constructed with a mixture headers and stretchers surviving to height two courses only. On the north side three metal wall braces were revealed surviving *in situ*.

The kiln structure floor (147) measured 7.00m in diameter, survived to height of four courses and constructed with orange refractory bricks measuring 260mm x 110mm x 0.70mm laid in fairly random pattern with mix of headers and stretchers. The kiln floor surface was constructed as a moderate dome shape and surviving courses of brick are thought to have been successive that floor surfaces re-laid or re-built several times. Only seven ash pits survived but their location does suggests there may have been ten in total. The pits contained charcoal and cinder (136) sealed by layer of rubble consisting of reddish brown sandy silt mixed with bricks, mortar and charcoal. The finds from ash pit fills [135] and [136] include both moulded yellow ware mixing bowls with internal slip coats and a machine-made stilts which indicates that the ash pit went out of use after 1884 and this is likely to have occurred during the 20th century (Barker Appendix 2).

Kiln 6 (Figure 12 and Plates 5 and 6)

Kiln 6 along with structures 1, and 2 and brick building structures 8 and 9 are thought to be those depicted on the 1st edition Ordnance Survey map of 1882 where a series of buildings are shown occupying the front of the site, with a further L-shaped building close to the centre (Hunt 2011) (Fig 9). These included three circular structures thought to be kilns. Kiln 6 was thought to be the circular structure located at southern end of the L-shaped building close to the centre of the site and first depicted on the 1882 OS map.

Parts of the structure were missing due to truncation by modern services and the eastern edge of the kiln by the insertion of the later wall foundations resulting in the destruction of part of the circular wall. The whole structure measured 5.0m in diameter, and survived to a height of between two and four brick courses. The kiln comprised circular wall structure (112) that had been constructed with common red bricks, measuring 210mm x

120mm x 80mm and comprised three brick skins in width 0.37m. Inside the circular wall an internal brick surface (113) had been laid fairly random manner, with the odd blue brick mixed with regular bricks (220mm x 110mm x 80mm). There was a cavity between brick wall and floor (114) which was perhaps a possible flue and measured 0.07m wide. A large concrete block or step was located inside the structure on the south-west side, and perhaps signifies a possible entrance into the structure. A section excavated across the kiln structure had revealed the wall (112) and floor (113) were both founded on a compacted bedding layer (178) which measured 0.20m deep, and consisted of grey silty-clay mixed charcoal and ash. Below the bedding layer was a layer of subsoil (179) which was orange brown silty-clay 0.15m deep. The wall appears to have been modified with possible entrance inserted on the north side. Part of the wall has been removed and floor surface (180) which comprised red quarry tiles was inserted.

Kiln structure 6 is quite small for an oven of any type, except perhaps muffle kiln, although muffle kilns tend to have rectangular floor plans. There is no evidence of firing or other features associated with kilns within the structure or below it. The structure may have been modified at some unspecified date and the floor surface (113) may have been inserted later and thus removed any kiln or oven features. The kiln or oven may have been adapted to be used as possible storage or a preparation room and the inserted quarry tile entrance may relate to this period of use.



Plate 5. Kiln 6 looking east.

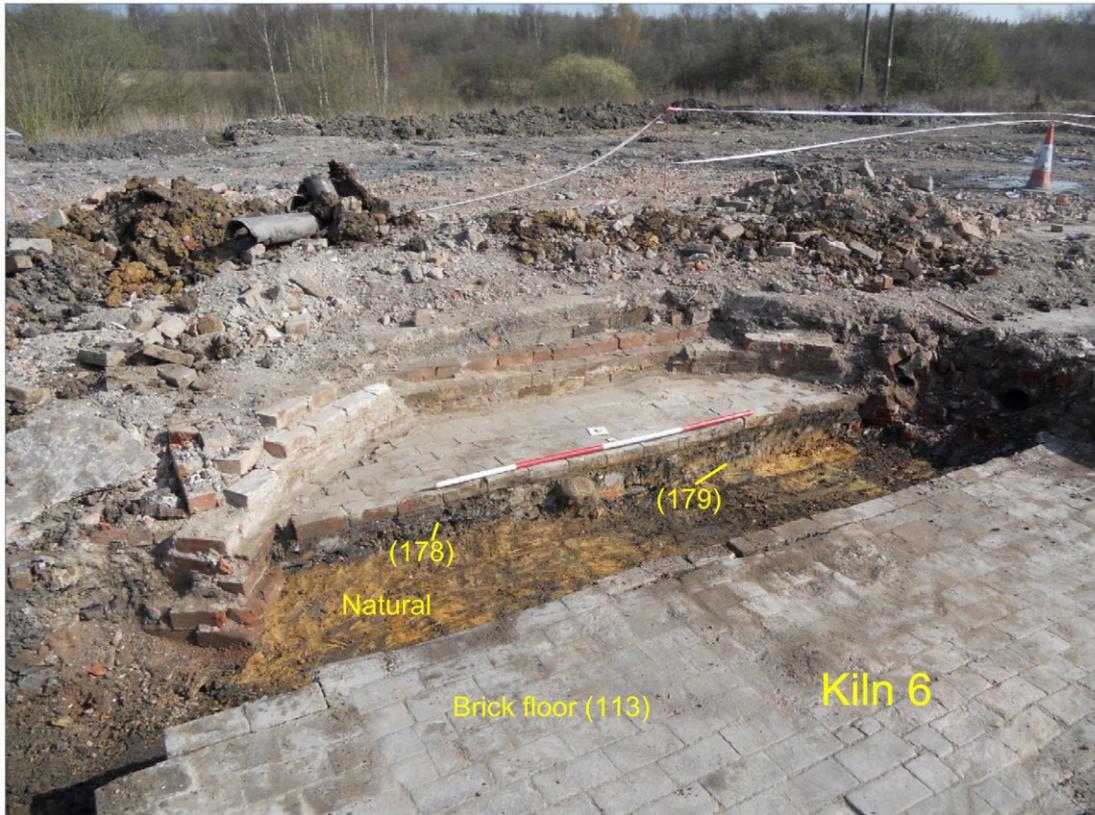


Plate 6. Kiln 6 Section looking south-east.

Kiln Structure 7 (Figures 5 and 10 Plate 7)

Immediately to the north of the of the circular kiln structure 1 was an adjoining brick structure, perhaps a foundation for a rectangular kiln (10) found at depth of 0.53m (106.94m O.D). The structure measured 3.50m long, 2.70m wide and survived to height of at least five brick courses. The wall foundation comprised two bricks in width and was constructed of common red bricks, measuring 230mm x 110mm x 70mm. Some of the bricks appeared to have been exposed to heat and were scorched. A limited test pit excavation towards the north-east corner of the structure suggests that it sits directly on top of the natural substratum found at depth of 0.86m 106.18m aOD below the modern ground level. A possible floor area was observed within the rectangular structure and measured 2.35m long and 2.20m wide. A possible uneven cut [19] for the floor was located within the test pit and was sealed by possible floor layer context (18), which comprised compacted stone gravel mixed with dark greyish clay-silt matrix measuring 0.22m deep. The gravel was sealed by context (07) a layer dark greyish brown clay-silt mixed with burnt material, charcoal, ash and pottery fragments.

Directly to the north further brick structures were recorded and were thought to be possible flue features (20). A single brick wide wall feature had been constructed creating a possible west to east channel measuring 0.22m wide. The channel contained a fill which comprised a burnt or scorched clay-silt residue (22). A brick foundation for possible station or pillar support (21) was seen next to the flue and measured 1.08 long and 0.60m wide. All the brick structures had elements that suggested they had perhaps undergone some modification or had been altered. The brick foundations are thought to have been remnants of a possible rectangular kiln.



Plate 7. Kiln 7 Structure.



Plate 8. Workshop 1.

Workshop 1 (Figs 5 and 10 Plate 8)

Floor (187)

Brick Walls (188)

Concrete floor (189)

Workshop 1 was located to the north-west of the circular Kiln structure 1 and may be part of a series of buildings shown occupying the front of the site in the first edition Ordnance Survey Map (1882). Possibly associated with excavated Kiln 7 was an adjoining brick structure, which may be the foundation for a rectangular kiln. The cartographic sources indicate that these buildings continue to be used until the 1960s. The rectangular structure was found at depth of 0.10m (106.94m aOD). Only part of the structure was revealed and measured 10.35m long, 2.90m wide and survived to height of at least four brick courses. The wall foundation (188) comprised two bricks in width and was constructed of common red bricks, measuring 0.23m x 0.11m x 0.70m. A limited test pit excavation towards the north-east corner of the structure suggests that it sits directly on top of the natural substratum found at depth of 0.86m (106.18m aOD) below the modern ground level (Figure 5).

A lower earlier brick workshop floor level was observed within the rectangular structure and the exposed area measured 5.35m long and 2.50m wide. Some of the bricks appeared to have been exposed to wear and tear and some were laid in a pattern that formed a drainage channel. Overlying this, were the remnants of a second floor which comprised 0.10m thick concrete.

Workshop 2 (Figs 5 and 10 Plate 9)

Brick Floor (190)

Brick wall (191)

Workshop structure 2 was a linear structure located between the Kiln structure 1 and 2. The structure measured 13.40m long, 6.15m wide and survived to height of at least five brick courses. The wall foundations (191) comprised two bricks in width and was constructed of common red bricks, measuring 0.23m x 0.11m x 0.70m.

A floor area was observed within the rectangular structure and measured 13.0m long and 5.4m wide. The workshop's brick walls and floor surface (190) were not bonded into the either pre-existing Kilns 1 and 2. The hovel floor surface of Kiln 2 appears to partly extend northward from the structure into the workshop and abuts the workshop brick floor. The brick floor surface (190) was crudely laid in a stretcher pattern and bricks had been exposed to wear and tear. Both kilns had connecting entrance ways leading into the workshop and brick floors were particularly well worn in these locations. This connecting workshop structure appears on the 1882 Ordnance Survey map but the structure appears to post-date the kilns in construction.

Workshop 3 (Figs 5 and 10 Plate 10)

Concrete Floor (192)

Brick wall (193)

Immediately to the south of the circular Kiln structure 2 was an adjoining brick structure, perhaps a foundation for Workshop 3.

The structure measured 8.45m long, 7.00m wide and survived to height of at least four brick courses. The wall foundation (193) comprised two bricks in width and was constructed of common red bricks, measuring 0.23m x 0.11m x 0.70m.

A concrete floor (192) was observed within the rectangular structure and measured 10m long and 6.30m wide. Cartographic evidence indicates a new structure which does appear on the 1903 OS map and shows a narrow block extending towards Kiln 2 (Richards and Hyam 2012). The alignment of this block varies from the excavated Workshop 3 and does not directly abut Kiln 2. The workshop does have a concrete floor which suggests that the build is likely to date from either late 19th or early 20th century. Workshop 3 is perhaps a temporary structure erected between the 1882 and 1903 Ordnance surveys and replaced by Building 4.

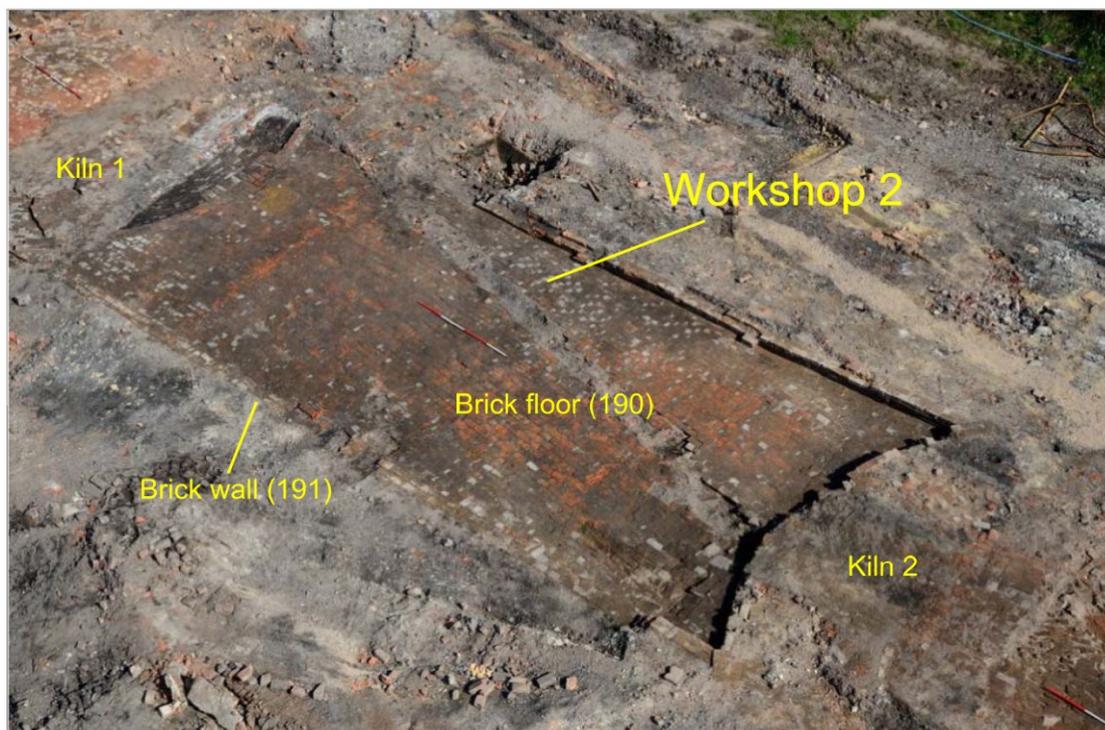


Plate 9. Workshop 2.



Plate 10. Workshop 3.

Period 2. Coleorton Pottery Late 19th to Early 20th Century

Phase 3. Late 19th Century to Early 20th Century Pottery Expansion and Construction Down-Draft Kilns



Plate 11. Kilns 4, 5 and 6 with subterranean collecting flue.

Kiln 3 (Figures 5 and 12; Plates 12 and 13)

Kiln Structure 3 was the southerly of two circular features that are depicted on the 1903 OS map, located to the south-west corner of the pottery site that were aligned north to south. The kiln measured 7.0m in diameter and contained ten ash pits (171) of which five were intact. The eastern edge of the kiln and parts of the centre was partially damaged by the insertion of the later wall foundations resulting in the destruction of three ash pits. The five surviving ash pits all measured 1.30m in length, 0.45m wide and surviving to maximum depth of 0.30m and projected beyond the circumference of the kiln floor foundation. They were constructed with common red bricks and a surviving fire bar was found in one of the pits. The central kiln floor was sealed under demolition debris (157) so a section was excavated. The section revealed that the kiln was constructed on foundation of brick rubble insulation layer (152) 0.24m deep. The insulation layer comprised compacted common red brick rubble mixed with reddish brown clay silt and cinders. The combination of sherds of 'art pottery' with coloured glazes and moulded yellow wares from context [152], situated beneath Kiln 3, suggest a later, probably 20th century, date. The presence of an impressed 'Lount Ware' mark of one of the yellow ware bases seems to confirm this, probably dating to the years 1911–1919 when The Trivett Pottery Co. Ltd. operated from the Coleorton works (Barker Appendix 2)

At the centre of the kiln, a large collecting circular brick flue (165) had been constructed, 0.80m deep, 0.70m in diameter, with common red bricks laid as stretchers in circular alignment, eight courses high and two bricks wide. The circular structure was supported by an internal wall brace aligned north-west to south-east which comprised one brick course wide (0.11m) and eight courses high (0.80m). The wall consisted of blue engineering bricks laid in stretcher bond with frequent 70mm wide gaps to presumably let hot air pass through. Directly to the north-west was a connecting diagonal collecting linear flue passage structure (156) that drew off the collected heat and leads to an underground flue and chimney. The flue comprised linear brick vaulted arch structure aligned north-west to south-east. The structure comprised two skins of common red brick (230mm x 80mm x 110mm) laid as stretchers for the walls and headers for vaulted or arched roof. The structure measured 0.80m high and 0.90m wide.

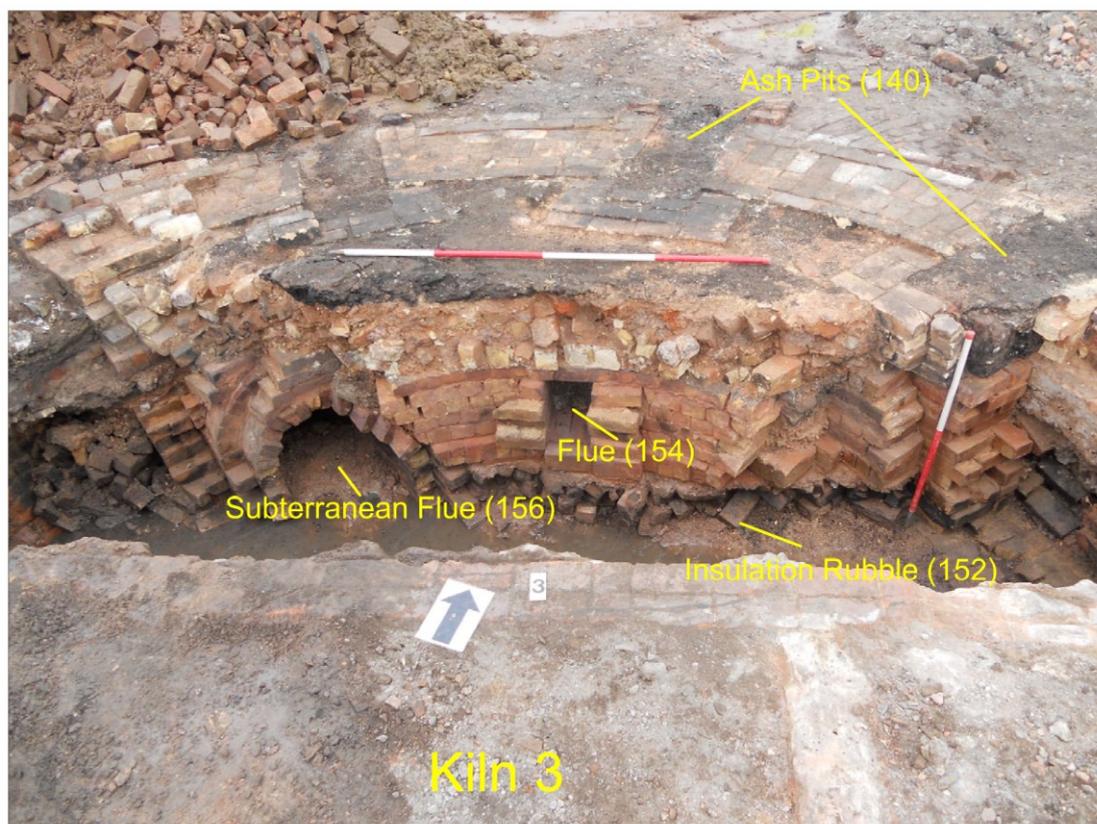


Plate 13. Kiln 3 excavated section.

Kiln 4 (Figures 5 and 12; Plates 11, 14 and 15)

Kiln Structure 4 was located towards the south-west corner of the Lount pottery site and was the northernmost of the two circular features that are depicted on 1903 OS map, aligned north to south. The kiln measured 7.0m in diameter and the northern edge of the kiln was partially damaged by the insertion of the later wall. The centre of the kiln was sealed under demolition debris which was removed with machine and hand excavation, revealing in plan some of the internal down draught flues. A section was excavated across the centre of the kiln and revealed that the kiln was constructed on a foundation of a brick rubble insulation layer (171), 0.30m deep. The insulation layer comprised compacted common red brick rubble mixed with reddish brown clay-silt and cinders. At the centre of the kiln a large collecting circular brick flue (172) had been constructed. The flue was partially truncated and measured 0.40m deep by 0.70m in diameter, and was constructed with common red bricks laid as stretchers in circular alignment, eight courses high and two bricks wide. The circular structure was supported by an internal wall brace (175) aligned north-west to south-east, which had collapsed, and a surviving blue brick wall one brick course wide (0.11m) and two courses high (0.20m). Directly to the north-west was a connecting diagonal collecting linear flue passage structure (173) that drew off the collected heat and led to an underground flue and chimney. The flue comprised a linear brick vaulted arch structure aligned north-west to south-east that measured 0.80m high and 0.90m wide. The structure comprised two skins of common red brick (230mm x 80mm x 110mm) laid as stretchers for the walls and headers for a vaulted or arched roof.

The circular kiln was constructed over the top of the collecting circular flue and flue passage. The outer circular wall (118) 7.0m in diameter 1.20m deep and 0.35m thick comprised a concrete core structure encased in common red bricks (230mm x 80mm x 110mm). A circular insulation deposit (120), 0.35m thick, comprised common brick rubble mixed with reddish brown clay-silt and cinders. The insulation deposit (120) was sealed by an inner circular wall (121) that measured 5.30m in diameter by 1.20m deep, and comprised common red brick (230mm x 120mm x 80mm), two brick courses thick, laid as headers as the outer skin and stretchers as the inner skin.

The central kiln floor had a concrete base (174), 50mm thick which sealed the insulation layer (171) below and was sealed by another insulation deposit (176) that comprised crushed orange brown refractory brick rubble, 0.45 m thick. Inserted into the insulation material (176) were two linear flues intersecting in the centre to form a

cross (125). The linear flues were constructed using orange refractory bricks (230 x 120mm x 70mm) laid as stretchers to form the walls and floor of the narrow flue channels. The flue channels measured 0.40m deep and 0.20m wide and were capped by large orange refractory brick tiles (410mm x 240mm 90mm). These cross flue channels were connected to the central collecting flue (172) and another outer circular flue channel (123). The circular flue comprised a narrow cavity, 0.10m wide and 0.45m deep, between a lining of refractory bricks found surrounding the interior of kiln wall and central kiln insulation layer and floor (127). Between the two intersecting cross flues (125) the insulation layer (176) was sealed by a brick floor (127). The kiln brick floor comprised orange brown refractory bricks and half bricks laid in a random pattern, one course deep. There were no visible ash pit foundations inserted into the perimeter of the kiln and it is thought they may have been removed when the kiln was demolished. The outer wall did have patches of burning suggesting intense heat, which could indicate the location of fire pits.

These flues were probably all that remains of what would have been an elaborate interconnecting flue structure within this down-draught kiln and were almost identical to the flues and structures found in Kiln 3.

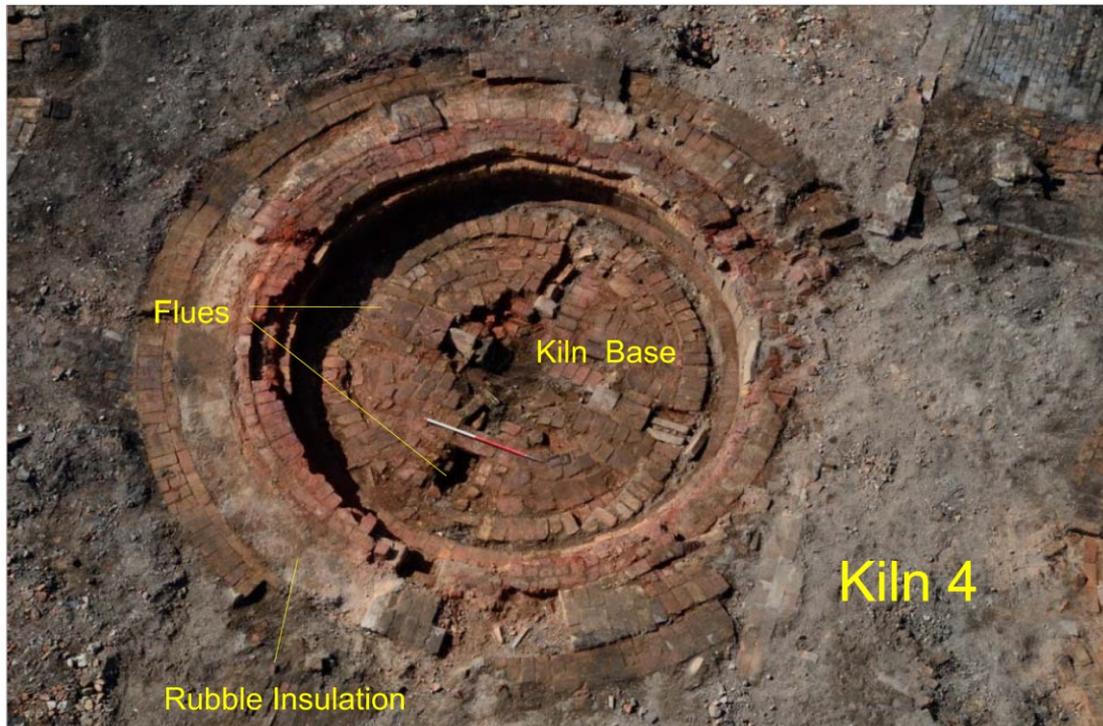


Plate 14. Kiln 4 looking south-west.



Plate 15. Kiln 4 excavated section.

Kiln 5 (Figures 5 and 12; Plates 11, 19 and 20)

This Kiln Structure was also located in the south-west corner of the Lount pottery site and is thought to be an additional third circular feature that appears on a 1923 OS map (Figure 13), placed directly to the north of Kilns 3 and 4 and next to flue structure chimney 7. This kiln measured 7.0m in diameter and the centre of the kiln was sealed under demolition debris which was removed with machine and hand excavation which revealed in plan some of the internal down-draught flues.

Excavations revealed a plan of the kiln structure which comprised an outer circular wall (102) 0.35m thick by 7.0m in diameter, of common red bricks (230mm x 80mm x 110mm). Immediately inside the wall was a circular insulation deposit (103) that measured 0.35m thick, and comprised compacted brick rubble mixed with reddish brown clay silt and cinders. The insulation deposit (103) was sealed by an inner circular wall (104) that measured 5.3m in diameter, and was again constructed with only common red brick (230mm x 120mm x 80mm) 0.33m thick, with two brick courses laid as headers as the outer skin and stretchers as an inner skin.

In plan at the centre of the kiln the excavation revealed two linear flues intersecting in the centre to form a cross (108). The linear flues were constructed using orange refractory bricks (230 x 120mm x 70mm) which were laid as stretchers to form the walls and floor of the narrow flue channel. The flue channels measured 0.40m deep and 0.20m wide and were capped by large orange refractory brick tiles (410mm x 240mm x 90mm). At the centre of the intersecting cross flues was a large square refractory tile that measured 610mm sq. These cross flue channels were connected by an outer circular flue channel (106) and (107). The circular flue comprised of a narrow circular cavity measuring 0.10m wide and 0.45m deep that was connected to the intersecting cross flues.

The circular flue channel (106) and (107) was located between an outer lining of brick walls and insulation linings and inner kiln refractory brick circular structure (107). A brick floor (109) was constructed within the quadrants created by the two intersecting cross flues (125). The floor was constructed using orange brown refractory bricks and half bricks laid in random pattern, one course deep.

At the centre of the kiln the refractory tiles were removed and revealed a large collecting circular brick flue (177). The circular flue, 0.80m deep by 0.70m in diameter, was constructed with common red bricks laid as

stretchers in circular alignment, eight courses high with two brick skins. The circular structure was supported by an internal wall brace (142) aligned north-west to south-east and a blue brick wall one brick course wide (0.11m) 0.60m high by 0.60m long. Directly to the north-west a connecting diagonal collecting linear flue passage structure (111) was visible. This would have drawn off the collected heat and led to an adjacent underground flue and chimney. The flue comprised a linear brick vaulted arch structure that measured 0.80m high and 0.90m wide. The structure comprised two skins of common red brick (230mm x 80mm x 110mm) laid as stretchers for the walls and headers for the vaulted or arched roof.

As was the case with kiln 4 there were no visible ash pit foundations inserted into the perimeter of the kiln, and they may have been removed when it was demolished. The outer wall of the kiln did have areas of burning, which may signify signs of intense heat from the location of the fire pits.

These flues are probably all that remains of what would have been an elaborate interconnecting flue structure within this down draught kiln and are almost identical to the flues and structures found in (Kiln 4).

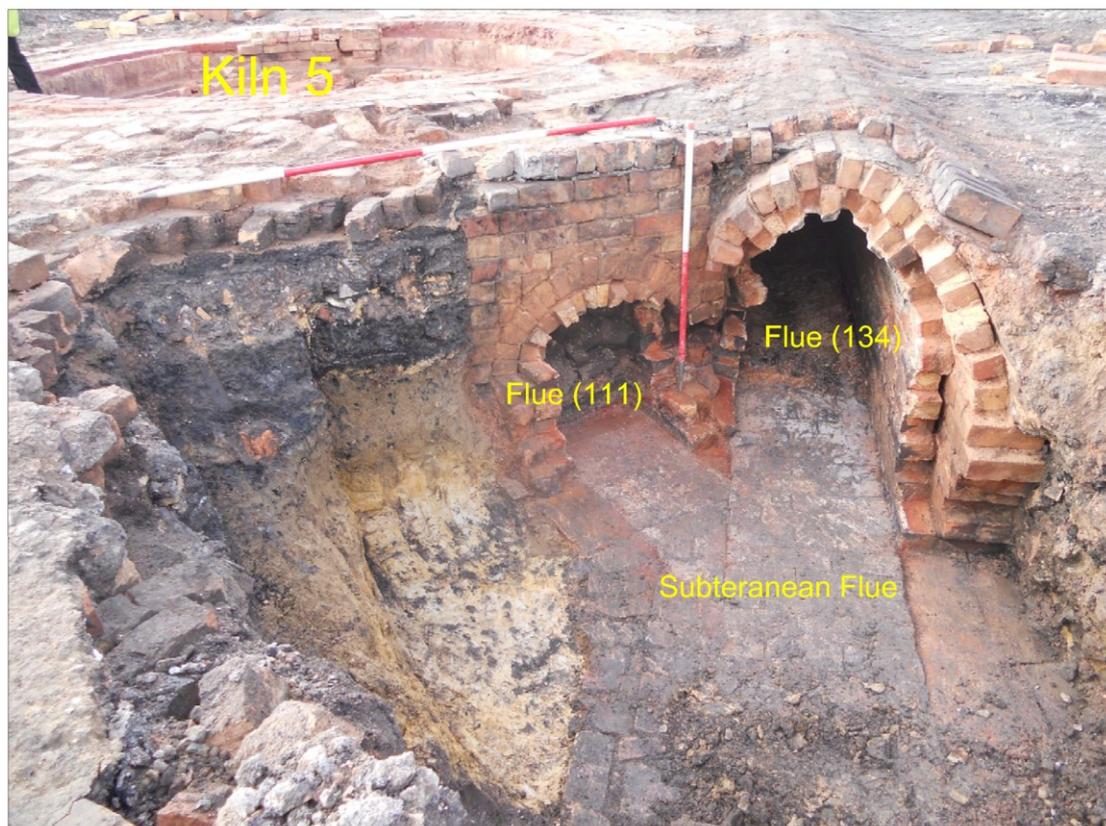


Plate 16. Excavated section across subterranean collecting flue structure.

Subterranean Flue Structure (Figures 5 and 12; Plates 11, 19 and 20)

Directly to the west of kilns 3, 4 and 5 was a connecting large linear flue passage structure (134). The principle of this flue was to gather up heat for exhaust through a chimney. The heat had been gathered up and drawn away from individual kilns using diagonal flue passages constructed under each kiln. The diagonal flues were all connected to the large linear flue (134).

The flue structure comprised a linear brick vaulted arch structure aligned north to south and measuring 1.25m high and 1.10m wide. The structure comprised two skins of common red bricks (230mm x 80mm x 110mm) laid as stretchers for the walls and headers for the vaulted or arched roof. The base of the flue had been constructed with bricks

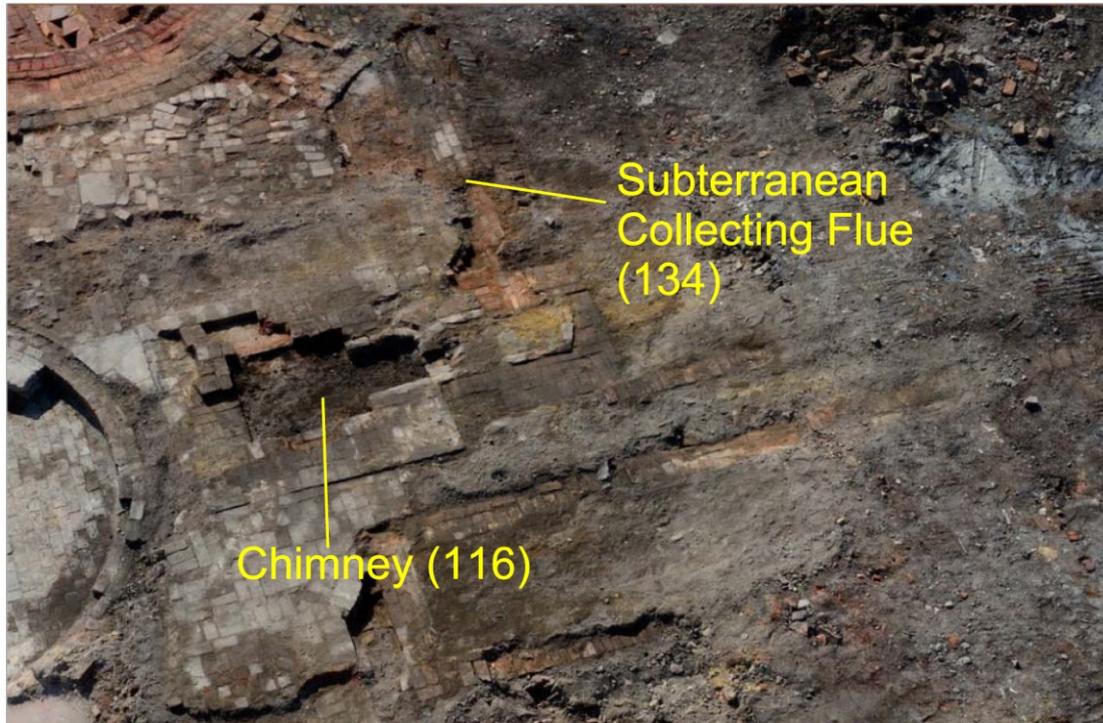


Plate 17. Chimney foundation and collecting flue.

Chimney (Figures 5 and 12; Plate 17)

A chimney (116) was found at the north end of the main flue structure comprised a chimney stack base and connecting flue. The connecting flue adjoined the main north to south aligned flue (134) and took exhaust heat directly eastward at 90 degrees into the base of the chimney. The connecting flue comprised a rectangular brick structure measuring 2.35m in length and 1.70m wide, constructed with common red bricks (230mm x 110mm x 70mm). The walls of the flue were three skins of brick thick, constructed with mixture of stretcher and header bonding. In the centre was a rectangular cavity or flue which measured 1.80m long and 0.60m wide that ran into the chimney stack base. The chimney stack base measured 2.60m square and was constructed with regular red bricks using a mixture of stretcher and header bonding patterns to create walls up to 0.80m thick. The chimney had a square cavity at its centre measuring 1.15m², with an additional inlet flue on the west side, 0.80m long and 0.60m wide.



Plate 18. Coleorton Pottery staff, with limited view of Kiln 3 on the right and Kiln 4 on the left with building 4b at the back.

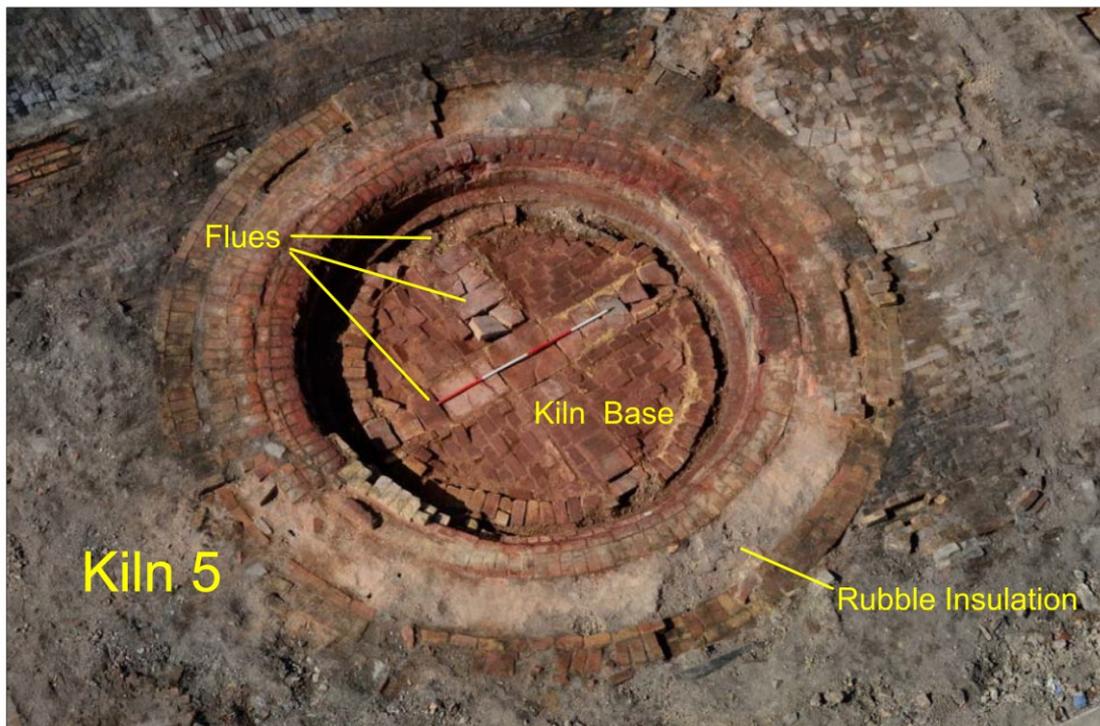


Plate 19. Kiln 5 looking north-west.

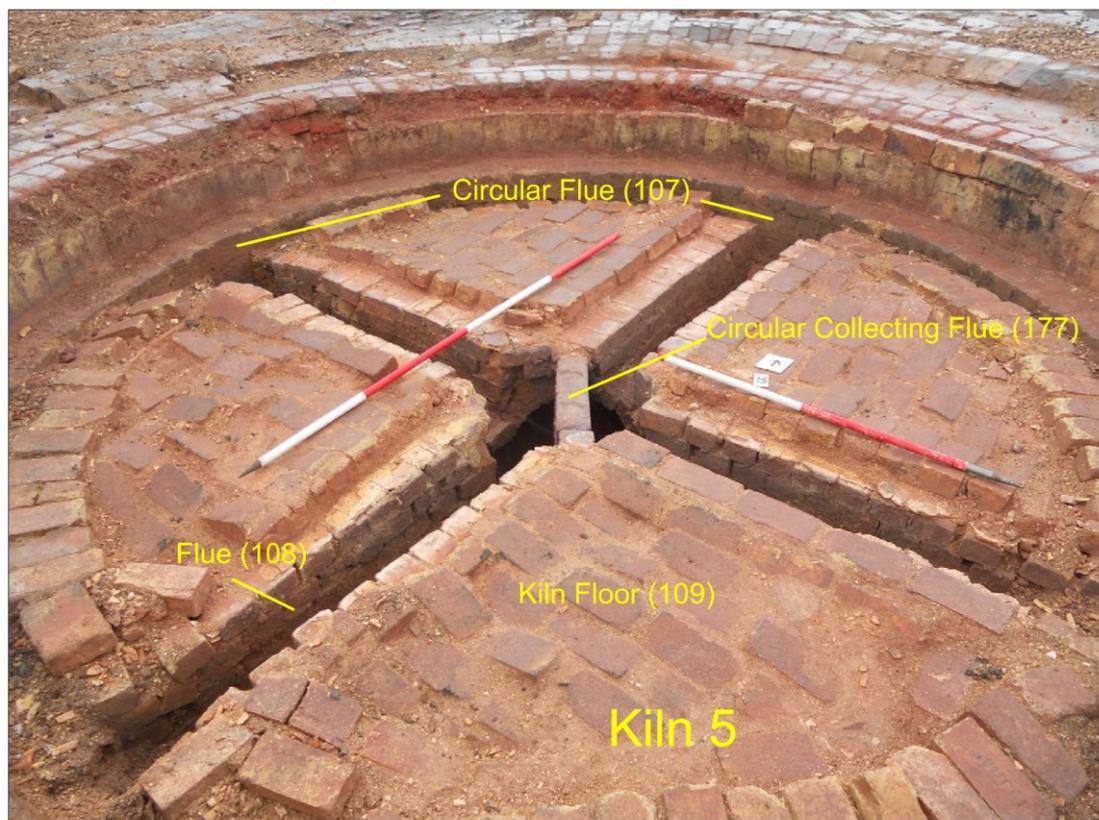


Plate 20. Kiln 5 internal flue structure.

Appendix 2. The Ceramics.

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Introduction

The ceramic assemblage from the Coleorton Pottery excavation comprises 784 ceramics sherds (54,821g), of which 535 (10,490g) are vessels, both biscuit and glossed, including sanitary ware; two (72g) are decorative tiles; and 218 (28,848g) are kiln furniture (stilts, spurs, kiln tile bats or shelves, shelf supports and saggars) or other material relating to the production process (clay bat, Buller's rings, pieces of wad clay and other kiln material). Other non-vessel ceramic material comprises a range of cylindrical pipes or drain pipes and a number of pieces which have not been identified. A limited number of roof tile fragments and other ceramic building material (16 sherds, 503g) was recovered but, while quantified, is not discussed here. The same is true of four pieces (431g) of iron and three (73g) of glass.

Description of Finds by Context

Unstratified material from site stripping [101]

This material includes 97 sherds of yellow ware, of which 54 are glazed. A further 43 are unglazed, but clearly of yellow ware, having either the internal white slip coat which appears as a pearl glaze in the finished wares, or the relief moulded decoration found on the yellow ware mixing bowls. Mixing bowls are very well-represented, with 35 sherds of at least nine vessels, all with moulded exteriors and internal white slip coats (Plates 21-22). Other forms include dishes, oval baking dishes or pans, bowls, basins, mugs and a cover, as well as what appears to be a plaque with relief moulded decoration.

One small straight-sided, slightly flaring dish of 41mm height and 115mm base diameter has a moulded interrupted footring and an internal pearl glaze over a white slip coat. It bears an impressed mark to the base, '[...]/ ENGLAND / LEADLESS GLAZE / [...illegible...]/ FIRE PROOF' (Plate 23).

Another possible dish base has an impressed mark '[...] WARE / [E] NGLAND / LEADLESS / GLAZE' to its base; a complete version of this mark is present on a sherd from context [152].

Most of the yellow wares have internal white slip coats, but those which do not have slip-banded decoration to their exteriors, combined in three cases with dendritic mocha decoration in blue or green (Plate 24). Identifiable slip-decorated forms include bowls, a mug and a cover.

There are also 89 sherds of brown-glazed Rockingham ware, with another two possible Rockingham sherds which are unglazed. All of the vessels appear to be teapots and teapot covers (Plate 25), with just one unglazed moulded body. Where decoration exists, it is mostly confined to single bands of rouletting either to the shoulder or rim of globular forms, although two sherds have applied moulded, or sprigged, reliefs in white clay in the form of stylised flower heads.

Other biscuit wares may be unglazed Rockingham ware, unglazed yellow ware or other types not identified. These are uncertain forms with no distinguishing features.

A small number of sherds may be described as 'art pottery', although the precise identification of some of these is uncertain. Fifteen sherds in a fine orange fabric have a turquoise glaze, thin and badly blistered in places, are from at least two vessels. One is a small dish or bowl with a neat straight-edged rim (Plate 26), while the other is an unidentified moulded form. Eleven sherds, representing six vessels, have a green glaze. One vessel, in an orange fabric, is possibly a flower pot or similar; its glaze has crawled in places. The others are in a buff fabric; three sherds have moulded exterior bodies, but the only diagnostic piece is a thrown pedestal base with a hint of turned decoration (Plate 27) and an incomplete impressed mark, '[...]T / ENGLAND', to the unglazed underside (Plate 28). Three sherds of two vessels have rich blue glazes over a buff fabric, with a possible bowl base bearing a very partial impressed mark to the underside, 'LO...]/.../ L...' (Plate 29). Another sherd in an orange fabric has a bright blue glaze. A further two more sherds, in a buff fabric, are from a cylindrical vessel; the external glaze is bright yellow, but the internal glaze is dull orange-brown.

Another 'art pottery' piece is a single unglazed base sherd of a dish or bowl in an orange fabric with graffito decoration cut through a white slip coat (Plate 30). On the inside there appears to be a stylised floral pattern whilst to the underside is a very fragmentary inscription or maker's mark.

Two tile sherds in a buff fabric may relate to the art pottery production at Coleorton. They have under-glaze painted decoration in yellow, brown, green and cream, forming a stylised floral pattern (Plate 30). There are splashes of yellow glaze to the underside.

Other sherds may be part of the 'art pottery' production at the factory, but are of a slightly different character. There is one heavily moulded piece which may better be described as 'redware'. It is in an orange fabric with a rich red/brown glaze, but the form is uncertain. Two round-bodied vessels of uncertain form, also in an orange fabric have a red-brown internal glaze and an external glaze which is coloured with a thin wash of white slip. Three other vessels in an orange fabric have moulded bases – and in one case a moulded projecting foot – and an internal white slip coat; the forms are uncertain. Another two sherds of a cylindrical vessel are in an orange buff fabric; the external glaze is yellow, while the internal glaze is orange-brown in colour.

Four more sherds are probably products of the factory, but their identification is uncertain. Two joining sherds are from a cylindrical mug, with a plain lower handle terminal, one is probably a dish base, and the other is the straight-sided rim of a deep dish or pan or similar. All are in a fine buff fabric, but the glaze is a very light brown/beige with fine white speckling. The glaze stops at the mug's base.

One unglazed sherd in a fine orange fabric is from a straight-side, flaring vessel with an out-turned rim. It is decorated with a band of roulette beading to the shoulder with another uncertain decorative band below this. The vessel is probably a flower pot.

There are four sherds of white-bodied earthenware, or whiteware. One sherd in a rather coarse white fabric has the appearance of a sponge dish liner or similar, but the identification is far from certain. Another is undiagnostic, but heavily crazed. Two further sherds are an undecorated cup base and a body sherd with over-glaze printed decoration in light brown. Two further white-bodied sherds are in a heavy sanitary ware fabric with a single white-glazed surface, but the forms are uncertain.

A number of other ceramic sherds are present. First, there is a base of a heavy poorly-formed dish with flaring sides in an orange-buff fabric which is heavily reduced. The internal glaze appears to be a brown salt glaze, while the exterior has a thicker brown glaze which may be felspathic. Three sherds of Bristol-glazed grey stoneware are from a shouldered cylindrical spirit bottle, with a brown slip wash above the shoulder. The thin-walled coarse earthenware jar in a reduced grey fabric with some cream-coloured laminations has a slightly rounded body and square rim; it has a dark brown glaze inside and out. One body sherd is of a white salt-glazed stoneware bowl and, finally, there are two unglazed body sherds which are almost certainly of vessels of medieval date.

Eighteen thrown narrow cylindrical or biconical items in an orange fabric are kiln shelf supports in a range of sizes. Six complete profiles (Plate 32-34) have heights of 82mm, 88mm, 131mm, 180mm, 206mm and 340mm; base diameters of 70mm, 79mm, 95mm, 79mm, 84 and 91mm; and rim diameters of 64mm, 62mm, 86mm, 65mm, 65mm and 82mm. All have a tapering hole running through their length, wider at the top. Four are unglazed or have just the faintest of flash glazes, while 13 have all-over or partial glazes which appear brown. White slip or an opaque white glaze occurs as washes on some of the supports, while others appear to have had their extremities dipped into this. One has a dribble of turquoise glaze or colour to part of its exterior. One of these supports seems to have an external brown salt glaze (Plate 35).

Amongst the kiln furniture are 18 stilt sherds, of which 15 are machine-made with double pointed terminals. Two examples with an arm length of 34mm have moulded marks 'A' and '5' in relief at the junction of the arms (Plate 36), while two more incomplete examples have the marks 'A' and '6' and 'A' and '8' (Plate 37). An incomplete stilt with an arm length of 38mm has the marks 'G & Co' and '6' in relief at the junction (Plate 38), and another with an arm length of 55mm has the marks 'A' and '8'. Two incomplete arms are marked 'A' and '1/2 10', and two more are marked 'C.F & Co'. Six more stilt arms are unmarked.

Three stilts are hand-formed in a buff fabric. A complete example (Plate 39) has arms with a length of c.38mm, and two incomplete arms have a length of c.55mm. The arms of these have a diamond-shaped cross-section with are squared-off terminals without points.

There are also six machine-made spurs in at least three sizes. One, with the mark 'A 8' in relief to the underside has sides of 44mm length and a height of 31mm (Plate 40), while an unmarked example has side of 35mm length and a height of 23mm. The others are incomplete variant forms, but are marked '7 A' or 'A 7' to the underside.

Twenty-six saggar fragments are present, of which 21 have internal glazes and were consequently used during the glost firing. No forms can be determined, but all are in coarse grogged cream or orange fabrics.

Also related to the firing are 28 pieces of extruded clay or 'wad clay'.

One heavy, coarse ceramic item in a coarse buff body may be a 'batter'. This is a heavy, handled item – the handle here is broken – used to bat out clay for use in press-moulding (Plate 41). The piece here has a 'base' diameter of 211mm and a height slightly in excess of 81mm. There is a hollow upper face to accommodate the workman's hand and a crude hole through the centre of this piece. To the underside are sloping rectangular depressions radiating out from this central (Plate 42).

A small roughly globular hand-formed clay piece has no obvious function, unless it was used in some way within the kiln during firing. It is salt-glazed, with pooling and scarring on one face.

Other salt-glazed items include 15 pieces of cylindrical pipes or drain pipes of different dimensions. No clear forms can be identified, but there is one rim/edge. However, the function of a number of other salt-glazed items is even less certain. Two elongated conical pieces in a fine buff-grey fabric, with a length of more than 180mm and a maximum diameter of 107mm, have a large hole through the body, a button-like terminal and a narrow lower body (Plate 43); they bring to mind electrical insulators, but no parallels have been identified. Another collared terminal may be from something similar to these pieces, but a precise identification has not been possible. Two heavy squat cylindrical items with a height of 111mm have a flange or collar to the lower body, a pronounced external screw thread above this, and a central well of 70mm diameter and 60mm deep (Plate 44). The 'rim' diameter is 137mm, while that of the 'base' is 161mm. The underside preserves the remains of a heavy rectangular projection, of which an example may also be present, measuring 123mm width, 103mm height and 38mm thickness (Plate 45). These items are in a slightly coarse grey-buff fabric with brown ext salt glaze. No identification of these items has been possible. Another problem piece is conical in form of more than 37mm in height, with a flat base of 100mm diameter, but it is clearly incomplete, being broken at its narrowest point. There is a narrow central hole running through this and the fabric is of a fine buff-light grey colour. There is a thin brown external salt glaze. Two further joining pieces may be a projection piece of some form of drain pipe or similar with a rim diameter of 108mm and a central hole of 55mm diameter. This is in a coarse buff-grey fabric with a brown salt glaze inside and out.

Kiln 1 Contexts

130. This ash pit fill contained 14 sherds (247g) of yellow ware, biscuit and glazed, three sherds (743g) of saggar and eight pieces (91g) of wad clay. Seven of the wad clay pieces have clinker fused to and around them, consistent with their recovery from a kiln's ash pit. The saggars are of uncertain size and form but comprise one glost and one biscuit example. The yellow ware sherds are undecorated and largely undiagnostic, but include one bowl or basin and one wide moulded dish. Internal white slip coats are used to produce white- or pearl-coloured glazed surfaces. One base sherd has illegible impressed letters to the underside.

131. This context, a layer of compacted cinder beneath the repair of the hovel floor, contains ten pieces (64g) of kiln furniture. These comprise one arm of a hand-formed stilt in a buff fabric, an incomplete arm of a small machine-made stilt with a double-pointed terminal, one machine-made spur with the moulded marks 'A' and '7' in relief on the underside, and seven pieces of extruded wad clay.

132. This sub-kiln context contains a single rim sherd (11g) of a cream ware plate of plain circular form of c.242mm diameter. The sherd's upper surface exhibits heavy wear to its glaze.

133. This context, the fill of a feature below Kiln 1, contains 65 ceramic vessel sherds (1,818g) and 15 sherds (1,094g) of kiln furniture and related material. All of the ceramic vessels are of yellow ware, comprising both biscuit and glazed sherds (50 and 15 sherds respectively). Few of the vessels forms can be identified with certainty, but there are two blacking pots (Plate 46), a dish or baking dish, two dishes or pans, a jug, basins and at least three chamber pots, as well as other wide-mouthed vessels of uncertain form. A high proportion of the vessels – especially bowls or dishes, a basin and the chamber pots – are decorated. Decoration comprises banded blue and white slip, combined on some of the larger vessels with 'mocha' or dendritic patterns in blue or green

(Plate 47). Two biscuit bowls or dishes and a chamber pot have distinctive slip decoration comprising star-like – and other – patterns formed of small blue mocha dots on a band of white slip (Plate 48). Another chamber pot and a bowl are decorated with narrow turned grooves infilled with blue slip (Plate 49). Eight sherds are from seven hand-formed stilts in a refined buff fabric. Their arms are of diamond cross-section and, where complete, of c.50 or 64mm length. Two of the smaller arms have brown glazed contact scars, indicating that they were used to support Rockingham ware vessels during their glost firing. Three saggar fragments in a coarse grogged buff fabric are unglazed and were probably used for biscuit firing. Four pieces of wad clay are in a refined buff fabric.

Two final ceramic fragments (16g) are of brick or tile, while a further item is not ceramic.

Kiln 2 Contexts

135. This context is one of two fills recovered from a single ash pit of this kiln. The finds comprise 14 sherds (303g) of pottery and a single arm (4g) of a machine-made stilt with a double pointed terminal and the letter ‘A’ and numeral ‘5’ moulded in relief. The ceramic vessels are all of yellow ware, both biscuit (five sherds) and glost (nine sherds). Vessels include mixing bowls with relief-moulded exteriors, dishes or baking dishes and oval dishes or pans with moulded interrupted footrings. The first two types have internal white slip coats beneath the glaze which results in a white coloured interior surface.

136. The material from the second ash pit fill context is similar to that from the first (135 above). Seven sherds (134g) are of yellow ware, of which five are from oval dishes or pans of different sizes, with evidence for the moulded interrupted footring noted in [135]. Two sherds are from dishes or similar with everted rims and white-coloured interiors resulting from the use of a white slip coat. One of the dish sherds is unglazed – the only unglazed sherd in the group. The fill also contains four pieces (97g) of extruded wad clay, three in a fine buff fabric and the fourth of a fine buff and red clay mix. One saggar fragment (559g) is a complete profile of 160mm height, but of uncertain form. It is in a coarse grogged buff fabric with no internal glaze, suggesting use for biscuit firing. A final ceramic item (17g) is of uncertain function. This is a poorly formed, slightly distorted, flat rectangular strip, 4mm thick, 20mm wide and more than 92mm in length, in a cream-coloured fabric with two roughly circular holes of 8 to 9mm diameter (Plate 50). There is a hint of glaze on the edge and one face. It is possible that this a test piece of some sort.

148. This context, situated below Kiln 2, contains 20 ceramic sherds (1,653g). Eight of these are of yellow ware, of which just one is properly glazed, and a second poorly glazed. Vessels include two bowls, a possible mug, a wide dish or similar, an oval dish or pan and two hollow wares of indeterminate form. Five of the sherds – the bowls, the mug and the uncertain hollow ware forms - have banded slip decoration, in brown, light blue, grey-green and white; on one large bowl this is combined with horizontal mocha dendritic decoration in blue. There is a single unglazed sherd of fine redware, from a small round-bodied vessel of uncertain form, and another unglazed and undiagnostic sherd may be of redware or coarse earthenware. One final earthenware sherd appears to be of cream ware, albeit of an uncertain form. This group also possible provides evidence for the manufacture of brown salt-glazed stoneware bottles. Two sherds of a single blacking bottle or similar, are clearly from a waster, with placing scars and ceramic material adhering to the underside and a very thin and partial external brown salt glaze. A piece of kiln furniture is the arm of a hand-made stilt of inverted ‘V’ section, in a refined yellow ware fabric, with a cut tapering end. There are also six saggar fragments from at least two saggars of uncertain form and a single extruded piece of fine buff-coloured wad clay.

Kiln 3 Contexts

140. This ash pit fill contains 19 ceramic vessel sherds (619g) and 12 sherds (1992g) related to the firing process. Seventeen of the vessel sherds are probably of yellow ware, comprising at least four mixing bowls with moulded relief decoration to their exteriors and internal white slip coats, two dishes or pans – one with an internal white slip coat – and one large undiagnostic vessel with a moulded exterior surface. Two further moulded sherds, undiagnostic, are in a glazed redware body. There are also in this context three sherds of saggars in a coarse grogged cream or buff fabric with internal glazes, used for glost firing, seven pieces of wad clay, and two examples of firing trial rings, or ‘Bullers’ rings’ (Plate 51) of 62mm diameter and 7mm thickness, with a central hole of 21mm diameter,

152. This loose rubble deposit below Kiln 3 includes 23 ceramic vessel sherds (897g), of which six are from three yellow ware vessels, all with internal pearl- or white glazes over a white slip coat. These are a small oval straight-sided pan or baking dish, a moulded mixing bowl and a dish, basin or pan. The small oval vessel has

base dimensions of 83mm x c. 132mm and an impressed mark to its underside: 'LOUNT WARE / ENGLAND / LEADLESS / GLAZE' (Plate 52) which is probably the same as that on a sherd from [101]. Eleven sherds are from what appear to be buff-bodied 'art pottery' with coloured glazes. The forms are uncertain, but may include flower pots, a vase and bowls with blue-green – and in one case olive green – glazes. Another sherd is from a wide dish, basin or pan of 240mm base diameter of redware or similar; it has a buff-orange fabric, a red-brown external glaze and an internal pearl-coloured glaze over a white slip coat. Four more sherds are from a slab-built vessel of uncertain form with both straight vertical and inwardly sloping sides and holes pushed through one flat surface. The vessel is in a cream-white fabric with a green glaze inside and out. One final sherd is of uncertain form in a vitrified refined white body with a thick opaque white glaze; this may possibly be an item of sanitary ware.

In addition there are eight pieces (140g) of wad clay and an unglazed rim sherd (75g) in a pink-buff fabric which is either from a yellow ware vessel or from a kiln shelf support.

Kiln 5 contexts

137. This context, a loose fill within the cross flue of Kiln 5, contains 21 ceramic vessel sherds (302g), all of yellow ware, and all but one unglazed. Vessels include eight sherds of three moulded mixing bowls with internal white glazes over a white slip coat, a bowl and undiagnostic dishes or pans. None of these has any surface decoration.

Thirty-eight sherds (1,243g) relate to the firing process and include 27 pieces of wad clay (Plate 53), four saggar fragments (one with an internal glaze), one firing trial ring or 'Bullers' ring' of 62mm diameter and 7mm thickness, with a central hole of 21mm diameter, and a single machine-made stilt in a high-fired white fabric. This stilt has arms of 40mm length and at the junction of the arms is the letter 'A' and the numerals '6' in relief. Lastly, five sherds are from four small square tiles with sides of 80mm and a thickness of 12 – 15mm (Plate 54–55). They are in a cream-buff fireclay-like fabric, with moulded undersides and, in the case of three of the four tiles, blistered opaque glazes to their upper surfaces. Two sherds have the moulded number '270' in relief on the underside, and one of these also has the moulded inscription 'LEBON'. This last has a hand-written inscription to its underside in black ink or paint, 'K [...] / EGG. GR / 2324'. Another sherd has an incomplete hand-written inscription to the underside, 'CR [...] / 64[...]', also in black.

141. This context, close to Kiln 5, contains 110 sherds (3,124g), of which 93 (2,111g) are of ceramic vessels. The dominant wares types are Rockingham and yellow ware, each represented by 43 sherds. All of the Rockingham wares are thrown teapots of a globular form or their covers. Two raised rims from different teapots are decorated with single bands of zig-zag rouletting, and four body sherds have similar rouletted bands. Only one other Rockingham sherd is decorated, with a crude applied sprigged relief motif in white clay in the form of flowers and leaves, which has additional under-glaze painted highlights in red, light blue and green. A further teapot rim, again from a globular form, is undecorated. There are two basic forms of teapot cover, one flat but slightly raised towards the centre (Plate 56), the other with a low domed centre and a flat rim (Plate 57); knobs are plain turned 'button' forms.

The yellow wares forms includes a blacking pot, a possible jug, an oval baking dish, perhaps two mugs, at least two moulded mixing bowls, and other dishes, bowls or basins, a cover of 120mm diameter and a toilet bowl. The mixing bowls and a number of other forms have internal white slip coats, while the cover and one of the mugs have slip-banded decoration. Six moulded sherds, unglazed but probably of yellow ware, appear to be from plaques with relief moulded decoration to one face comprising, amongst other things, a cherub's head amongst foliage (Plate 58); the moulded face is covered by a white slip coat.

In addition, there are three sherds of refined redware, one of white earthenware, one of a cream ware saucer, and two sherds of a coarse earthenware jug or similar round-bodied form. The jug's fabric is buff-pink in colour with an internal dark brown glaze over a dark red slip coat. Traces of dark red slip on the exterior suggest that this too was similarly coloured and glazed. The redwares are all in an orange fabric with light brown glazes, where present. Forms include an oval dish or baking dish, an unidentified round-bodied vessel and a possible teapot spout with slip-banded decoration. The round-bodied vessel has an external glaze streaked with white, the result of a thin white slip wash being applied over the body prior to glazing.

Kiln furniture includes five stilts, two biscuit saggar fragments and two pieces of extruded wad clay. The stilts are machine made in three sizes, all bearing the letter 'A' in relief and the numerals '5', '6' and '7', indicating the different sizes. Sizes '5' and '7' are represented by two examples (Plate 59), while there is just one example

of '6'. With the exception of one of the size '7' stilts, these are unglazed, although this does not necessarily indicate that they were not used. Two more sherds appear to be kiln furniture of some sort. The first is a roughly-formed salt-glazed bar or rod, pinched-off at one end, but lacking its other end, which was perhaps used to support items during firing (Plate 60). The second, also salt-glazed, is a folded piece of clay which has been cut off at one end; its precise function is uncertain.

Six sherds of drain pipes or other and other pipes in a range of sizes are all salt-glazed.

Discussion

The wares produced during the life of the Coleorton Pottery are not well-known and little documentary evidence appears to survive to clarify the situation. One generally reliable contemporary source, Llewellyn Jewitt, informs us that the 'productions are yellow, buff or cane, and Rockingham wares, in which all the usual domestic articles are made' (Jewitt 1883: 380). However, he describes production at a time before major changes occurred at the factory. These changes may be reflected in the expansion of the works in the period between 1882, when the 1st Edition Ordnance Survey map shows just two kilns on the site (Kilns 1 and 2), and 1903, when the 2nd Edition Ordnance Survey map shows that two new kilns (Kilns 3 and 4) have been built. A further kiln (Kiln 5) is shown on the 1923 Edition of the Ordnance Survey map.

The factory's movement into the production of 'art pottery' is well-known, perhaps coinciding with the arrival at the factory in early 1898 of Carlo Manzoni, formerly of the Della Robbia Pottery at Birkenhead, but latterly of Hanley, Stoke-on-Trent (Godden 1964: 412-13; <http://www.studiopottery.com/cgi-bin/mp.cgi?item=371>). Manzoni & Co produced a range of decorative wares under the name 'Minerva Ware', which presumably continued to be made following the company's relocation to Coleorton. However, Manzoni remained at Coleorton for just one year, before rejoining Della Robbia. A few examples of art pottery attributed to Coleorton have been identified, but there is no definitive record of the factory's products from the 1880s and later. It is impossible to be certain of the uses to which the two new kilns shown on the 1903 Ordnance Survey map were put, but it is worth putting forward the hypothesis that they relate to developments in manufacture during, or immediately following Manzoni's time at the pottery, for new types of ware would probably have necessitated new kilns in which to fire them. This would have been a greater necessity, as all the evidence points to the continued manufacture at Coleorton of yellow wares (if not necessarily of Rockingham wares), which would probably have continued to receive their biscuit and glost firings in the factory's two older and larger kilns.

The kiln furniture, etc

The assemblage includes a variety of kiln furniture and items related to the firing process. The most substantial of the latter are the 18 shelf supports, in a variety of forms and sizes, recovered during the site stripping process (context [101]). There is no way of knowing exactly how these were used, although shelf supports are common finds on industrial pottery production sites. Nor is it possible to be certain of the types of ware to which they relate, although the majority have lead-glazed surfaces or flash glazes which seem to suggest use within a glost kiln and one has a dribble of turquoise colour or glaze to one side. The exception is one support which appears to have an external salt-glaze.

Other items related to firing are the annular firing trial rings, one from [137] and two from [140], which were placed inside the oven to monitor temperatures during firing. The rings' bodies shrink at temperatures beyond 900 degrees centigrade and the removal of rings from the kiln during firing allows the rate of shrinkage, and consequently, the kiln's internal temperature, to be measured. Rings were mass-produced by Bullers of Milton, Stoke-on-Trent, from 1910 and, while there is no evidence that they invented them, the name Buller's ring has been consistently used since that time (Taylor 2003: 53). Buller's rings were widely used by pottery manufacturers during the 20th century, although the earlier use of similar items cannot be ruled out.

There are 48 pieces of specially-made kiln furniture related to the glost (i.e. glaze) firing, of which 43 are stilts and spurs. Some of the kiln furniture represents local solutions to the problems of placing wares, with a number of three-armed stilts, or fragments of them, which were probably made on the factory site from local buff-firing clays. The arms of these stilts are mostly of a diamond-shaped cross-section with cut squared-off ends, but with one example whose cross-section is of an inverted 'V' shape with a tapering cut end, were formed individually in moulds, but joined together in threes by hand. Examples of this type are known from other yellow ware pottery sites, such as Sharpe's Pottery in Swadlincote (Barker 2011), where they were clearly used in the placing of yellow wares and Rockingham wares. Here at Coleorton, stilts of a diamond-shaped cross-section have been recovered from contexts [101], [131] and [133], while just one arm with an inverted 'V' cross-section was found

in [148]. Arm lengths, where measurable, are 38mm, 50mm, 54-55mm and 64mm. Two of the arms from [133] bear contact scars with brown-glazed Rockingham wares, indicating that these stilts were used in placing wares other than yellow ware. Hand-formed stilts of this type were in widespread use from the mid-18th until at least the mid-19th century; they are made of clays which are appropriate to the type of ware for which they were being used. Hand-formed stilts decline in number on production sites after the middle of the 19th century with the introduction of more precise machine-made stilts in standard sizes, but they were not replaced by them immediately and examples are found alongside machine-made stilts well into the last quarter of the 19th century.

A number of distinctive stilts and spurs recovered from the excavation are mass-produced, machine-made items bought-in from specialist kiln furniture manufacturers operating in the north Staffordshire Potteries. Several of the stilts and spurs bear numerals moulded in relief – here, ‘5’, ‘6’, ‘7’, ‘8’ and ‘1/2 10’ - which relate to their size, and single letters or longer abbreviations of their manufacturer’s name. The letter ‘A’ is present on six stilts and five spurs from context [101], a spur from [131], a further five stilts from [141], and one from each of [135] and [137]. It is probable that these are the products of Thomas Arrowsmith & Sons, ‘Patentee and Manufacturers, Stilts, Spurs, Thimbles, and every requisite for firing tiles and pottery’ of the Wedgwood and Moorland Road Works, Burslem, Stoke-on-Trent (The Pottery Gazette Diary, 1905 and 1915). Thomas Arrowsmith is first listed under ‘spur and stilt makers for pottery manufacturers’ in 1884 (Kelly & Co. 1884: 662), and appears regularly in later trades directories.

Two more stilt arms from context [101] bear the mark ‘C. F & Co’, which identifies them as products of the Hanley factory of Charles Ford, who first patented the manufacture of stilts by die-pressing in 1846. He appears regularly in trades directories as ‘patent spur manufacturer’ or ‘patent stilt and spur manufacturer’ until 1882, although the firm had been in the hands of the executors of Ford’s estate since 1879 (Henrywood 2002, 126-7). In the 1882 and subsequent trades directory entries are for ‘Charles Ford & Co.’, and the company was still listed as manufacturers of ‘Stilts, Spurs, Thimbles, And every requisite for Firing Tiles, Pottery and Electrical Fittings’ in 1905 (The Pottery Gazette Diary, 1905).

One further stilt arm has the mark ‘G & Co.’, which is the company of Joseph Gimson & Co. of Market Street (now City Road), Fenton, Stoke-on-Trent, first recorded as ‘stilt & spur manufacturers’ in Slater’s Directory of 1862 (Slater 1862: 116). In 1870 they are listed as ‘manufacturers of patent spurs, stilts, etc.’ (Harrod & Co. 1870: 846-47.) The company continued in business throughout the last century, but in 1999 Diamond Gimson, then part of Dyson Thermal Technologies, closed its Fenton factory to concentrate production at Hartshill.

The presence of Staffordshire-made kiln furniture on this and other manufacturing sites throughout the British Isles - and beyond - underlines the importance of this area to pottery manufacturers across much of the globe. The Staffordshire industry was sufficiently large and well-established to support the full range of essential ancillary trades, including, from the mid-19th century, the manufacture of stilts, spurs and other items of kiln furniture. Pottery factories in north Staffordshire and beyond would have found it more economical and efficient to buy-in these items *en masse* than to attempt their manufacture themselves.

Other items of specialist kiln furniture include the four small square tile bats from context [137]. The presence of blistered opaque glaze on the upper faces suggests use in glost firing, while the hand-written inscription on the backs of two tiles may suggest experimentation or the monitoring of firing progress. The moulded mark ‘LEBON’ on the back of one of these may relate to the manufacturer of these items, but the identification of this is uncertain.

Saggars fragments in coarse grogged cream or buff fabrics are present in many of the contexts. Of the 47 fragments recovered, however, no forms can be determined with certainty, and only two profiles have been recovered. One is a biscuit saggarr of 160mm height, while the second is a low glost saggarr of just 65mm height and, if a circular form, a diameter of *c.*340mm. About half of the pieces recovered are glazed on the inside but, beyond this evidence for use in glost firing, none give any clue as to the types of wares fired inside them. Equally ubiquitous on the site are pieces of buff-coloured ‘wad clay’, of which 124 pieces have been recovered. These extruded strips, originally roughly circular in cross-section have been squashed and flattened through use in a variety of ways, including the sealing of joints between saggars and the supporting or levelling of large vessels. Many bear impressions from vessels which rested upon, or had been bedded-into them during firing. The curious rectangular item with perforations from [136] may relate to firing and is tentatively interpreted as some form of trial or test piece (Plate 50).

Lastly, there are two more salt-glazed items from [141] which might relate to kiln firing. The first is an incomplete, roughly-formed rod, which may have been some form of multi-purpose support for vessels or shelves during firing. The second is of uncertain form, but is folded with one cut end and a thin salt glaze. Its use as some form of makeshift support or similar seems likely.

One final piece probably relates to production – although to the process of clay preparation. This is a coarse ceramic item which may be a ‘batter’, a heavy, handled item used to ‘bat’ out clay to the required thickness for use in press-moulding (Plate 41). What is surprising here are the sloping rectangular depressions on the underside which radiate out from a central hole (Plate 42), suggesting that the piece may have been attached to something else.

The wares

Two small unglazed body sherds from [101] are probably of medieval date. Also from [101] is a single sherd of a white salt-glazed stoneware bowl, dating to the c.1750–1770.

The earliest material recovered from good contexts comprises two sherds of cream ware, from [132] and [141]. The former is the rim of a ten-inch plate of plain circular form, while the latter is a saucer sherd. Neither is especially diagnostic, and could date to between c.1790 and the 1820s, and need not reflect cream ware manufacture at Coleorton. Indeed, the plate rim is sufficiently worn for it to be considered a discarded domestic item, rather than production material. A third possible cream ware sherd from [148] cannot be identified as such with any certainty.

The majority of the wares (approximately 304 sherds or 57%) recovered are of refined yellow ware, although the range of glazes finishes noted on the sherds raises the possibility that some could be intentional and, therefore, that more than one type of ware has been grouped together under this term. ‘Yellow ware’ – a contemporary term (e.g. Jewitt 1883: 379-80) – is a type particularly associated with the potteries of south Derbyshire and neighbouring Leicestershire. It was also known by other names, including ‘Derbyshire ironstone’ or ‘yellow ware’ (*ibid.*) and ‘Derbyshire Ironstone Cane Ware’, the last used for the wares of Thomas Sharpe, and Sharpe Brothers & Co. of Swadlincote (*ibid.* 375-76). Well-known in archaeological deposits from the 1820s-1830s onwards, yellow ware is characterised by a light buff-coloured fireclay body which, when glazed, is yellow in appearance. Typical vessel forms are related to food preparation (bowls, mixing bowls, dishes and pans), the serving and consumption of liquids (jugs and mugs), storage (jars), and hygiene (ewers, basins and chamber pots). Decoration is common, and is most typically in trailed or banded slip, often with additional ‘mocha’ patterns in blue, brown or green. Moulded forms, especially jugs and mixing bowls, were also produced with the relief decoration. Yellow ware production was by no means confined to Derbyshire, with similar wares being made at other manufacturing centres.

Yellow ware forms in the Coleorton assemblage include dishes, baking dishes, bowls, basins, chamber pots, mugs, a possible jug, blacking pots, oval dishes or pans in a range of sizes and a large number of moulded mixing bowls with diagnostic moulded exterior bodies and rims. A feature of later wares – especially the mixing bowls and oval dishes or pans – seems to be the presence of an internal white slip coat, resulting in a white or slightly pearl-glazed interior surface. Seven probable yellow ware sherds – four from [101] and three from [141] (Plate 56) – are unglazed, but in a buff fabric and with a white slip coat to one surface. They are diagnostic on account of their relief-moulded decoration, which comprises a cherub amongst foliage, and the form is probably a decorative plaque or similar.

It is no surprise that five sherds of yellow ware toilet bowls – four from [101] and a fifth from [141] – have been recovered. The production of a wide range of sanitary wares by the yellow ware potteries of South Derbyshire is well-known.

Typically, yellow wares are rarely marked, but at least three vessels here (all dishes or pans) have legible impressed marks to their undersides. A mark from [152] reads ‘LOUNT WARE / ENGLAND / LEADLESS GLAZE’ (Plate 52) and an incomplete mark on a vessel from [101] is probably the same. Another from [101], also incomplete, may either be a variation of this, or something quite different; it reads ‘[...] / ENGLAND / LEADLESS GLAZE/ [...illegible...]/FIRE PROOF’ (Plate 23). The term ‘Lount Ware’ is unknown, but presumably dates to William Oram Trivett’s tenancy of the works (1911-1919), for Trivett was the first to use the name ‘Lount Pottery’ (Stewart 2013). Amongst the products of The Trivett Pottery Co Ltd were ‘yellow ware’ and ‘fireproof ware’ (Stewart 2013), a distinction which seems to suggest that the two were regarded as separate types. The fireproof quality of the Derbyshire yellow wares was a potential selling-point, and a number

of manufacturers used the term in their marks. Leadless glazes were also something which might be expected to encourage sales, for the hazards associated with their use had long been known, and early experiments with leadless glazes had received widespread recognition (Mankowitz & Haggart 1957: 97, 127). In 1913 Government regulations restricted the use of raw lead in glazes, but even in 1924 the gradual replacement of lead in any form in glazes was something which was still anticipated (Noke & Plant 1924: 99). It was not until 1947 that the use of lead in glazing was finally prohibited (Burchill & Ross 1977: 231).

The range of finishes to the yellow wares has already been mentioned. For the most part, these are the accidental result of firing conditions and include the discolouration of the glaze or pronounced dark speckling. The manufacturer's distinction between 'yellow ware' and 'fireproof ware' has also been mentioned, but the separation of archaeological material into these categories is difficult without marked wares to aid identification. What exactly is 'fireproof ware'? The main criterion here for classifying 'off-yellow' glazed wares as yellow wares is the use of a buff fabric for the piece. Those wares with orange fabrics and glazes in shades of brown are excluded.

Brown-glazed Rockingham wares are another type very much associated with the south Derbyshire potteries. Although documented as a product at Coleorton, Rockingham wares make up only 25% of the ceramics recovered and are only present in [101] and [141], although brown-glazed contact scars on stilts from [133] indicate that they had been manufactured alongside the yellow wares recovered from this context. The range of forms is extremely limited, comprising for the most part plain bodied teapots and covers. A number of teapot sherds have bands of rouletted decoration, either to their shoulders or to their rims, but the moulded surface decoration, common on this type of ware, is present only on two biscuit sherds from [101] which may, or may not be of Rockingham ware.

However, three further Rockingham sherds - two from [101] and one from [141] - have applied moulded reliefs - or sprigs - in white clay with additional under-glaze colours. These appear to be the type of ware known to collectors as 'Measham Ware' or 'Barge Ware', so-named because of the use of vessels of this type on canal boats and its sale to boat people from a shop in Measham in Leicestershire (Lewis 1969: 167). Most Measham Ware was produced in Church Gresley and Woodville, Derbyshire, between c.1870 and 1914. A rare marked example is by Mason, Cash & Co. of Church Gresley (*ibid.*). Predominantly found as teapots, but also as jugs, tobacco jars and chamber pots, Measham Ware is distinctive by its applied, moulded decorative motifs comprising flowers, leaves and birds, which are picked out in under-glaze colours, and by the mottoes which adorn them. Indeed, in early price lists such items are referred to as 'motto ware' (www.blackcountryhistory.org/collections/getrecord/WASMG_WASMG_1976_0791/). With the exception of the 'Measham Ware' sherds, which have a clearly defined date range, the Rockingham wares from Coleorton are unexceptional and not closely datable. However, the possibility that the decorative so-called 'Measham Ware' was made at the factory is interesting and may suggest the wider manufacture of this type.

A single sherd of horticultural ware from [101] is probably a flower pot. Despite the rouletted decoration, too little of this large form survives for a positive identification. This may be the sole piece of physical evidence for the latest production at Coleorton, the 'garden pottery and ornamental ware' made between 1936 and 1938 by the Coleorton Pottery Ltd. (Stewart 2013).

A limited range of material which might be described as 'art pottery' has been recovered, although none of it is especially diagnostic and we lack the terminology adequately to describe it. The material comprises 44 sherds from [101] and a further eleven from [152]. None of the forms are especially diagnostic, but seem to include plant pots, bowls, vases and other forms in buff or orange fabrics and with coloured glazes in blue, turquoise, and green. A possible bowl base with a rich blue glaze from [101] has a very partial impressed mark to the underside, 'LO.../.../ L...' (Plate 29), which may be the remains of a 'Lount Pottery' mark, while a green-glazed pedestal base from [101] has a partial impressed mark '[...]T / ENGLAND' (Plates 27 and 28). Another unglazed sherd from [101] is somewhat different. It is from a dish or bowl in an orange fabric with a white slip coat inside and out with graffito decoration; to the interior this is a stylised leaf pattern (Figure 10), while to the underside is a very partial inscription.

Two sherds of tiles from [101] probably belong to the category 'art pottery'. They are in a buff fabric with under-glaze painted stylised floral decoration but are otherwise undiagnostic (Plate 31). It is impossible to be certain whether these were produced at Coleorton or were part of the decorative treatment of buildings on the site.

A number of pieces which may relate to the art pottery production have been noted from [101] and [141]. These include a moulded redware sherd of uncertain form and wares in an orange body with exteriors whose red-brown colour is supplemented by a wash, or swirls of thin white slip. Their identification is uncertain. It is difficult to classify a small number of other orange-bodied sherds.

It is unclear whether any of the white-bodied earthenware, or whiteware, sherds were made at Coleorton. Possible candidates for manufacture here are two coarser white-bodied sherds from [101] and [141]. These have the appearance of sponge dish liners with a flanged rim and perforations, but the identification is far from certain and it is not impossible that these are examples of the 'earthenware components for gas mantles and other lighting equipment' or of the 'electrical lighting equipment' which are documented as products of the Clay Ring Co. (1919-28) and the Coleorton Pottery Co. Ltd. (1928-36) respectively (Stewart 2013). Two further sherds with opaque white glazes from [101] and another from [152] are of uncertain forms. They may be items of sanitary ware, electrical or other industrial wares.

At the time of writing, no documentary evidence seems to indicate the manufacture of salt-glazed stoneware at Coleorton, and the archaeological evidence is unclear. A photograph of the very late 1920s or early 1930s (Richards 2011: 6) shows the Coleorton factory workforce seated and standing in front of a workshop and two kilns. One of the latter (on the left of the photograph) is clearly a downdraught kiln, comprising a cylindrical firing chamber with a low domed roof and a separate free-standing chimney served by a subterranean flue. Kilns of this type are often associated with the firing of unglazed bricks and tiles, or salt-glazed stoneware vessels or drain pipes, and one kiln of this type at Bardon Mill in Northumberland still fires salt-glazed stoneware vessels. The use of this kiln type for earthenware firings is also known, with a well-known example at the Soil Hill Pottery in West Yorkshire (McGarva 2000: 64-76, 91, 97), but the possibility exists that this photograph is evidence for the manufacture at Coleorton of either bricks or salt-glazed stoneware during the 20th century.

Some of the material recovered from the excavation hints at the manufacture of salt-glazed wares at Coleorton. A single shelf support from [101] appears to have a salt glaze to its exterior surface, while a roughly-formed ovoid clay piece or lump, also from [101], is clearly salt-glazed. A roughly-formed rod or bar (Plate 60) and a folded clay piece from [141] are also salt-glazed, while a small blacking bottle or similar from [148] is so poorly salt-glazed as to be a probable waster. In addition to these pieces, which appear to suggest salt-glazed manufacture, there is an abundance of other salt-glazed material which may relate to use on-site rather than manufacture. This material includes a crude dish base from [101], which appears to be salt-glazed on the inside, but with an external feldspathic glaze, and several cylindrical pipes and/or drain pipes of different sizes from [101] and [141]. Other distinctive pieces of uncertain function are present in [101]. This is not incontrovertible proof of salt-glaze stoneware manufacture at Coleorton, but the possibility that this took place at some time later in the factory's life cannot be ignored.

The presence of a grey stoneware vessel in the assemblage is no surprise. Examples of this type are ubiquitous in mid-19th to early 20th century assemblages. The spirit jar here is likely to be a product of one of the Derbyshire stoneware potteries.

Vessels in coarse earthenware bodies are ubiquitous on post-medieval to early modern sites. However, this assemblage contains only three sherds which are definitely of this type; a jar from [101] and two bases of a jug or similar from [141]. Another possible coarse earthenware sherd, of uncertain form, is present in [148].

Dating evidence

- **Kiln 1**

With the exception of just one sherd, all of the ceramic vessel sherds present in Kiln 1 contexts are of yellow ware. However, this is not the complete picture. Hand-formed stilt in a buff fabric from [133] have contact scars from brown-glazed Rockingham wares, providing some clue to the manufacture of a ware type not represented amongst the sherds from the Kiln 1 contexts. Moreover, both the ceramics and the kiln furniture suggest that the Kiln 1 material has wide date range. The cream ware plate edge from [132] should date to between *c.*1790 and, at the latest, the 1820s, although as a glazed piece with some evidence for wear, it is perfectly possible that this is a plate brought to, rather than made at the pottery. Given the situation of context [132] beneath Kiln 1, such an interpretation for this piece is not unlikely.

By contrast, the yellow wares from [133] are a little later in date. The absence of moulded mixing bowls, common in later 19th or 20th century contexts elsewhere on site, and the quantity of hand-made buff-bodied

stilts combined with an absence of machine-made kiln furniture, all suggest a date of manufacture for this material in the second quarter of the 19th century.

The finds of kiln furniture from context [131] provide a terminus post quem for the repair of the hovel floor. The presence of a machine-made spur bearing the mark of stilt and spur manufacturer Thomas Arrowsmith indicates a post-1884 deposition date. An equally late date is likely for the largely undiagnostic material from [130], which includes a moulded yellow ware dish and yellow wares with internal white slip coats which are more likely to date to second half of the 19th century or later.

- **Kiln 2**

The finds from context [148], situated below Kiln 2, suggest that this deposit pre-dates the mid-19th century. There are no moulded mixing bowls amongst the yellow wares in the group, and banded slip decoration is present on some of the sherds. A single hand-made stilt fragment suggests a similar date, while one white earthenware sherd appears to be of cream ware and is therefore likely to have been produced before 1830.

By contrast the finds from ash pit fills [135] and [136] include both moulded yellow ware mixing bowls with internal slip coats and a machine-made stilt from the factory of Thomas Arrowsmith. The latter indicates that the ash pit went out of use and was filled after 1884 and, indeed, this is likely to have occurred during the 20th century.

- **Kiln 3**

The combination of sherds of 'art pottery' with coloured glazes and moulded yellow wares from context [152], situated beneath Kiln 3, suggest a later, probably 20th century, date. The presence of an impressed 'Lount Ware' mark of one of the yellow ware bases seems to confirm this, probably dating to the years 1911-1919 when The Trivett Pottery Co. Ltd. operated from the Coleorton works. The finds from ash pit fill [140], comprising, amongst other things, moulded yellow mixing bowls with internal white slip coats and two firing trial rings, or 'Bullers' rings', suggest a similarly late date for the decommissioning of this kiln.

- **Kiln 5**

Context [137], a fill within the cross flue of Kiln 5, contains material which suggests a late 19th or 20th century date. This includes moulded yellow ware moulded mixing bowls with internal white glazes over a white slip coat, a firing trial ring or 'Bullers' ring', and a single machine-made stilt bearing the 'A' mark of stilt and spur maker Thomas Arrowsmith.

Datable finds from context [141], situated close to Kiln 5, suggest a late 19th or 20th century date. These include moulded yellow ware mixing bowls with internal white glazes over a white slip coat, and three machine-made stilts with the 'A' mark of manufacturer Thomas Arrowsmith.

Unstratified material

The unstratified material recovered during site stripping, [101], includes a wide range ceramics and related material. Two sherds are of uncertain medieval date and a sherd of white salt-glazed stoneware dates to the mid-18th century. Otherwise the finds are consistently of 19th and 20th century date, with a majority clearly dating to the late 19th and 20th century. Evidence for this is provided by marked yellow wares and machine-made stilts, together with a quantity moulded yellow ware mixing bowls and several sherds of 'art pottery' with coloured glazes.

Conclusion

The excavation of factory sites has the potential to shed light upon the layout of the buildings and their use, the range of manufacturing processes employed and their development over time, with particular emphasis upon firing. Evidence might also be expected for the products of a factory, although large-scale dumping of waste within the perimeter of the factory is unlikely. Large deposits of wasters are likely to be present only as ditch fills, levelling material, foundation deposits, or as the backfill of structures such as kilns once they had gone out of use. Even so, it is possible that new evidence for the development of the product range over the life of the factory will be recovered and, potentially, that new products might be identified. In the case of the present

assemblage, the full potential of a pottery factory site excavation has probably not been realised. The number of sherds found is comparatively small, vessels are relatively incomplete, and only a small part of the assemblage derives from good archaeological contexts. It is felt that a complete picture of production cannot be formed from the archaeological material alone, and there are difficulties in reconciling the range of finds with the limited documentary evidence for products at different dates.

Limited evidence has been recovered for the yellow and Rockingham wares produced here, and the presence on some yellow wares of marks which can be closely dated is helpful. Diagnostic moulded mixing bowls should aid the identification of Coleorton products in other, domestic, contexts away from the factory. However, too few sherds of art pottery have been found to present a clear picture either of the vessel forms or of the range of colours employed in their decoration. Again there are incomplete marks to hint at the date of manufacture, but for the most part the 'art pottery' sherds are a small and fairly unhelpful sample which do little to further an understanding of the manner of this type's introduction at Coleorton and the subsequent development of art wares. Moreover, no conclusive evidence has been recovered for the latest products at the factory, the 'earthenware components for gas mantles and other lighting equipment' of the Clay Ring Co (1919-28), the 'electrical lighting equipment' of the Coleorton Pottery Co. Ltd. (1928-36) or the 'garden pottery and ornamental ware' of the Coleorton Pottery Ltd. (1936-38), beyond a single flower pot sherd.

There remains a small number of substantial ceramic items from the excavation which have not yet been identified, although in time this may well be remedied. Many of the cylindrical pipes are probably drain pipes, although there are narrower pipes whose function is uncertain. All of these problem pieces are salt-glazed and the question of whether they were made at Coleorton or were merely used at the factory remains to be answered. Other pieces do seem to hint at salt-glaze manufacture there, although this is far from certain, and the possibility cannot be discounted that this material was brought in from other nearby production sites.

This is not a large assemblage from a factory which was operation for 100 years, even a factory of a comparatively modest size. It is clear that the bulk of the waste material which must have been generated over the life of the factory must have been deposited 'off-site' and in locations still to be identified. Nevertheless, these finds do add something to the picture of the pottery, its products and the wider industrial context within which it functioned. Indeed, in some cases it may be that the archaeological evidence is all that exists for certain aspect of manufacture, although it may be that the significance of this is only fully realised after a thorough study of extant wares in collections.

Plates David Barker



Plate 21. 1 Moulded yellow ware mixing bowl rims; [101].



Plate 22. Moulded yellow ware mixing bowl bodies; [101].



Plate 23. Yellow ware dish or pan base with impressed mark '[...] / ENGLAND / LEADLESS GLAZE / FIRE PROOF'; [101].



Plate 24. Slip- and mocha-decorated yellow wares; [101].



Plate 25. Brown-glazed Rockingham teapot cover; [101].



Plate 26. Rim and body sherds of turquoise-glaze 'art pottery' bowl or bowls; [101].



Plate 27. Pedestal base of green glaze 'art pottery' vessel; [101].

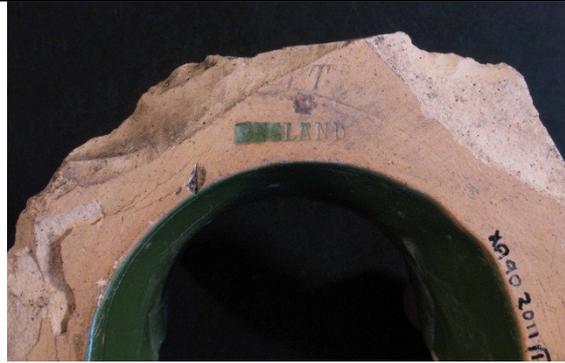


Plate 28. Impressed marks '[...T' / ENGLAND' on the underside of green-glazed 'art pottery' pedestal base; [101].



Plate 29. Underside of blue-glazed 'art pottery' bowl or similar with impressed marks 'LO[...]/ [L...]; [101].



Plate 30. Interior of unglazed 'art pottery' bowl with sgraffito decoration cut through a white slip coat; [101].



Plate 31. Figure 11 Buff-bodied tile fragments with under-glaze painted decoration; [101].



Plate 32. Kiln shelf supports in small sizes; [101].



Plate 33. Kiln shelf supports, glazed; [101].



Plate 34. Kiln shelf support; [101].



Plate 35. Incomplete kiln shelf support with salt-glazed exterior; [101].



Plate 36. Incomplete machine-made stilts with marks 'A' and '5' in relief; [101].



Plate 37. Incomplete machine-made stilt with marks 'A' and '8' in relief; [101].



Plate 38. Incomplete machine-made stilt with marks 'G & Co' and '6' in relief; [101].



Plate 39. Buff-bodied hand-formed stilt; [101].



Plate 40. Machine-made spurs with marks 'A' and '8' in relief; [101].



Plate 41. Possible clay 'batter'; [101].



Plate 42. Underside of possible 'batter'; [101].



Plate 43. Salt-glazed items of uncertain function, possibly electrical insulators; [101].



Plate 44. Salt-glazed items of uncertain form; [101].



Plate 45. Salt-glazed item, probably related to the pieces shown above; [101].



Plate 46. Unglazed yellow ware blacking pot; [133].



Plate 47. Yellow wares with slip decoration; [133].



Plate 48. Unglazed yellow ware sherds with slip decoration and additional blue mocha designs; [133].



Plate 49. Unglazed yellow wares with turned decoration and blue slip infill; [133].



Plate 50. White-bodied fired ceramic item of uncertain function, possibly a kiln trial; [136].



Plate 51. Trial firing rings, or 'Buller's' rings; [140].

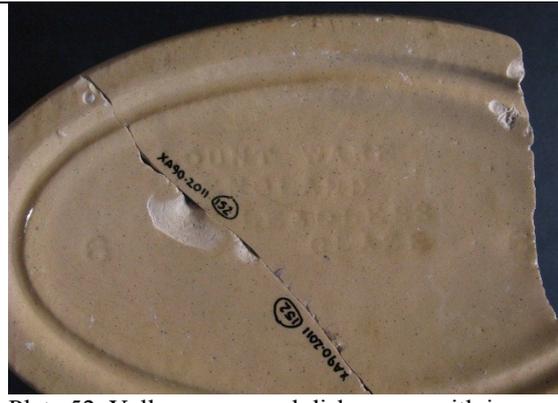


Plate 52. Yellow ware oval dish or pan with impressed mark 'LOUNT WARE / ENGLAND / LEADLESS / GLAZE'; [152].



Plate 53. Extruded 'wad clay' strips; [137].



Plate 54. Kiln tiles with blistered glaze to upper face; [152].



Plate 55. Underside of kiln tiles with moulded marks '270' and 'LEBON' in relief and hand-written inscriptions to the lower two; [152].

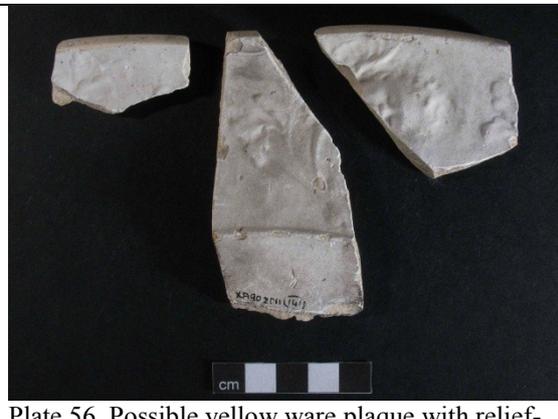


Plate 56. Possible yellow ware plaque with relief-moulded decoration; [141].



Plate 57. Brown-glazed Rockingham teapot cover; [141].



Plate 58. Brown-glazed Rockingham teapot cover; [141].



Plate 59. Incomplete machine-made stilts in two sizes, with marks 'A' and '5' and 'A' and '7' in relief; [141].



Plate 60. Salt-glazed rod or bar, probably kiln furniture of some sort; [141].

Appendix 3. Evaluation



Figure 15. Evaluation trench location plan.



Plate 61. Trench 7.

Trench 7 (Figure 15; Plate 61)

This trench targeted the northern end of the former factory floor plan and was orientated north-west to south-east. The natural substratum was reached at depth 0.85m (106.50m aOD) and consisted of pale yellowish brown clay mottled with pale greyish clay. The natural soil was sealed under a layer 0.60m deep of dark silty clay mixed with ash and charcoal. A truncated former pottery factory cobbled brick pavement was exposed at the northern end of the trench and covered an area 6.00m long and 2.70m wide. The cobble brick surface had been cut by later factory wall foundation, which was one course thick, and run in a north-south direction. The surface and brick wall were sealed under a demolition layer which measured between 0.10m and 0.30m deep.



Plate 62. Trench 8

Trench 8 (Figure 15; Plate 62)

Trench 8 was excavated within the former service yard of the factory, located towards the north-west corner of the site. The trench targeted a probable kiln lying below the service yard which was shown on the 1882, 1903 and 1923 OS maps (Figures 9, 11 and 13). A kiln base had previously been recorded during the first evaluation (Higgins 2011) and was located within the same yard towards the north. A natural substratum was not reached within this trench. Parts of a large circular brick wall foundation of a hovel were exposed, along with a cobbled floor and kiln foundation base; all located towards the southern half of the trench. The structure survived to height of at least four brick courses and was thought to be the remains of hovel kiln. On the northern side of the trench appear to have adjoining brick structure or building and towards the south and another build was found attached to the hovel kiln. Both the kiln and the associated structures appear to be sealed under layer of brick demolition 0.20m deep. The brick demolition was perhaps purposely laid to create level surface that support the former yard surface above. The kiln and structures were truncated by various modern service trenches. The brick layer and service trenches were sealed by a layer of demolition measuring between 0.10m and 0.30m deep.



Plate 63. Trench 9

Trench 9 (Figure 12; Plate 63)

This trench was located towards the centre of the former factory site and targeted probable kilns lying below the modern factory. These kilns were depicted on the 1903 and 1923 OS maps (Figures 11 and 13). The trench was oriented in west to east alignment and no natural substratum was reached. Towards the centre of the trench a large circular feature was exposed, thought to be kiln base. The kiln base appeared to have thick curving outer walls and the centre of the base was sealed under rubble, consisting of refractory bricks and kiln furniture waste. On the west side of the kiln, an associated brick cobble yard surface and brick subterranean flue had also been exposed. The kiln and associated structures were sealed under a layer of demolition rubble measuring 0.10m deep.



Plate 64. Trench 10

Trench 10 (Figure 15; Plate 64)

Trench 10 was located towards the western half of the development, outside the former factory foundation foot print and in an area formerly used as gravel car park. A natural substratum was reached at a depth of 0.30m (107.90m aOD). The natural was sealed under a layer up to 0.30m thick and comprised grey silty clay mixed with abundant charcoal flecks, ash and some kiln waste material. A narrow modern service cable trench was exposed at the northern end of the trench running in a north-east to south-west direction.



Plate 65. Trench 11

Trench 11 (Figure 15; Plate 65)

Trench 11 was located on the western side of the demolished factory, within the former concrete service yard. This trench was targeting the extent of buildings to the west, which were thought to be associated with the former pottery factory. These had been depicted on the 1903 and 1923 OS maps (Figures 11 and 13). A natural substratum was reached at depth of 0.50m (107.20m aOD) below the surface. The natural soils were sealed by a layer up to 1.00m deep consisting of dark silt grey clay mixed with ash and kiln furniture waste. A brick wall, which was one course thick, was found towards the centre of the trench. The wall was orientated on a west to east alignment and was probably associated with the former pottery factory.



Plate 66. Trench 12

Trench 12 (Figure 15; Plate 66)

This trench was located towards the south of trench 9. Trench 12 targeted more probable kilns which were thought to be lying below the now demolished factory, directly under Building 3. These kilns are shown on the 1903 and 1923 OS maps (Figures 11 and 12). A natural substratum was reached at the southern end of the trench, at depth of 0.40m (107.75m aOD) below the surface. Two possible kiln bases were observed within this trench. The first kiln base was located towards the centre of the trench. It appeared to have thick curving outer brick walls. At the centre of the kiln base there was a rubble deposit that consisted of refractory bricks and kiln furniture waste. Possible ash pits were also visible on the outer circumference of the kiln base. Part of a second kiln base was observed at the northern end of the trench. This kiln base also appeared to have thick curving outer wall with centre of the kiln again back filled with a mix of refractory brick rubble and kiln furniture waste. The trench also contained brick cobbled yard surfaces, which were probably associated with the kilns. These surfaces and the kiln base were truncated by later factory brick walls. The kilns and yard surfaces were sealed under layer of demolition deposit that measured 0.10m deep.



Plate 67. Trench 13.

Trench 13 (Figure 15; Plate 67)

Trench 13 was located towards the northern end of the site. It targeted buildings thought to be associated with the pottery factory. These buildings are shown on the 1903 and 1923 OS maps (Figures 11 and 13). A natural substratum was not reached within this trench. A section of a brick rectangular structure was exposed within this trench which was thought to be part of the pottery factory. This brick structure had brick floors that were sealed under later concrete floor, indicating that workshop building had been modified.

Table 1 Trench Descriptions

Trench	Orientation	Length (m)	Average depth (m)	Notes description	Minimum depth to archaeology or natural substratum
7	North to South	30.00m	0.45m	Pavement	0.10m pavement
8	North to south	25.00m	0.20m	Kiln base and associated structure	0.10m kiln structure
9	East to West	12.00m	0.50m	Kiln base and Flue structure	0.10m Kiln and flue
10	North to South	30.00m	0.30m	Services trenches ash deposits	0.30m natural
11	North to South	20.00m	0.70m	Wall	0.50m natural
12	North to South	23.00m	0.50m	Two Kiln bases	0.10 kiln
13	East to West	15.00m	0.10m	Brick floors of rectangular structure	0.10m associated pottery factory structure

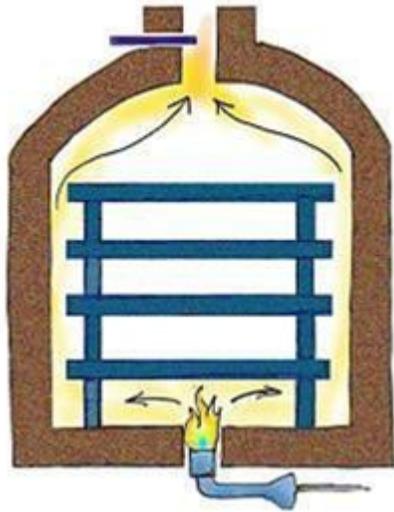
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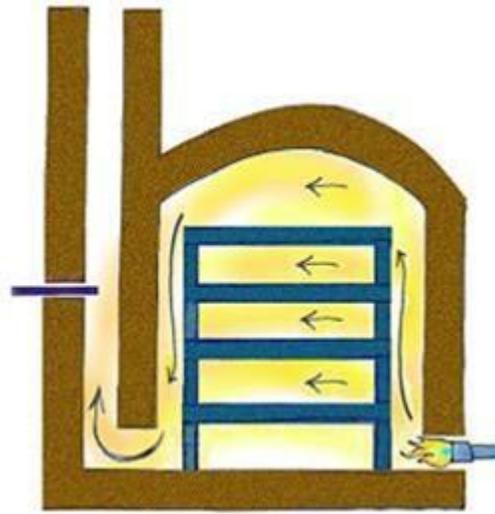
Email: th31@le.ac.uk

21.03.2014

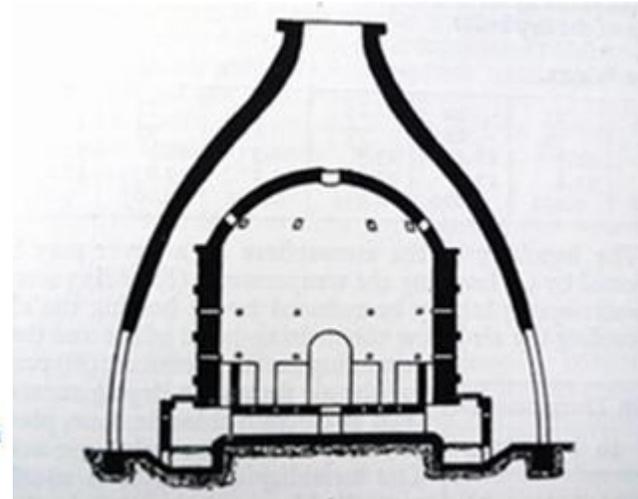
Appendix 4 Different Kiln types



UP-DRAFT



DOWN DRAFT



HOVEL KILN

From: <http://pottery.about.com/od/potterykilns/tp/typkilncons.htm> <http://potbankdictionary.blogspot.co.uk/p/h.html>

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