Cambridge Archaeology Field Group

What is that pottery?

Number 2. Brown stoneware

Field walking and brown Stoneware.

Our field walking efforts produce finds representing many different types of material and covering a wide range of periods but one of the easiest to recognise is the pottery shown in the Figure 1 below (found during our Wimpole Field walking). This is part of a salt glazed stoneware beer bottle from the 19th C which illustrates the main features we recognise – the shiny speckled glaze.

Figure 1. Salt glazed stoneware beer bottle from Wimpole greenhouse excavation. (Author's photograph)

Stoneware

What is stoneware? When normal earthen ware pottery is fired to a higher temperature (roughly 1200 - 1300 ºC (compared to the 600 - 1000 ºC typically used to fire normal earthen ware pottery) it vitrifies and produces a very hard wearing and waterproof vessel. Often sand is added to the clay to enhance the effect. Due to their robust nature these are used for many different purposes, such as various kitchen activities, in pubs and taverns for storing liquids such as drinks and even inks. Stoneware fabric is typically pale grey in colour (but may also be a creamy colour) and is extremely hard. There may often be tiny voids in the fabric resulting from the gases produced in the firing process.

Stoneware is impervious to liquids and does not need to be glazed. However, one is often applied for decorative purposes and a thin iron rich slip is applied to provide a smooth surface. Most low temperature glazes, like lead-based ones, would vaporise in the heat needed to produce stoneware, so early stoneware used a salt based glaze.

Salt glazed ware

Here salt (sodium chloride) is added to the kiln at its peak temperature so that gaseous sodium vapor is formed. This reacts with the silicon in the clay to create a glassy layer of sodium silicate on the ceramic surface. The chemical reaction is described by the equation:

$$2NaCl + SiO_2 + H_20 \rightarrow Na_2SiO_3 + 2HCl$$

The salt vapour exists as small droplets which settle out on the pot and this creates the characteristic “orange peel” surface which is particularly associated with early forms of salt glazed pottery, as shown in Figure 2. The process of adding salt to the kln is called ‘salting’ and traditionally 3-6 saltings were used when firing English stoneware pots. Typically this meant 1lb of salt per cubic foot of your kiln.

Figure 2. “Orange-peel” effect on an early salt glazed vessel from Wimpole field walking. (Author’s photograph)

The development of the Bristol glaze in 1835 enabled the use of lower temperature kilns to produce stoneware. They primarily use zinc oxide and calcium or strontium/barium fluxes to enable stoneware production at mid-range temperatures (1120 - 1200 ^{o}C). They also produce a much more even and smooth surface finish, see Figure 1 and compare this to Figure 2.

Kiln technology also changed. The introduction of the bottler kiln in the 16th C improved efficiency and control of temperatures to make stone ware production routinely possible. The introduction of the downdraught kiln in the 19th C gave greater control and enabled the mass production of stoneware.

History timeline

The discovery of how to make stoneware pottery originated in China as early as the Shang dynasty (1600 – 1046 BC). Its use there was widespread and spread to other countries via the Silk Route trade links (especially Korea and Japan). When examples reached Europe local potters were impressed by the strength, durability and versatility of stoneware and began to experiment to reproduce them. The first European stoneware production was in Germany in the Rhineland area around Cologne during the 15th century. Manufacture quickly spread to the Low Countries and products became popular throughout the continent.

Amongst the products manufactured was a jug or bottle distinguished by its squat shape with a moulded face of a bearded man on the neck. A complete example can be seen below in Figure 3a. These distinctive jugs were known as Bartmann (meaning Bearded Man in German) jugs but became popularly known as Bellarmines from at least as early as 1634. This was due to a mistaken belief that the bearded mask and rotund form represented the face and figure of Cardinal Bellarmine. He was an implacable opponent of Protestantism in North Germany and the Low Countries and was detested by the Protestants in these areas. The earliest pots in the mid-16th Century bear a carefully modelled mask on the neck and below this some decorative floral or coat-of-arms motif. Figure 3b shows part of a floral medallion recovered during field walking. These wares were imported in large numbers into Britain but more in the London region and southern counties. Later examples of the jug have much less well defined faces and medallions.

Figure 3. (a) Early Bellarmine jug and (b) a part of the floral medallion from a Bellarmine jug recovered by field walking (Authors photograph)

It was not until the beginning of the reign of Charles II that the secret of stoneware manufacture was discovered and patented in Fulham, England by John Dwight in 1671. His stoneware vessels were as good as, if not superior to, those imported from Germany, and very soon became dominant in the market.

A list of his products is listed in his second patent granted in 1684 - as follows:- 'Severall new manufactures of earthenwares called by the names of white gorges, marbled porcellane vessels, statues, and figures, and fine stone gorges and vessells, never before made in England or elsewhere.'

In spite of efforts to maintain a Dwight monopoly in the supply of stoneware the knowledge eventually spread to various areas of the country – such as Nottingham, Derbyshire and Staffordshire - during the late 17th C. All of these became significant suppliers of stoneware to this country and abroad.

Nottingham stoneware

The Nottingham potteries were active between the early 1700's and had all closed by 1790 due to the competition from the more sophisticated products coming from Staffordshire. They made tableware cups, bowls and jugs which have a "milk chocolate" colour on both the outside and inside due to the iron content of the glaze, as shown in Figure 4. The finish is more glass-like than equivalent Derbyshire vessels.

Figure 4. Part of a Nottingham salt glazed bowl from Wimpole field walking. (Author's photograph)

Figure 5. Showing the thin white slip often used under the salt glaze on Nottingham wares. (Author's photograph)

In Figure 5 the white underglaze can be seen between the brown salt glaze and the grey stoneware fabric, this is not present on similar Derbyshire vessels. Decoration is restricted usually to a few horizontal incised lines.

Derbyshire stoneware

While the Nottingham products faded away, similar products in Derbyshire carried on from 1800 to c.1920. They concentrated more on tavern and kitchen wares such as ginger beer and spirit bottles, ink and blacking bottles, preserve and jam jars, pans, pots and. bowls. The iron-rich salt glaze tends to be darker inside and out and the surface appears less shiny. In addition, later products can have a cream/white internal finish. These products can have rouletted decorations of various geometric shapes impressed into the surface as shown in Figure 6. Shapes can include circles, crescents, dots and

stars or flowers contained within bands of short vertical lines. These vessels do not generally have any white underglaze.

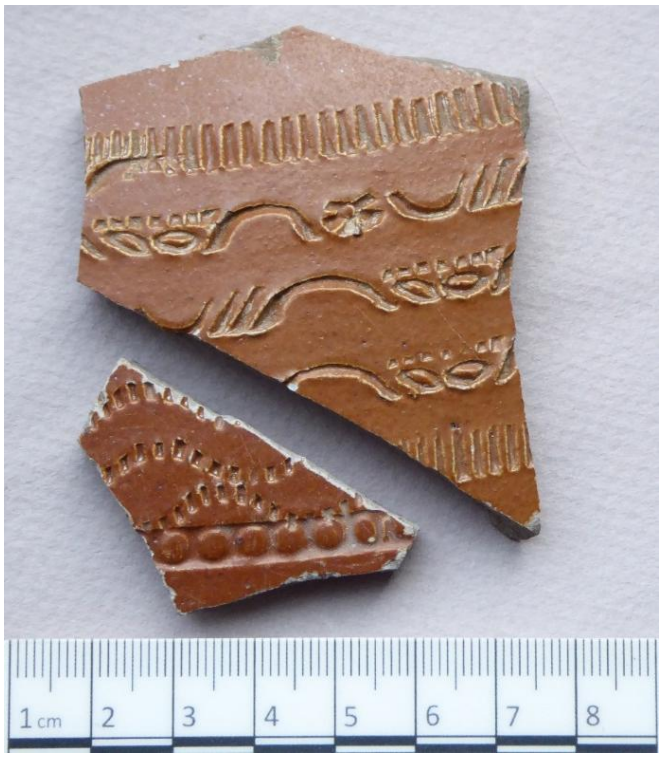

Figure 6. Showing some of the designs used on Derbyshire ware pots (Author's photograph)

Figure 7. Showing a Putland ginger beer bottle made by Bourne family in Eastwood, Nottinghamshire. (Author's photograph)

Examples of stoneware products

(1) Ginger beer bottle

Figure 7 shows a ginger beer bottle manufactured for Thomas Putland by Bourne & Sons at the Eastwood Pottery in Nottinghamshire (Joseph Bourne & Sons acquired the Eastwood Pottery, Nottinghamshire (founded in 1881) from Messrs. Mellor, Jepson Mellor in 1891 and traded as Bourne Eastwood until 1908). This bottle therefore dates between 1891 and 1908). There a number of impressed markings on the bottle.

Label on the shoulder - "**T. PUTLAND"**(above shoulder).

On the side wall as shown in Figure 8 – Top "**PUTLANDS**". Centre – "**Thomas Putland**, **REG^{D} TRADE MARK**". At the bottom – "**BREWED GINGER BEER**" and "**TUNBRIDGE WELLS**"

Figure 9 shows the **Bourne Eastwood 7** marking on the opposite side wall.

Figure 8. Showing the brand and product plus the brewer's details. (Author's photograph)

Figure 9. Stamp showing where the pottery was manufactured plus a number signifying the bottle type (Author's photograph)

What was missing in the example above was the bottle stopper, but a typical one is shown in Figure 10. This was made from Vulcanite hardened rubber. This type of "finger-friendly" stopper was developed in 1885.

Note also the **T PUTLAND** impressed name on the shoulder of the bottle.

Figure 10 Top view of a Putland ginger beer bottle with text on the shoulder and showing the hardened rubber screw stopper

(2) Ink bottle

Figure 11 shows an ink bottle, typically called a “pork pie” bottle, which was usually supplied with a cork stopper. There are no details about the manufacturer or the supplier of the product impressed on this bottle body. These were corked, sealed with sealing wax, and cost a penny each. They contained liquids such as writing ink and blacking.

Figure 11. A “pork pie” type of ink bottle, no manufacturer or supplier details on the bottle. (Author’s photograph)

(3) Flagons

Beer and cider were often supplied in gallon or half-gallon stoneware flagons which were half coated in an iron-rich slip, as seen in Figure 12. This style came to be used in later times and carried on into modern times..

Figure 12. A typical stoneware drink flagon with a half darker slip covering. Supplier details impressed onto the bottle shoulder. (Author’s photograph)

This beer/cider flagon was recovered during a dig at Johnsons Pond, Wimpole in many pieces but could be reconstructed as shown (which is minus a missing handle). The markings show the supplier **J & E PHILLIPS &Co** and the address **THE BREWERY, ROYSTON**.

(4) Other vessels

Figure 13. A Doulton Lambeth stoneware vessel in honey-coloured slip. (Author's photograph)

Not all vessels are the dark brown colour, figure 13 shows another one in what is called a honey or mustard coloured finish. The maker's mark on the side at the bottom is "Doulton Lambeth"

By the 1800s Lambeth in London had become a centre for the production of salt glazed wares, particularly after the formation of Doulton and Watts Pottery in 1815. They specialised in sewer pipes during the 1830's and 40's and became the earliest manufacturers of electrical insulators. They branched out into acid resistant stoneware vessels for laboratory use. From the 1850's they started producing decorative and sanitary stonewares and were awarded the Royal Warrant by Edward VII in 1901. The stamp shown in Figure 13 was the standard mark from 1854 until the c1870's. The Lambeth site was closed in 1954 due to the noxious vapours produced by stoneware production. Production was then centred on the Burslem Pottery in Stoke-on-Trent where it continues to operate to this day.

Further Reading

https://en.wikipedia.org/wiki/Salt_glaze_pottery

https://glossopcuriosities.co.uk/2022/01/14/the-rough-guide-to-pottery-pt-1

Hildyard, R, 2005, *English Pottery, 1620 – 1840*, V & A Publications

https://thepotterywheel.com/salt-glazed-pottery/

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