The Provenance of a Maiolica Jug from King William Street, City of London (KWS94)

Alan Vince

In 1994 an almost complete tin-glazed jug was recovered from a pit on a site in King William Street in the City of London excavated by MoLAS (Site Code: KWS94). In order to establish its source a sample of the body was taken (a small chip from the base) and submitted to Royal Holloway College, London, where it was analysed by Nick Walsh, Department of Geology, using Inductively-Coupled Plasma Spectroscopy. Analysis of the resulting data suggests that the vessel was made in the South Netherlands and can clearly be distinguished from vessels made in central Italy, London and Norwich and is less clearly distinguished from tin-glazed wares produced at Amsterdam and Haarlem.

Methodology

The sample consisted of several slivers of pot, amounting to less than 1gm. From these, any with visible traces of glaze or discolouration were removed and the remainder were crushed in a porcelain mortar and pestle until only a smooth powder remained. This powder was analysed using ICP-AES and ICP-MS using the standard RHCL programme with the addition of Lead (Pb)., a good indicator of glaze contamination. The data is archived online (http://www.avac.uklinux.net/potcat).

Data were recorded for major, minor and trace elements. The major elements were measured as percent oxides and the minor and trace elements as parts per million.

The ICP-AES data was first compared, using the Winstat factor analysis program, with samples of Italian and South Netherlands maiolica vessels from various sites in England (Table 1). This data was collected principally to explore the source of a ring-handled vase from Southampton which appeared to be a ceramic copy of a Venetian opaque white glass vessel ({Vince & Brown 2002 #44913}). For that study samples were taken of a South Netherlands ring-handled vase of early 16th-century type (SNTG), two Malling jugs, of mid 16th century type, the ring-handled vase (two samples) and two Italian maiolica ring-handled vases found with it ({Gutierrez & Brown 1999 #44923}, Fig 10.1 1 and 2). The Malling type was first recognised in England and for a long time was not known from the Low Countries, leading to a strong suspicion that the vessels were made in England, either by one of the documented 16th-century galleypot makers (such as those known from Norwich or London) or by another undocumented immigrant. However, Neutron Activation Analysis carried out for the British Museum ({Hughes & Gaimster 1999 #44583}, 61-2) has demonstrated clearly that the fabric of these vessels is comparable to waste found in Antwerp and that these vessels are also of South Netherlands origin. Their typology, however, suggests that they may be slightly later in date that the earliest Antwerp maiolica, which is now thought to be no earlier than c.1510.

The data were first normalised by dividing each count by that for Al2O3. This transformation removed any differences caused by variations in the amount of silica, water or organic compounds (which of course in some cases are useful distinguishing features).

The factor analysis found five factors with eigenvalues greater than 1. Of these, Factor 1 separated the data into two groups, one containing Italian maiolicas from Southampton and the other containing two Malling jug samples and one South Netherlands maiolica (SNTG) sample together with the King William Street sample. Factor 2 grouped together one of the Malling jug samples with the KWS94 sample but separated the SNTG sample.

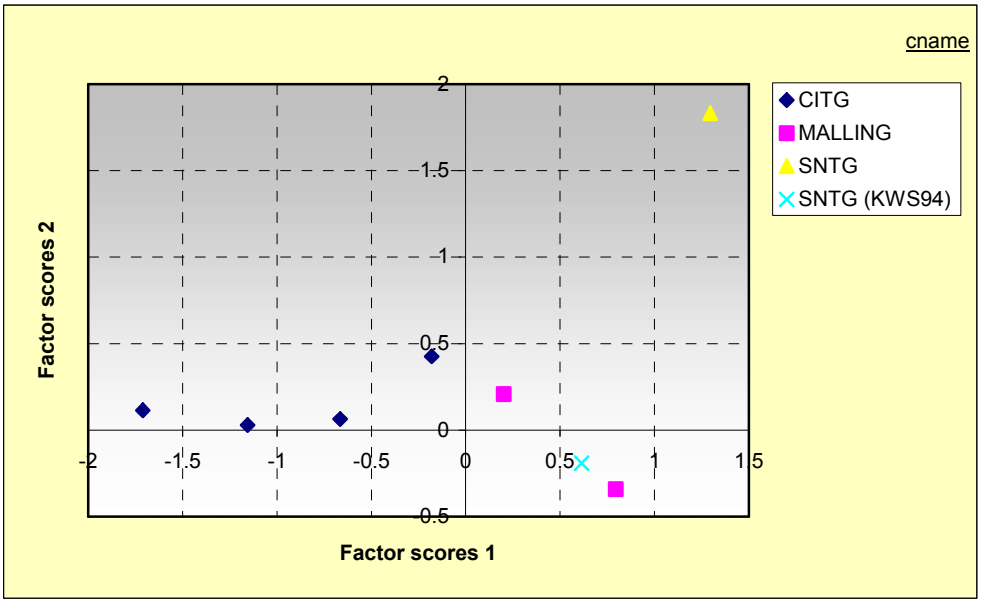

Figure 1. Factor Analysis of maiolicas found in England

Factor 3 separated the KWS94 sample and two of the Italian samples from the remainder whereas Factor 4 grouped together the KWS94 sample and the two Malling jug samples whilst distinguishing the SNTG sample and the Italian samples.

Thus, in a set of just eight samples, two of which were from the same vessel, the KWS94 vessel is most similar to South Netherlands vessels, and within these is closer to the Malling jugs than the SNTG vase. On the basis of such a small sample little can be made of the difference between the SNTG and Malling jug/KWS94 fabrics. For this reason, an attempt was made to compare this dataset with that collected by the BM using NAA.

It has already been demonstrated that despite the fact that only a small number of elements were measured by both this ICPS programme and by the BM NAA programme and the fact that there may be systematic differences between the two methods of measurement the resulting combined dataset can be used successfully ({Vince & Brown 2002 #44913}).

Two analyses were carried out using this combined ICP-AES/NAA dataset. The first included all samples from production sites (Amsterdam, several from Antwerp, Utrecht, Haarlem, London and Norwich) together with the BM Malling jug samples and samples of Italian maiolica from consumer sites in the British Isles, mostly from London.

The result of this analysis shows that the Norwich and Italian samples are very different from the remainder, which form a large cluster with London-made samples falling at one side and Low Countries samples at the other (Fig 2).

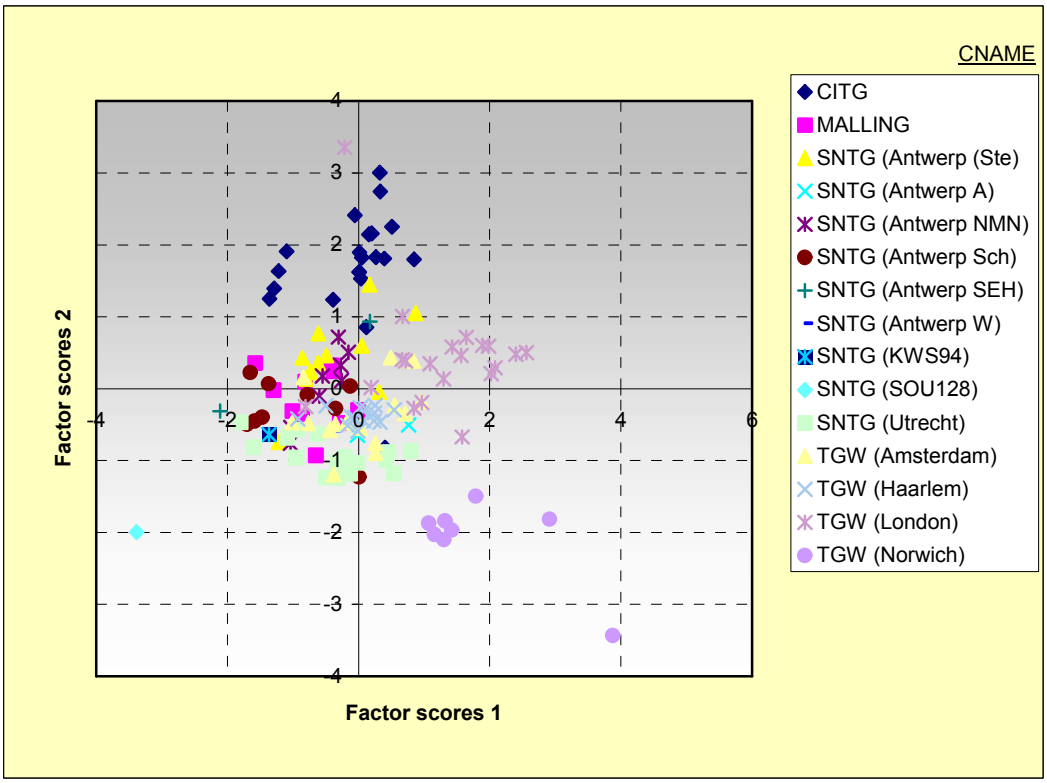

Figure 2 Factor Analysis of ICP-AES/NAA dataset – all provencanced samples

The KWS94 sample falls within the Low Countries part of this large cluster confirming that the piece is certainly not of Italian origin. However, in that part of the plot there are samples from Amsterdam, Utrecht and several of the Antwerp waste dumps. The comparison of the KWS94 and other Low Countries samples is clearer in Fig 3, which excludes the Italian and English samples.

However, a second analysis excluding those samples of Italian and English origin and omitting CaO, which is probably affected by burial conditions and firing, showed that the KWS94 sample is peripheral to the Low Countries cluster although close to a sample of a biscuit-fired jug from Steenhouwervest, Antwerp (Fig 3 Antwerp Ste), a collection of waste which includes Malling jugs and is probably therefore of mid 16th-century date. However, it is also close to several other Antwerp waste groups.

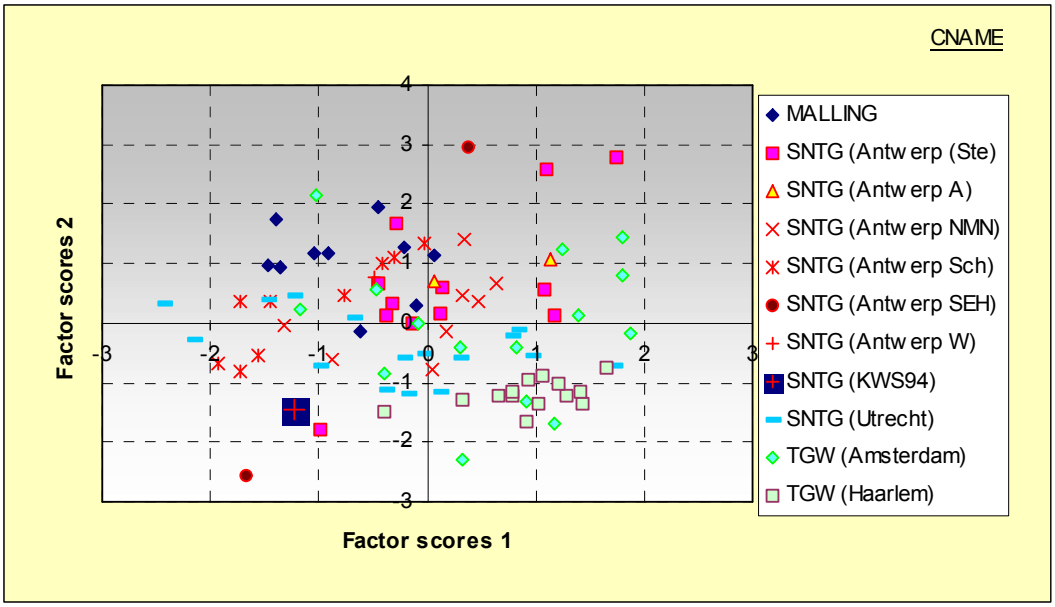

Figure 3 Factor Analysis of ICP-AES/NAA dataset – Low Countries samples and KWS94 only

Conclusion

Chemical analysis of the King William Street jug shows without a doubt that it is a Low Countries piece rather than an Italian one. It is also clearly different from wares made at Norwich and London, but these were never likely sources since conventional dating of those industries dates them to the last third of the 16th century and this piece is stylistically earlier.

Within the Low Countries the closest similarities of the KWS94 jug are with samples of waste from Antwerp although the chemical compositions of these groups are not discrete and one cannot match the sample with certainly with any particular waste group. Fig 3 also includes the Malling jug samples from sites in the British Isles and some of these do not overlap precisely with any sampled Low Countries waste, although as Fig 2 reminds us they are much closer to other Low Countries products than to English-made 16th-century maiolicas. Thus, there are undoubtedly production sites in Antwerp which have yet to be sampled and it may be that in future a precise match will be found, both for the KWS94 jug and the abberant Malling jug samples (which include both ICSP and NAA-analysed samples).