

Merovingian ceramic and glass in the Mosan region: The contribution of archaeology and archaeometry to economic, social and cultural History

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Introduction

After the fall of the Roman Empire, the geographical center of Europe moved gradually from south to north and, with the rise of the Pippinids, the Meuse valley became an important region. The broad outlines of Merovingian history are relatively well known, but the nature of the economic, social and everyday life is more obscure due to a lack of written sources. It therefore seems appropriate for historical research to concentrate on material culture. Among the objects discovered on archaeological sites, ceramic is present almost everywhere and makes up the bulk of the material excavated. Glass used to make containers is also found, but less often. The rules governing these two productions, their trade and consumption differed and constitute two sets of complementary data to answer chronological, economic, social and cultural questions.

Methodology

Merovingian sites are quite numerous in the valley of the Meuse from Namur to Maastricht. We selected four of them notable for ceramic production and one in which traces of glass production were found. We also studied material discovered in settlements as well as cemeteries from seven locations in three urban centers and from eleven rural sites.

Ceramic and glass artifacts were catalogued in a database in which the context of discovery, morphological characteristics (size, shape, decoration) and observations on techniques used by the craftsmen are recorded for each artifact. This inventory has made possible the classification of vases and fragments according to cross-referenced criteria. Our study takes into account 35.000 ceramic shards and about 4.000 glass shards. Among these, 140 ceramic fragments were cut into thin sections and then analyzed by PIXE in the laboratories of C2RMF in Paris. We also collected raw clay from areas around the production

centers. Regarding the glass objects, around 80 of them and decorations were analyzed by PIXE-PIGE at the European Center of Archaeometry at the University of Liège.

By means of this method, groups of objects have been created on the basis of technical and morphological criteria. For each of these classes we have attempted to characterize the techniques used by Merovingian artisans and to trace the source of materials. Secondly, based on seriation and factor analysis combined with the dates obtained by ^{14}C , dendrochronology, or through written sources, we traced the development of the Merovingian Mosan pottery and glass vessels. From there we were able to address economic, cultural and social issues.

Ceramics

Fine ware

The first group includes fine wares with a smooth surface, still wheel-thrown. The clay matrix contains a few inclusions. Various clay colors can be distinguished: red, beige and grey. Some vases have been smoked. Finally, a few specimens were covered with a slip. Fine wares were produced in the Meuse region, specifically in Huy and Maastricht. Besides these two centers producing red and grey wares, beige ceramics were produced in the region of Ohey.

Analyses performed on fine wares identified inclusions in the clay matrix: small grains of quartz, mica, clay nodules and aggregates of iron oxides. From thin sections, two main types of clay have been identified. One corresponds to fine kaolinitic clay and was used for the beige ceramic and some grey and smoked shards. The PIXE analysis confirms the distinction between two types of clay and differentiates the production of Maastricht from that of Huy.

Among the designs of fine wares, two are quite characteristic: the carinated bowl and the biconical pot. The first is generally red, and the second is most often dark-colored. Bowls had a capacity of about 40 cl and biconical pots 50 cl. Apart from

these two types, globular bowls were also discovered, as well as globular pots and more singular shapes. Jugs and bottles were few in number. From a numerical point of view, biconical pots predominate. The fine wares can be identified as tableware, mostly for consumption of individual portions.

The majority of decorations were applied to biconical pots, bowls and sometimes jugs. Three techniques are observed: incisions and impressions made with a single stamp or with a stamping wheel. In most cases, the printed patterns are very common and represent simple forms such as squares. Specific patterns have been found in some workshops and are characteristic of these places. Only one identical stamp was found at two distant sites attesting to diffusion of ceramic.

Coarse wares

The matrix of coarse wares with rough surfaces contains abundant large-sized inclusions. The color varies as it does for the fine wares: red, beige or grey; with or without a smoked surface. Apart from some hand-shaped vases, all the coarse wares (about 1920 examples) were wheel-thrown. The workshops of Huy and Maastricht produced vases with red or grey paste. The beige shards were mostly from Ohey and, containing much more calcite, the production of a fourth center has been identified in Namur.

Observation of thin sections shows that in addition to small inclusions of quartz, mica and iron oxide, the clay used for coarse wares contains grains of quartz and larger fragments of metamorphic and sedimentary rocks such as chert, types of siltstone, shale, and sandstone. As for fine wares, analyses prove the use of different clays, including kaolinic clays for beige ceramic and some grey smoked fragments. Chemical analyses distinguish several sets of artifacts: those from the Ohey region are richer in aluminum, those from Maastricht are richer in potassium, Huy productions lie between and shards from Namur contain more calcium.

The ovoid pot is the predominant form in this category. Morphological variants concern vessel lips, which may simply be stretched, rolled up or provided with a groove for placement of a lid. These lids are very rare, but some specimens have been discovered in Namur. In addition, rough wares have some open forms such as globular bowls. Jugs are made from coarse paste, but only if their body is ovoid. Among the forms, ovoid pots with rolled lips are the most common. We also note a predominance of smoked grey ceramic. As

evidenced by the many inclusions and traces of smoke on the shards, coarse wares' primary use was in food preparation. Ovoid pots were used for cooking with an average capacity of 1 liter.

Imports

The remaining categories include artifacts that were imported into the Meuse region. The first contains red jugs and pots with rough surfaces and pots with smooth and smoked surfaces. All these subgroups are represented by only a small number of examples. In the selected samples, the clay matrix contains volcanic inclusions such as pyroxene, amphibole and basalt. Even if actually discussed, this type of production is traditionally associated to the Eifel region. Technically and morphologically, the pots and jugs are close to those produced in the workshops of Mayen. In the Meuse valley, the jugs were found in early graves, while the rough pots only come from settlements. Ceramic objects with a smooth surface were only found in Stavelot.

The last category comprises late terra sigillata pieces from Argonne. The forms used in the Merovingian period are mostly open. Bowls of type Chenet 320 are the most numerous and are decorated, sometimes with Christian motifs. There are also bowls in the Chenet 304, 324 and 313 styles. Fragments of these are represented in graves and settlements from the same period.

Glass

Colorless glass

The glass matrix is clear, sometimes slightly greenish or yellowish. It contains small bubbles and a few internal flaws. Colorless glass pieces are the most numerous and display the largest number of decorative and morphological variants. Decorations are made with lines of opaque white glass or with clear glass. Some are also printed and the techniques may be combined.

Colorless bottles usually have small spherical bodies and short necks. Given their very low capacities and their shapes, they could have been used in the conservation and transport of more valuable goods, perhaps perfumes and ointments. Glass pieces with lines of opaque white glass are the most numerous. These decorations are found on small pots, cups and cone-beakers. Colorless cups and cone-beakers are decorated with clear glass lines, among these, some of the famous Kempston type. The lines of glass are often associated with helical ribs on smaller cone-beakers. Ribs also decorate bell beakers, pots and cups, but

the most elaborate printed decorations are undeniably those of the cups bearing Christian motifs on their bottoms. Out of small bottles and small pots, glass containers are mainly drinking vessels with a relatively small capacity (25 cl).

Like the other groups, the colorless glass analyzed is made from sand and natron. Its chemical composition does not correspond to that of older glass from the Roman period. It is closer to glass of the same period found in Germany, France and England. The number of chemical elements considered as the evidence for glass recycling is quite low. To manufacture colorless glass, raw material was still imported. To decolorize the matrix, the effect of iron oxide was "cancelled" by using manganese. Tin and lead were used to obtain the white opaque glass of the decoration.

Greenish glass

The matrix is either dark green or greenish-yellow with bubbles and impurities. The green glass is less abundant than the colorless and its chemical composition is different and much more heterogeneous but traces of recycling remain rare.

Some fragments attest to the existence of undecorated green bottles. The decorations are either printed or comprised of green glass lines; no white line has been found. Both techniques can be found combined on cone beakers, especially those found in funerary contexts. Wider impressed ribs decorate beakers and pots as well as cups. Lines of glass are applied to cups and pots. Beakers have a low shoulder line with rounded corners. The pots also have rounded bodies.

Bluish glass

The majority of blue glass is riddled with large bubbles and cracks. According to the analysis, the chemical composition of blue glass varies. Some fragments contain an above average amount of traces of recycling. In most samples, the color is caused by iron, which apparently was not "cancelled" by the addition of manganese. More signs of recycling have been detected and the production seems to have been less dependent on imports.

The bluish glass is mainly used for vessels without decoration, except for one cup decorated with large ribs on the bottom. The forms are blue bottles, large and small, cups, and a range of pots. These last two forms are characteristic of this group. The pots come from cemeteries while cups have been found in graves as well as in domestic contexts.

Other colors

Finally, a few vases and fragments attest to the existence of brown or yellow colored glass. The shapes are simple and undecorated. This color is used for bottles, as well as for bowls and pots discovered in funerary contexts. Chemical analyses show that the brown and yellow glass was obtained with natron like other productions of that time.

Chronology

The first phase extends from about the mid 5th century to the first third of the 6th century (= chronologie normalisée PM-MA1 and Rheinland phase 1 to 3). At the beginning of this phase, Argonne *terra sigillata* still reached the valley and accounted for a large part of general tableware buried in graves. In the same ancient contexts, jugs imported from Eifel were found. Fine biconical wares with dark surfaces originating in the Mosan region were also part of the tableware. Such pieces were found in settlements as well as in funeral contexts. On these, decorations were mostly produced using stamps, and wheels were rare. Both fine and coarse wares were found in the form of ovoid jugs with pinched spouts and bilobed handles. A few bowls and ovoid pots were also dated to this period. The latter predominate in a domestic context. During the first phase, glass was fairly abundant, especially the colorless type. Besides bottles, the most numerous pieces were small cups decorated with lines of opaque white glass. They are contemporary with cups having Christian motifs and cone-beakers. Bell beakers appear around the 6th century.

The second phase covers the period from around 530/40 to 630/40 (= chronologie normalisée MA1-MR1 and Rheinland phase 4 to 8). Imports disappeared from the Meuse valley, jugs from Eifel first and then Argonne productions. Local pottery came to monopolize the market. To replace *terra sigillata*, red biconical bowls appeared. Biconical black ceramic vases are largely dominant and are very common in necropolises. During this period, vases with low careen appear, but vases with large openings and median keel persist. In a domestic context, biconical pots represent the bulk of tableware. However, there are fewer of them than there are coarse wares, especially as regards ovoid pots. Jugs appear in a biconical shape in addition to ovoid ones. Bottles are very rare and their shapes mimic the same trend as other vases, following the development of cari-

nated bodies. Beige ceramic pieces manufactured in the Ohey region probably date to the early 7th century. In that period, the number of glass objects decreased. Colorless glass was still present and took the shape of cups and bell beakers. Then the proportion of greenish glass increased. The shape of more recent beakers tends towards lower careen and rounded profiles. In this development, deeper and wider pots and cups appeared; often-times, thick ribs are imprinted on their bottoms.

The third and final phase covers the end of the Merovingian period, from the mid 7th century on (= chronologie normalisée MR3-MR3 and Rheinland phase 9 to 10). From that time, burials were accompanied by significantly fewer objects. Imported ceramics reappeared in settlements as ovoid pots from Eifel. Local fine wares were still in use, but to a lesser degree, being mostly grey and smoked. They still have biconical shapes, but wide-mouth vases have disappeared. Lower careen shapes persisted; new profiles, more "original" in character, were emerging. Decorations are rare; they are limited to geometric shapes, often rectangles imprinted using stamping wheels. In contrast with the situation at an earlier time, these decorations were more and more often applied to coarse wares. During the third phase, red carinated bowls were replaced by bowls with rough, grey and smoked surfaces. The number of pots with grooved rims decreased, while pots with rounded lips became more numerous. As regards materials, potters increasingly are found to use kaolinitic clays. Although other colors remain, blue glass now became dominant. Its matrix is riddled with bubbles and flaws. In terms of form, we are left with cups and pots found in tombs and in domestic contexts.

Economic, social and cultural interpretation

Production

Ceramic productions have been identified not only in the workshops of Maastricht and Huy, but also in the regions of Ohey and Namur. In these centers, the potters made both fine and coarse wares and produced practically all the shapes. The artisans were dependent on local material and used the same clay to make both types of wares. A kaolinitic clay was used in the region of Ohey and perhaps in Huy. All the ceramics found in the workshops were wheel-thrown. Production quantities must have varied, probably depending on demand and it appears that potters settled primarily in urban areas where there were a greater number of consumers.

Glass production sites are rare. Glassmakers also settled in urban areas, but in which differentiating glass produced locally from glass to be recycled is almost impossible. We therefore preferred to work on finished products found at consumption sites to obtain data about production, especially since some vessels appeared to be made in the same workshop. Soda glass was still used in the Merovingian period. Initially colorless and fairly homogeneous, its composition corresponds to that of glass of the same period found in France, Germany and England. The composition quite close to "HIMT" glass and the absence of traces of massive recycling show that raw glass was still imported from the East. Changes in color and chemical composition, probably from the second half of the sixth century, could indicate variations in the supply of raw glass. In the late 6th century, manganese does not appear as a bleaching element.

Diffusion

Exchange networks changed during the Merovingian period. Long distance trade, a legacy of the late Roman Empire, continued until the 6th century. Ceramics imported from Argonne and the Eifel disappeared from the Meuse valley early in the Merovingian period. Raw glass from the Mediterranean are still reached the valley and, among the glass cups with Christian motifs, objects from the same workshop were distributed over a geographical area about a hundred kilometers in diameter. Local productions dominated the next century. Pottery produced in the Meuse region had only a limited distribution, over a radius of about twenty kilometers. Fifty years later, ceramics from Eifel reappeared. Because the number of glass vessels decreased in the 6th century, the study of their distribution becomes more complex. In the next phase, production of a workshop, probably from Maastricht, may have been exported over an area about twenty kilometers in diameter.

Consumption

Among the objects studied, we can distinguish three main functions. Food was prepared (cooked, mainly) in ovoid cooking pots. These are not very different from Gallo-Roman containers, except that there are fewer pots with a grooved rim. Tableware was also inherited from the Gallo-Roman table, but large platters for serving are gone. For holding individual portions of food, terra sigillata bowls gave way to carinated bowls. Drinking glasses became less numerous and ceramic

biconical pots were used for this purpose. Smoking out containers gave them a better seal, but it could also have imparted a taste to their contents. Finally, for preserving and transport of materials, apart from small glass bottles, the Merovingians do not appear to have had specific glass or ceramic containers such as the amphorae used in earlier times.

The only distinction between the ceramics deposited in graves and those used in everyday life concern their proportions in the distribution among the sites: fine wares are more often found in graves and coarse wares are more numerous in settlements. Concerning glass, the same objects were discovered in graves and in domestic contexts. At no time could we detect specific funeral production, nor could any workshop be identified that specialized in funerary production.

In burial practices, dishes played a symbolic role. Their appearance in tombs is related to funeral meals. Over time this practice lost its original meaning. By the middle of the sixth century, there were fewer glass and ceramic containers in graves, and the ceramic containers found are no longer red and open-shaped, but darker drinking pots. Abandonment of practices related to grave goods was certainly encouraged by Christianity, but seems to have slowly changed and not to have been a direct result of its adoption by the populations.

Regarding social status, the presence of a particular vessel in a tomb or in a domestic context does not necessarily reveal the status of its owner. In order to draw such an inference, ceramic and glass objects should always be in agreement with other archaeological data. At this stage, we cannot define luxury tableware.

In terms of ethnicity, the vases were those originally used by people occupying the Meuse valley at the end of the Roman period. In the region, their development was uniform. The hypothesis that the two populations were closely related is supported by evidence concerning diet and modes of consumption, as well as funerary practices.

Conclusion

Material culture is very important to the understanding of a civilization and as a complement to written sources. Changing slowly, the rhythm of the development of glass and ceramic containers is different from that of historical events we know about from texts. To be fully active, the study of material culture requires a multidisciplinary approach. Collaboration between archaeologists, historians and scientists is a condition for future research on the early Middle Ages.

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