
A TRANSPARENT VIEW

The changes in glass consumption between the first century BC and the first century AD on the Italian peninsula



Suzanne van Beek

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The changes in glass consumption between the first century BC and the first century AD on the Italian peninsula

BA-thesis

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Leiden, 15 July 2018, final draft.

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1. Introduction

1.1 General information

After the discovery of glass making in 3000 BC, the material developed majorly throughout the centuries. One of the most important developments in glass production happened in the first century BC, when blown glass was invented. Blown glass was a very new phenomenon and it did not gain popularity until the Augustan period (between 27BC and AD 14) (Isings 1957, 1).

There are two different types of glass blowing, namely: free blowing and mould blowing. Even though it is said that during the first century BC blown glass was invented, it is not exactly clear when during this century people began with glass blowing. However, it is generally accepted that free blowing preceded mould blowing (Stern 1995, 65). The invention of glass blowing resulted in a major shift in the consumption of glass. From the late first century BC to the middle first century AD, glass went through a transition from luxury item to an item for common use. This transition was caused by an expanding and developing glass production. As a consequence of the changes in glass production, glass appeared in larger quantities and in more different shapes from the late Augustan-Tiberian period onwards (27BC to AD20s) (Cool 2016, 95). The fact that it appeared in larger quantities, resulted in lower prices for glassware and glass became also affordable for the common people.

To gain a better understanding of the development of the consumption of glass, the following thesis will discuss the change in the consumption of glass on the Italian peninsula between the first century BC and the first century AD. As case studies for the whole Italian peninsula, three sites have been selected, namely Cosa, Insula VI.1 from Pompeii and the San Rocco villa at Francolise.



Figure 1: map of Italy with the locations of Cosa, the San Rocco villa and Pompeii (Google Maps).

These sites all have a different size and different positions in the Roman society at that point. Pompeii is a metropole and is involved in a lot of different trade networks, both within and without Italy. However, only one insula¹ from Pompeii has been used for this research. This is partly due to the fact that the publication of Cool is only focussed on Insula VI.1, and because Pompeii in its entirety would be too large for this research. Cosa is a somewhat smaller city than Pompeii, and also less involved in trade. The San Rocco villa is much smaller and consists of a domestic area and a production centre. The site is also quite secluded from the area around it until the start of the imperial time. In conclusion, these three sites are all of a different nature, so the change in glass consumption can be looked at on three different societal levels. This is very interesting since a comparison on three different sites from different natures has not been executed before. There is no relation between the three sites, apart from the fact that they are all dated in the Roman period and are located in Italy.

¹An insula is an area located in a city.

The fact that the sites are so different causes some difficulties in the comparison, for different dating methods have been used on the three sites and not all three sites have a clear distinction between domestic and public areas. Therefore, at the San Rocco villa the *domus* is seen as a domestic area and the production area will be compared to the public areas from the other sites.

Furthermore, these are three of the few sites from which a publication of the glass assemblage exists. The publications are published at different times, namely the publication about the San Rocco villa is from the 80s (Cotton and Métraux 1985), while the publications of Cosa (Grose 2017) and Insula VI.1 (Cool 2016) are published very recently. They also use different chronological labels, since all three sites have different events in different periods, to which the glass has been described.

Even though glass was and still is a very important part of daily life, it has not been researched that well. This might be because glass is very difficult to date; it is not dateable by looking at morphological traits, as is done with pottery, and moreover, household material often does not change for a long period. Only the luxury goods are more influenced by other types of art of the same period, which makes the dating easier (Isings 1957, 163). In this thesis the dating is mainly based on the stratigraphic layers in which the fragments are found, and on the dating of the other materials found in the same layers.

The research question, which will be the main focus point in this thesis, is the following:

To what extent do we see a development in the consumption of storage and table ware glass between the first century BC and the first century AD on the Italian peninsula, based on the publications of the sites of Insula IV.1 of Pompeii, Cosa, and the San Rocco villa?

1.2 About glass blowing

Before glass blowing was invented, glass has been cast for a very long time. This makes cast glass the predecessor of blown glass. The invention of blown glass has been researched by a couple of researchers and mainly Stern has published a lot about this subject. Stern stated in her publication about Roman Mold-blown glass from 1995 that glass blowing has its origin in Jerusalem in the first century BC. She suggests that the discovery of blown glass occurred during the process

of making beads. During the production of beads, the technique of locally heating and inflating a glass tube is used. It is expected that this was also how the first blown glass was produced; locally heating a hollow glass pipe and blowing into it, so that the warm glass would expand. Only, the production waste in Jerusalem did not contain any beads, so it is not entirely clear if this place was a production centre of beads and if so, an early production centre of blown glass. However, the tubes are very similar to the tubes that are found in Hellenistic workshops where they produced beads (Stern 1995, 38). Thus, it might be that in Jerusalem a local bead production centre was situated, even though there was no production waste of beads found, where the bead producers by accident, invented blown glass by blowing into the heated hollow glass pipes. Although this information is not about the consumption of glass, which is the primary subject of this thesis, it is important to know how glass developed, where glass blowing originated and what kind of material they used for it. This might explain why the glass production centres were situated in specific places, or what they needed to be successful.

Further in time, glassworkers started to invent different kinds of blowpipes. This was a challenge, for there were not many suitable materials. From the metal materials, only iron could be used, for the rest of the known metals melt at a lower temperature than glass does. However, iron tubes were difficult to produce and also rarely used for other purposes during this time. The next logical option, according to Stern, would have been clay. Clay was used for a lot of other purposes in the already existing glass workshops and also known in the form of pipes. The hypothesis that blowpipes were originally made out of clay is supported by several ancient depictions and experimental archaeology in the Toledo Museum of Art (Stern 1995, 39- 40). Not many actual clay blowpipes have been found, and the ones that have been retrieved from excavations are very fragmentary and date to the late first century AD (Stern 1994, 81-83).

Very important is that the use of clay blowpipes could be the reason why glassblowing spread so quickly throughout the Roman empire. Clay was inexpensive, and the blowpipes were easily produced (Stern 1995, 41). Thus, a glass production centre could easily be set up anywhere in the empire, if the other requirements for a glass production centre were present, like the ingredients of glass.

The origin of metal blowpipes is unknown. Remains of metal tools have been found at production sites of ceramic, glass and metal. However, the first remains of tools and iron rods, hollow and solid, were found on a third- to fourth

century site in Western Ukraine. Other hollow iron tubes, that might have been blowpipes, have been found in Merida, Spain and Salona, Croatia (Stern 1995, 42). From this information, the conclusion can be drawn that in the beginning of glassblowing, the main material used for producing blowpipes was probably clay.

1.3 Current view on glass

The current view on glass is that the invention of blown glass, free blown as well as mould blown, changed a lot in the glass consumption pattern. For instance, it became much easier to make large amounts of glass objects. From the Claudian (AD 41-54) period onwards, a lot of ordinary glass tableware came into use (Isings 1957, 163). Although Isings does not specify where exactly this appeared, this development is also emphasized by Strabo, who wrote in the AD20s that glass cups were incredibly cheap in Rome (Strabo, Geography 16, 758). This tells us that the supply of glass was really high and because of that the prices were extremely low. This was only in the beginning of the emergence of blown glass. Throughout the first century AD, blown glass would be present more and more in different glass find assemblages.

1.4 Methodology

To be able to answer the main research question, a number of secondary questions are taken into account. The first thing that will be looked at, is the already existing knowledge about the social dynamics of glass on the Italian peninsula. An overview of the social dynamics of glass will be given to be able to provide some background information to the site and place them in a social context. This has been done by reading about the general development of Roman society.

After looking at the general context and knowledge of Roman glass, the next step will be to investigate the three main sites. From each site the same information will be drawn, namely what the glass assemblage holds, and whether there is a significant change visible. What might influence the answer to the research question is that primarily at Cosa, most of the glass fragments were found in a disturbed layer and could not be dated or assigned to a specific layer. However, the part that could be dated has been incorporated in the research. The glass assemblages have been processed into a database from which it is easy to draw conclusions about each specific assemblage and compare the assemblages to each other and the general picture. It is important to mention that

the databases are constructed specifically for this thesis and are based on a specific kind of glass, namely household materials (tableware and vessels). In the database the following characteristics have been incorporated: the context in which the glass has been found (domestic or public), the dating of the glass, the colour of the glass, and the form of the glass. The context of the glass, domestic or public, is interesting to study at since it can tell a lot about the social dynamics. If and when common people were able to afford glass, or only the elite could buy glass, or if the glass was only used in public spaces, for it was too expensive to use in private affairs. The dating is also important, for this can yield information about when glass assemblage expands or when it just started to emerge. To be able to compare the different assemblages to each other, the dating from the original publications will be altered to a uniform dating system. These are explained per site in the introductions of the chapters. The colour of glass provides information too, since the colour of the tableware glass changes significantly as glass production developed further, which will be explained later in this thesis. Furthermore, the form of glass says a lot about the function of glass. The function of glass is interesting to consider, since the function of glass altered over time, together with the development and expansion of glass production. This is also explained more in depth in a later chapter.

In the chapters themselves, something will be said about the other finds in the same context as the glass. The importance of looking at other finds in the same stratigraphic layers is rather large, since it can help to determine if the structure is of domestic or public nature. It can also yield information about the way glass might replace or complement other sorts of material finds.

Based on the existing knowledge of Roman glass, which is presented in the first chapter and in the chapters about the three different sites, the hypothesis is that there has been a major change in the glass assemblages between the first century BC and the first century AD. Glass was probably used much more often and was present in greater numbers on the sites than before this time. This is one of the key subjects that will be researched in this thesis.

After researching each site individually, the next and last question is if the databases of the sites could be compared to the general view of the change in Roman glass that will be established in the introductory chapters and also, what the outcome of the comparison could be. The comparison will be made based on form, context, dating and colour of the glass fragments. From this comparison, a conclusion will be drawn and an answer to the main research question will be given.

2. Social dynamics and glass

2.1 Social developments

In the last few centuries BC, the number of people living in Italy increased. This is particularly seen in the growth of the number of farms, which continues in the beginning of the imperial time (Vugts *et al.* 2014, 28). During these last few centuries BC, there was also a growing interconnectivity between the different parts of the Mediterranean area. The Roman empire, Italy and Rome itself were in a state of constant change. Many Roman aristocrats were interested in the Greek-Hellenistic culture and used it to develop themselves in a multi-cultural way. They imported diverse art objects, books and also Greek slaves (Vugts *et al.* 2014, 14).

The Romanization debate implies that it was a dual process, whereby the Greek culture is first mixed with the Roman culture, which is called Hellenization. The Greek culture, however, is a “special” case, since the Greek culture is also seen as a highly developed culture, and not as a group of barbarians. After the Hellenization process, the mixed culture is spread through Roman conquest and trade, what we call Romanization. First, the focus was on the fact whether or not aspects of the native cultures were replaced or not. Later, the focus shifted to the way cultural traits were picked up by the conquered peoples to serve specific ends. This process can also be called “glocalization”. Millett states that Roman culture is re-contextualised in the (local) structures of power-relations (Wallace-Hadrill 2008, 10).

The Romanization and Hellenization process can also be seen in material culture. From the last two centuries BC and the first century AD, the material and intellectual culture of the Romans changes substantially. This can be interpreted as an expression of the powershift in Roman civilization and the contact between the Romans and other societies (Wallace-Hadrill 2008, 35). The fact that material culture yields a great amount of information about the social developments, also provides a very important context for glass. Since it can provide an explanation for certain changes in the glass assemblages throughout time.

From the second century BC, trade became more intensive. There was a growth in the demand for typical Roman products. Around Naples and Rome, a great import economy arose. These two places were in contact with the whole Roman empire. In the second century BC, a large export of wine came into existence, mainly to Gallia. From the same period, also domestic ceramics

became more and more popular, and resulted in an increasing export of ceramics but also a migration of the producers. However, from the end of the first century BC onwards, the wine and ceramic export decreases due to the fact that Gallia is producing wine and ceramics itself (Vugts *et al.* 2014, 50). During this time, the need for grain, oil and other basic food requirements stimulated the import of goods. Together with the basic goods, a lot of luxury items, like glass, were imported as well (Vugts *et al.* 2014, 51).

With the import of more and more luxury items during the last two centuries BC, Rome tried to regulate the consumption of these goods, for example by controlling the prices of food items. However, shortly after the emergence of the Imperial Roman empire from the late first century BC onwards, this attempt has been given up. Later onwards in the Imperial Roman time, emperor Tiberius writes a letter in which he expresses his opinion against sumptuary control (Wallace-Hadrill 2008, 330). He states that the problem of the growing luxury items extends beyond the remit of the law, namely like the size of villas/households, the number of gold and silver plates, and the amount of money that may be spend on a meal. Furthermore, the luxury items are imported together with the grain that Italy cannot produce themselves. So, the emperor needs to sustain the import of grain, otherwise the state might be overthrown (Wallace-Hadrill 2008, 330). With the continuing import of grain, the import of luxury goods was also maintained. The fact that luxury items were still permitted and imported in Italy, resulted in the import of a lot of knowledge about glass and glass products. This was part of the development and growth of glass production and consumption.

2.2 Uprising villa landscape

In the early fourth century BC, there was already an increasing amount of small farms spreading through the Italian peninsula. This number of farms grew until the end of the second century BC and the first century BC when a whole new farm system appeared. In this system villas started to appear as well (Terrenato 2012, 150). These farms and villas played a great role in the export of agricultural surplus over long distances.

According to the mainstream view from the 70s and 80s, villas already existed in the late third century BC. However, no archaeological confirmation of this view has been found so far. From the 80s BC a large number of villas arose throughout the Italian peninsula. The villas were mainly situated in core production areas, because they were primarily focussed on producing wine or

olive oil. However, outside the production areas they were few in number, and mostly residential (Terrenato 2012, 152).

With the surplus that the villas earned, luxury goods could be bought, like glass objects. However, a large part of the villa culture was focussed on the production of luxury items and not on cultivating grain and other important food items. This was partly the reason why Rome could not feed itself and the rest of Italy. This resulted in a lot of import of grain, other necessary products and luxury items (Wallace-Hadrill 2008, 331). However, the San Rocco villa is a production centre focussed on olive oil and bricks, and the belief that most of the villas were focussed on luxury items does not apply to this villa. With the surplus of this villa, luxury goods, like glass, could be bought.

2.3 Glass production through time

Due to the great interconnectivity from the last few centuries BC onwards, glass production could spread quickly throughout the Mediterranean. This was possible because of multiple factors, such as economic, political and cultural exchange. The technique of glass blowing, and glass objects were moved around the Mediterranean by traders together with grain and other basic food items. Even if glass blowing had its origin in the Near East, somewhere in Palestina, it was perfected in Italy. This can be concluded from the enormous quantity of glass fragments which were found in Italy in many different shapes and colours (Stern 1999, 443). During the first century BC, many Sidonian glass blowers moved into Italy, to set up production centres and shops in e.g. Rome, Campania and Aquileia. After the glass blowers moved to Italy, they came into contact with the Roman culture of the centre of the Roman empire (Stern 1999, 444). At the Italian peninsula, the circumstances were apparently good and resulted in many new developments like the introduction of novel type of glass working furnace, the invention of the iron blowpipe instead of ceramic ones, the use of molten glass and the pontil technique² (Stern 1999, 446).

The glass industry has been divided into two separate crafts, glassmaking and glass working, since the beginning of the second millennium BC. The primary workshops have been existing since far before the glassblowing was invented. Glass was only made in a small number of workshops, which can be said based on the finds of mostly secondary workshops. In addition, the

² The technique of transferring a glass object to a pontil (a solid metal rod), on which a glass vessel can be shaped after it has been removed from the blowpipe (Stern 1995, 27).

glassblowing production never developed into a large-scale production, probably because of the limited possibilities in expansion. Roman glass working furnaces were often quite small. The furnaces were almost impossible to expand, because of the available pyro technology (Stern 1999, 454-455). The fact that glass production centres could not expand gives an indication of how small the business used to be. From this information, the conclusion can be drawn that a lot of small scale production centres were necessary to realise a large increase in glass assemblages. This can be a reason for a slow expansion of glass assemblages throughout the first century AD, and the fact that it took almost a century, as proven from the finds at Pompeii, before glass replaced thin-walled ceramic wares (Fleming 1997, 47).

Since the glass industry was divided into two separate crafts, trade was necessary to provide the secondary production centres with raw pieces of glass. Furthermore, after production the glass needed to be dispersed for people to be able to buy them. Long distance trade was probably used for the spread of raw pieces of glass, cullet and fine tableware. Tableware, unguentaria³ and other ordinary objects were mostly distributed over short distances. During trade, most of the vessels and tableware were transported while being empty. However, some objects, like unguentaria shaped like birds, were transported while containing fluids or other materials (Stern 1999, 467). So there was a difference in trade of the glass bottles with the purpose of containers, and glass bottles that were traded as only glass bottles.

The long-distance trade of glass went most of the time overseas, for that was a much cheaper way to transport goods from one place to another (Stern 1999, 470). Not only the glass was transported by boat, also the merchants and producers travelled together with their wares across the sea to sell their merchandise in different places. This might also be a cause for the similarities between glass shapes throughout the Roman empire (Stern 1999, 471). The merchants and producers used their experience and passed it on to the other parts of the Mediterranean where they came to trade.

Small shipments were probably mostly done overland, for that was a cheaper way to transport small batches of merchandise (Stern 1999, 474).

From the excavations around the Vesuvius can be concluded that by the time of the eruption in 79AD glass vessels outnumbered thin-walled pottery greatly (Fleming 1997, 47). The vessels can be traced back from a wide range of

³ Form of a small glass bottle, with a long narrow neck and bulbous body.

locations throughout the Roman empire, which suggests an enormous trade network. From different sites, like Cosa and Colchester (located in South Great-Britain), excavation material has shown that imported glassware has been sold together with imported pottery, and in sets. This hypothesis has been backed by the finds of glass sets in houses, stores and graves, where mixed assortments of pottery, glass and other material have been found (Stern 1999, 471).

From the early Flavian period (AD69-96) onwards, glass recycling became part of the production process. Glass recycling already existed, however, not on large scale and did often not involve remelting but happened in the form of for example incorporating broken glass pieces in mosaics. At the same time, brightly coloured glass went for the greater part out of fashion. This was a great advantage for the remelting, because this reduced the possibility that the remelted glass would turn out in a brownish colour instead of a green, blue or colourless piece (Stern 1999, 451). Another reason for the use of only one colour, especially green or blue, was that the glassblower could only attach one colour at the time at the blowing pipe. This resulted in monochrome glass pieces, which were sometimes decorated with coloured threads and appliques (Van den Dries 2007, 95).

2.4 New purposes of glass after the introduction of glass blowing



Figure 2: Mould-blown glass storage jar, 1st-3rd century AD
(<https://www.metmuseum.org/art/collection/search/245177>).

the jars (Van den Dries 2007, 105).

The combination of growing connectivity and the increasing amount of trade, resulted in new forms of glass containers, like square glass jars (fig. 2), in which for example oil was being transported. They were convenient, for they could be placed in a crate next to other jars (Vugts *et al.* 2014, 86). The pieces that were used as a container were mostly mould blown, to make the form standardized, which resulted in forms that were easily put together in crates. These glass objects were also mostly see-through, which was very convenient for checking the content of

Glass jars were probably also used for storage, as can be seen from examples in Pompeii and Herculaneum. As a consequence of the lack of refrigeration in the Roman period, food was stored in small quantities in different kinds of containers, processed by pickling or drying or conserved in honey or salt. Most of the containers there, found in houses or shops, were made of glass or ceramics (Roberts 2013, 55). Glass storage vessels and jars were quite common in domestic areas. The walls of the vessels were often very thick, and some forms had narrow necks were stopped with different materials, like cloth, cork or clay. The vessels came in all sizes and forms, tall and cylindrical, but also small and chunkier, for example glass storage jars could be roundly shaped, without ears, a large rim and a round opening as can be seen in fig. 3. In these storage jars and vessels, many different food items were preserved, from olive oil to small onions (Roberts 2013, 256). These forms were most of the time closed with a piece of cloth or a glass lid. The jars were all quite similar, however they were not mould-blown so every vessel slightly differs from the other. The form of jars is probably derived from *olla*; ceramic cooking and storage jars. Despite of having the same form, glass vessels were only used for the storage of food and were not used for cooking (Van den Dries 2007, 106).



Figure 3: Roman blown storage jar, mid first century AD to second century AD (<https://www.metmuseum.org/art/collecti on/search/245167>).

After the introduction and expansion of the glass production in the first century AD, experimenting happened with forms and colours. From the first century AD onwards, a great variety of new forms was introduced, such as the rib bowl. Another new form in the second half of the first century AD is the measuring cup. In this cup water or sometimes wine was passed during dinner parties (Vugts *et al.* 2014, 73).

Glass finds from a house in Herculaneum shows that household material mostly consists of cups and bowls in a greenish colour, and occasionally brighter coloured objects like cobalt blue or emerald green. Along with the standard glass forms found in domestic places, more rare pieces have been found in Herculaneum like tall drinking glasses, mould-made vessels and cast and carved objects (Roberts 2013, 240).

From this chapter, it can be concluded that a lot of different social developments took place during the first century BC and the first century AD, which had big influences on the consumption of glass. Very interesting for this research is the

growing interconnectivity in the Mediterranean, which resulted in an expanding trade network. With the expanding trade network, glass was spread throughout the Mediterranean and people were able to purchase glass as luxury items, but the spread of the glass production throughout Italy was also a very important step in the development of glass consumption. However, how and when precisely the glass was spread throughout Italy, is very vague and in this thesis an attempt will be made to make this vague idea clearer.

The social background is relevant for Cosa, Insula VI.1 and the San Rocco villa since it concerns all the social levels, from the elite to the common people. The social background might also explain some developments in the glass assemblages, which are hard to determine.

3. The San Rocco villa at Francolise

3.1 Introduction to the site

The site of the San Rocco villa (fig. 4) is situated on the summit of the hill of Francolise, in the North Campanian plain (Cotton and Métraux 1985, xix). The villa consists of two parts, the *domus*⁴ and the *villa rustica*⁵. Excavations showed that both parts were built in two building phases, Period I and Period II. Period I/IA covers the period between 100/90BC – 30BC. At the beginning of Period I, the first version of the *domus* and *villa rustica* were built, and later in Period IA, already some adjustments to the original plan of the *domus* were executed (Cotton and Métraux 1985, 11).

Period II/IIA covers a timespan between 30BC – AD200+ (Cotton and Métraux 1985, 252). In Period II, the *villa rustica* was renovated and extended.

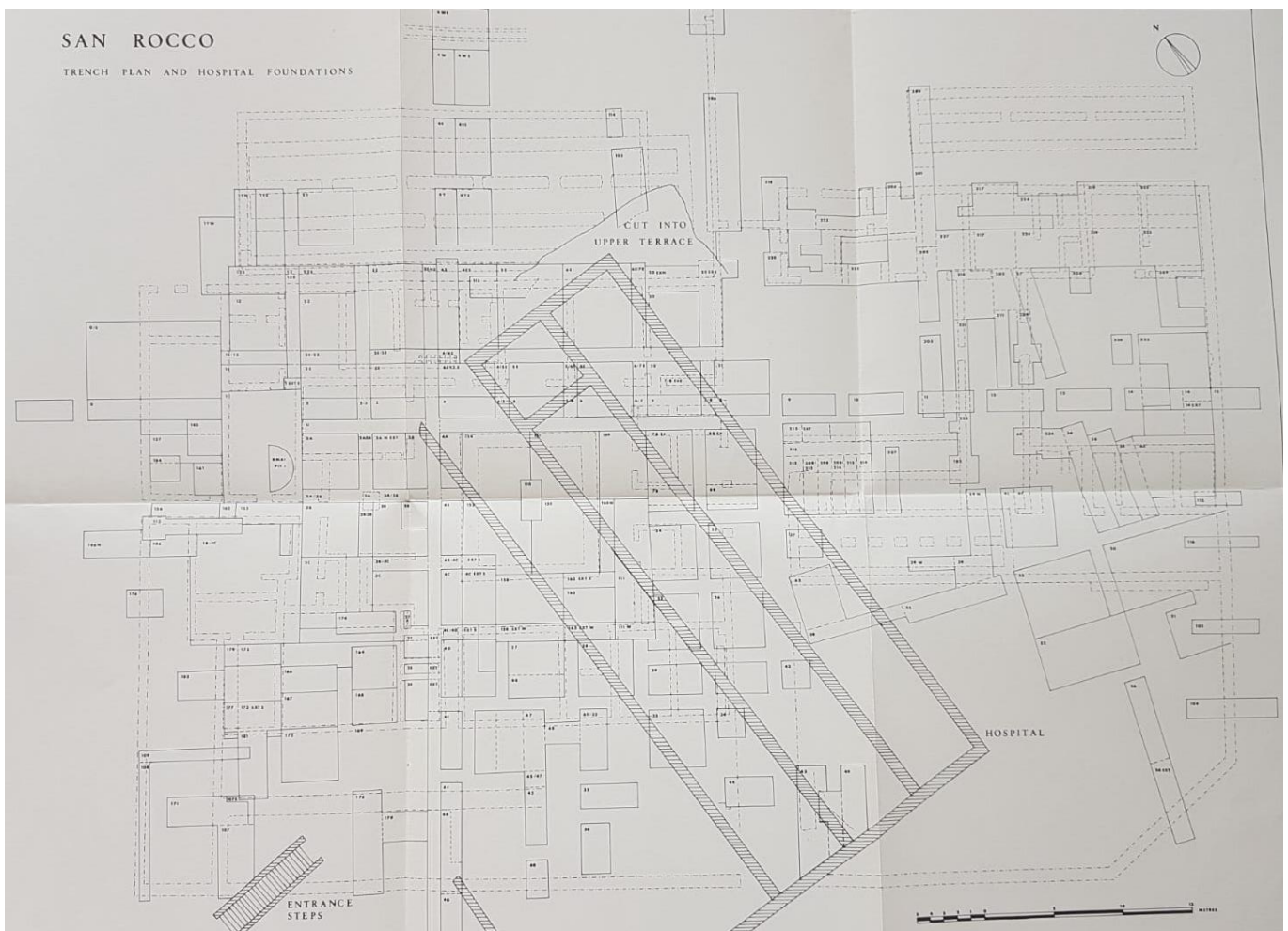


Figure 4: map of the San Rocco villa at Francolise (Cotton and Metraux 1985).

⁴ The *Domus* is the living part of a villa.

⁵ The *villa rustica* is the production centre that was often attached to the *domus*.

Only a couple years later, in Period IIA, a bathing complex and tile- and oil-making facilities were added. During Period II, the complete area of the *villa rustica* and *domus* was tripled (Cotton and Métraux 1985, 11).

In Roman times, the land around the San Rocco villa was intensively cultivated. At the slopes of the Monte Massico, volcanic debris was a good foundation for agriculture. After Roman intervention, the natural vegetation, which was oak forest, was cleared and the area was used for arable purposes. However, later the area was used for fruit growing (Cotton and Métraux 1985, xx; Livy xxii 15, 2). The hills of Montanaro and Francolise, where the San Rocco villa was situated, were mostly used for olive plantations. The finds of olive presses at the San Rocco and Posto villas confirm these theories.

The San Rocco villa offers an opportunity to see changes in glass consumption at a villa site, since there is not much archaeological knowledge about the villas in the first century BC. In the first century BC, the whole area around the villa was reformed due to civil wars, veteran settlements and agrarian developments. A large amount of land was assigned to old veterans, but still, the Roman aristocracy continued building large villa estates in the area around Francolise.

In the beginning of the Roman empire, the road system became much better maintained, which was another cause for more prosperity in the area. As a result of the improvements in the road system, trade could reach further inland and made it possible for (luxury) goods, such as glass, to reach the small villas, like the San Rocco villa, in the inlands of Italy. This caused for a thriving villa culture. The San Rocco villa and the villa of Posto, a villa nearby the San Rocco villa, were prove of the fact that the more modest people also flourished in the first century AD (Cotton and Métraux 1995, xxviii-xxx).

The San Rocco villa was a villa of modest size, with a small degree of comfort and suitable for a family with support of a few slaves (Cotton and Métraux 1995, xxvi). At the site itself, there is evidence for diverse agricultural activities, such as wheat-threshing, olive cultivation, tile-making and animal husbandry (Cotton and Métraux 1995, 3). As already stated, the villa itself has always been divided in two parts, the *domus* and the *villa rustica*. However, the real function of the *domus* is not certain, for it could have been used as a permanent dwelling, a summer house, a farm with a house, or a combination of those options (Cotton and Métraux 1995, 6-7). The hypothesis given by Cotton and Métraux is that in period II-IIA the *domus* was renovated and extended, and to maintain a large

establishment like that, a non-resident paterfamilias of high status and with a large income probably owned this villa complex. The residence was probably run by a high servant during the periods that the house owner was not present. In addition, the villa was not in a social isolation for more villas owned by people from the same social class were scattered around this landscape (Cotton and Métraux 1995, 82).

Since not much research has been done about glass at Roman villas, the San Rocco villa offers an interesting context to look at the glass finds, like when did the glass first appear? Did the glass fragments vary much in form? Does glass appear only in one kind of context, only in the *villa rustica* part or in both parts of the villa?

For this thesis, the dating of the original publication has been altered to a unified dating system to make it comparable to the other two sites. The 30BC-AD200 period has been evenly divided between the rest of the periods. Early to mid-first century AD has been changed to early first century AD. AD 50-70 and mid to late first century AD has been put together in the mid first century AD period. Late first to early second century AD has been altered to late first century AD. Lastly, the periods second rather than first century AD, second to third century AD and first to second century AD have been merged into later than first century AD.

3.2 Glass and context

In a couple of the different layers, glass objects have been found. The first layer, the Period I building level, yields only a few finds, mostly associated with the walls of the villa, and no glass fragments. Due to the lack of finds, it is very difficult to date this layer. In the Period IA alteration layer, a few ceramic fragments were found, however, still no glass. This changes with the Period I/IA occupation layer. Together with lamps, bronzes, iron objects, bone objects and pottery, the first glass fragment was found. This was a small imitation gemstone (Cotton and Métraux 1985, 255). Moreover, in the layer of Period II building level, only one small glass fragment was found, a bead, together with a lot of other materials, like coins, lamps, bronzes, and many different forms of pottery (Cotton and Métraux 1985, 257). Very interesting about this glass assemblage is that all the early glass finds at the site of San Rocco are not blown glass. This indicates that in the early period of this villa, blown glass did not exist yet in this area or

that the trade network did not reach far enough yet. Another option is that the owners could not afford it for the glass wares were still very expensive.

From Period II/IIA occupation level, numerous fragments of glass have been found. Some of them date to a later period than the first century BC, at least three fragments date to the end of the first century AD. These fragments consist of a rim, part of a handle and part of the doubled necked flask. The fragments are all produced in a shade of green, varying from greenish to natural green to emerald green glass.

Together with the glass fragments, an enormous amount of pottery has been found, ranging from fine wares, like unguentaria, black glazed ware and Arretine ware, to coarse ware and other common ware. Also, iron, metal, bone and lamps were found in the same layers (Cotton and Métraux 1985, 259-260). Besides the glass fragments described above, numerous other glass fragments have been found. Unfortunately, these fragments were situated in destruction layers or top soil. These fragments are not datable and cannot be linked to one of the occupation or building layers (Cotton and Métraux 1985, 149).

3.3 Analysis

The San Rocco villa has been researched quite thoroughly with first survey and continuing with excavations for five seasons. This resulted in a well-researched site with a lot of information. However, the fieldwork was executed in 1962 until 1966, so the excavation methods are slightly outdated. Moreover, the publication is from 1985, so not recent.

Wallace-Hadrill (2008) stated that the villa culture in the early Roman empire was mostly focused on the production of luxury items. However, even though the San Rocco villa is only one villa in the whole villa system, the excavation of the San Rocco villa proves otherwise. From the excavations can be concluded that the main purpose of the San Rocco villa was to produce bricks, grain and olive oil. Thus, the villa matches more with the theory of Terrenato (2012), since he focusses more on the villas that produce food items (Terrenato 2012, 150). Furthermore, not many luxury items have been found at the site, especially not glass. The glass that has been found, though, was situated in the living quarters of the villa and not in the production area.

From the finds can be concluded that, even though the villa was already occupied from circa 30 BC, glass was not a prominent material on this site. It was only from the mid first century AD, that glass became more prominent at this site as can be seen in figure 5. Even then, glass was a very underrepresented good in the villa. This might be because blown glass was an upcoming trend, which was not popular until the end of the first century BC. Furthermore, it could be said that glass was a luxury item, which was not affordable for everybody. The San Rocco villa was in Period I, a small villa, which was primarily focussed on production. A villa, especially one which is primarily a production centre and not a holiday residence for rich people, might not have had enough money to be able to afford a lot of glass. However, in the first century AD, when blown glass became a product that was produced in large quantities and more common, it became cheaper and more widespread. This way it could have reached the San Rocco villa. Even though, the villa was very small in the begin period, later, in Period II, the villa became much larger and was probably owned by a houseowner with money, which also explains the growth in number of glass fragments.

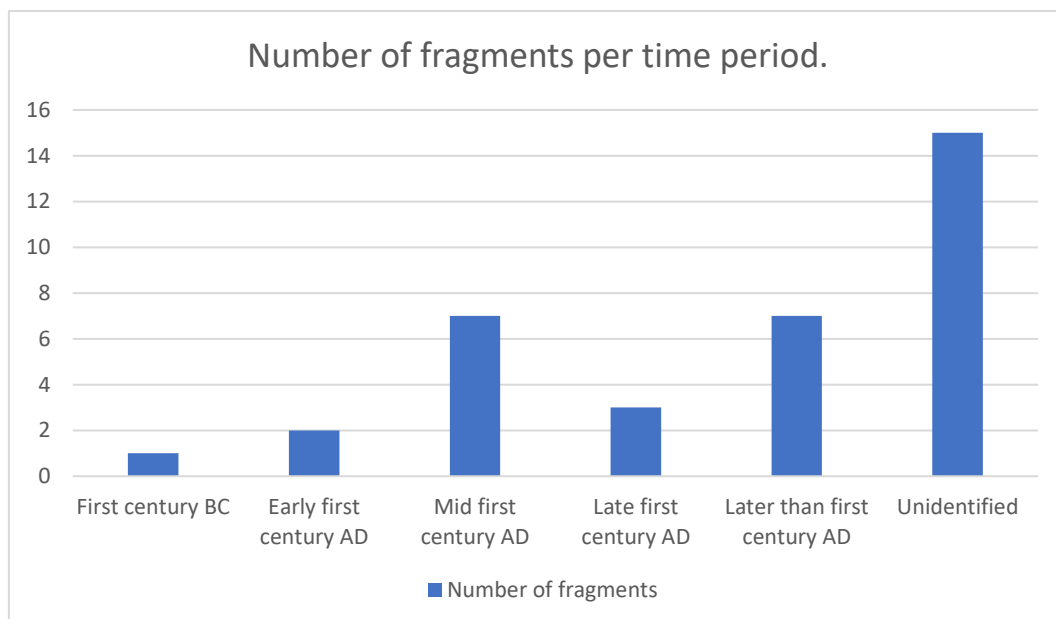


Figure 5: Number of fragments per time period (after Cotton and Métraux 1995).

Moreover, the villa was situated in a valley quite far from a large settlement like Pompeii. This could have been a reason for the lack of glass in the find assemblage. After the introduction of blown glass, it might have taken a while before all the small settlements became familiar with glass as well, partly because glass first cost a lot of money, but also because the infrastructure might

not have allowed glass trade to reach the inlands of Italy. Thus, it could have taken a while before the glass could seep through until the small settlements.

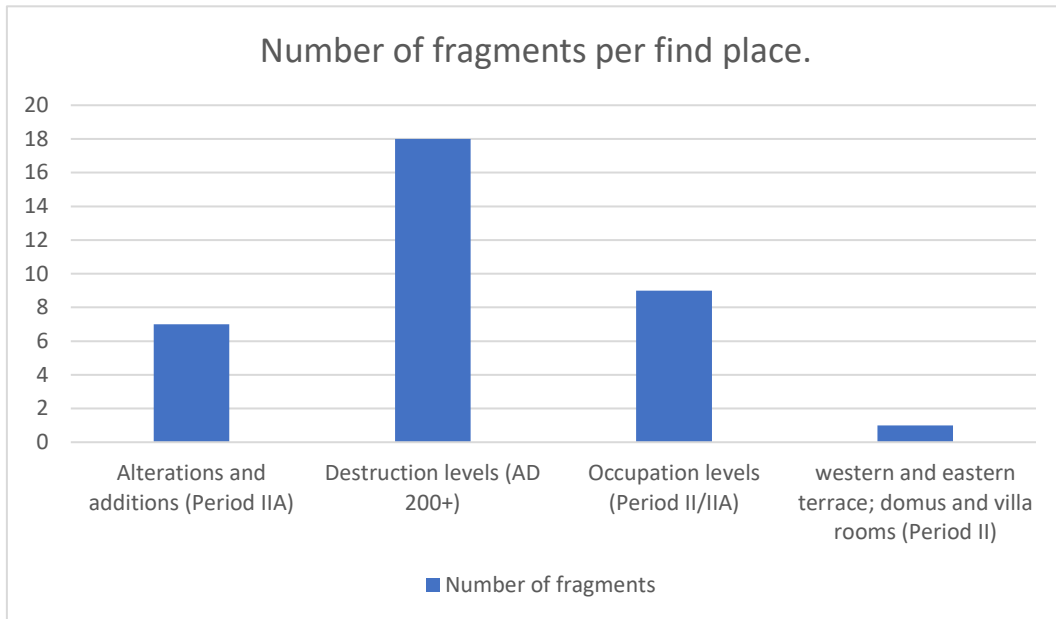


Figure 6: number of fragments per find place at the site (after Cotton and Métraux 1995).

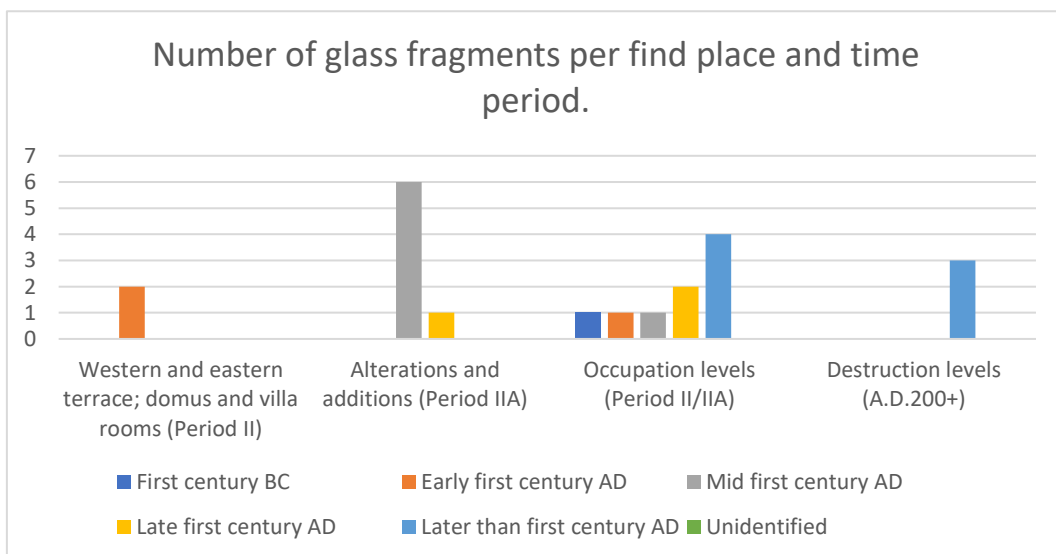


Figure 7: Number of glass fragments divided by find place and time period (after Cotton and Métraux 1995).

Since the San Rocco villa cannot be divided in public and domestic spaces, a difference has been made between the production centre and the *domus*. The glass that has been found in occupation or building layers are beads, a bowl and a part of a two-necked vessel. These are forms that were used for personal purposes and not in production sequences. This can be an indication for the use of glass in personal circumstances and not so much in production areas.

What could have been expected is that glass containers were found in the production area of the villa, considering glass was, in the first century AD, also used as storage ware. Since the villa produced, for example olive oil, they could have used glass flasks or bottles to preserve their production. However, these forms have not been found at the site, except for a couple of flasks, but only in the late first century AD as can be seen in figure 8.

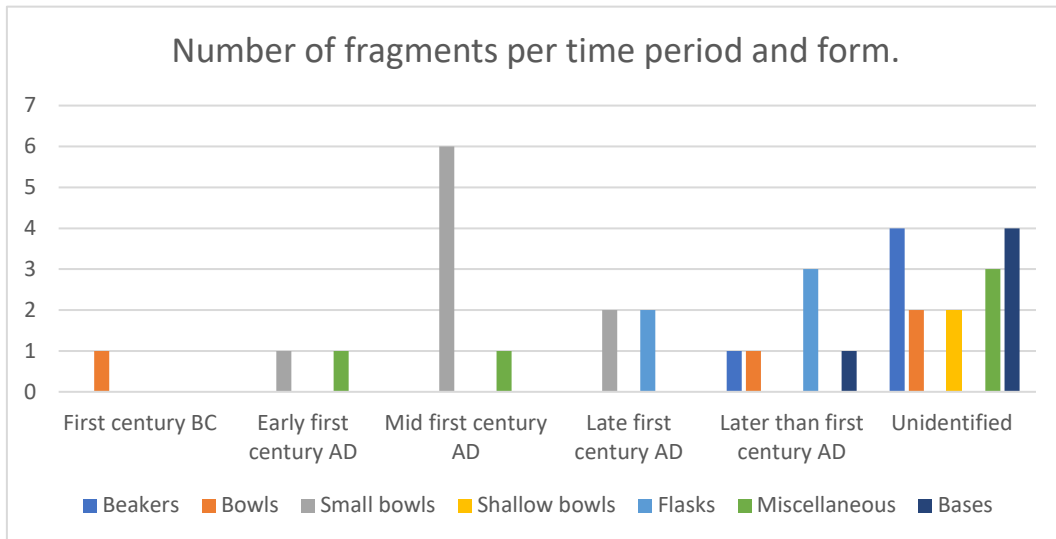


Figure 8: Number of glass fragments per time period and form (after Cotton and Métraux 1995).

Figure 9 shows that all the glass fragments were made in a greenish or bluish colour. This is very interesting and might indicate that the glass was only introduced in the late first century AD at the San Rocco villa, because during that time the colour of the glass shifted from a broad spectrum of colours to primarily blue, green and colourless fabric.

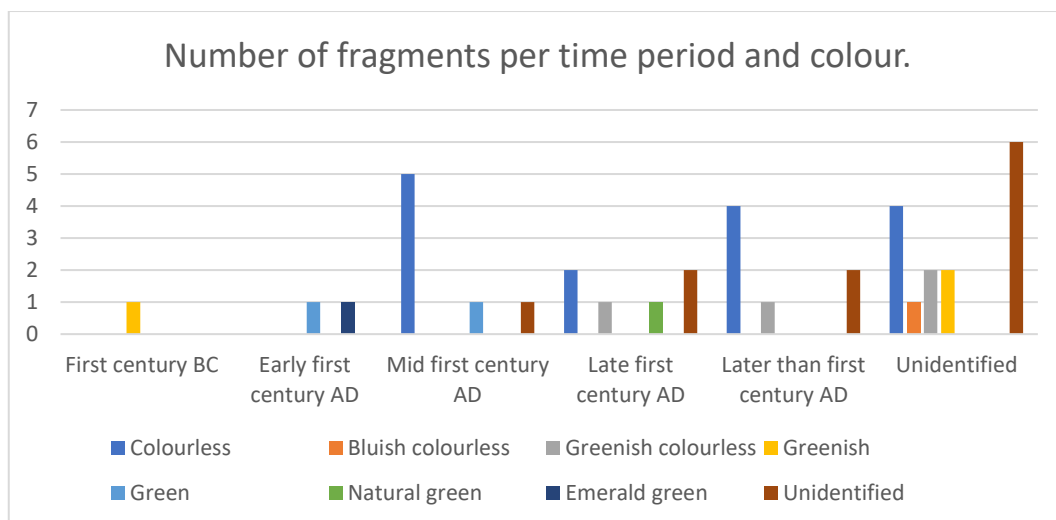


Figure 9: Number of glass fragments divided per time period and colour (after Cotton and Métraux 1995).

4. Pompeii, Insula VI.1

4.1 An introduction to the excavations at Pompeii

During the history of Pompeii, the site has been excavated by many researchers, which all brought their own knowledge and way of working. In the publication of Cool (2016), in which he describes the small finds and vessel glass excavated in Insula VI.1 during 1995 and 2006, the material is approached and documented based on function rather than on any other criterium. He argues that this is done to be able to see changing patterns much clearer, than when the fragments would have been looked at based on the material they have been made of (Cool 2016, 18). This is convenient for the research question of this thesis, since the question is focused on household glass and glass storage ware.

As references, Isings (1957) and Höricht (1986,1991,1993) were frequently used in the publication of Cool. Höricht is known for his publications of glass fragments that have been found during the excavations at Herculaneum.

The finds have been dated by means of several phases, namely Augusto-Tiberian (27 BC-AD 10), Tiberian-Neronian (AD early 30s -AD 62), Augusto-Neronian (a combination of the two periods before), Post AD62 (contexts of rebuilding activities after the earthquake and occupation deposits until the eruption), Modern (the eruption layer of AD 79), and unphased (which contains material that could not be placed in a context). However, the dates used for this thesis have been unified. So, Augusto-Tiberian has been named early first century AD, the Tiberian-Neronian and the Augusto-Neronian have been put together in the mid first century AD, and the Post AD62, Modern and Lapili layers have been called late first century AD.

In AD 79 Pompeii was surprised by the eruption of the Vesuvius. Due to the sudden eruption, not only glass fragments and some pottery sherds were found during the excavations, but all the furniture in the houses were conserved. This provided a very good overview of what the household goods consisted of and gave a complete image of what daily life looked like. It also provided a good context of the material finds.

4.2 An introduction to Insula IV.1

As can be seen in figure 6, Insula VI.1 is situated in the west corner of Pompeii and has an average size. The insula itself had different kinds of occupation at the time of the eruption. The neighbourhood consisted of two atrium houses, an inn, four bars, a shrine, a triclinium, an outside dinner area and a workshop area. The borders of the insula were marked by a town wall and two roads (Cool 2016, 1). Very interesting about this insula is that there are different kinds of buildings, domestic and public. From this information the comparison between glass assemblages from public and domestic areas can be drawn. A small overview of all the buildings from this insula will be given underneath, to provide some context for the finds that will be discussed.

One of the atrium houses, Casa delle Vestali, has a long history. It was built in the third century BC and expanded with gardens and extra rooms in the second century BC. During the first century BC, after the Sullan Siege of 89 BC, it was transformed into an elite house. In the Tiberian times, the transformation was completed with new mosaics and elaborate piped systems.

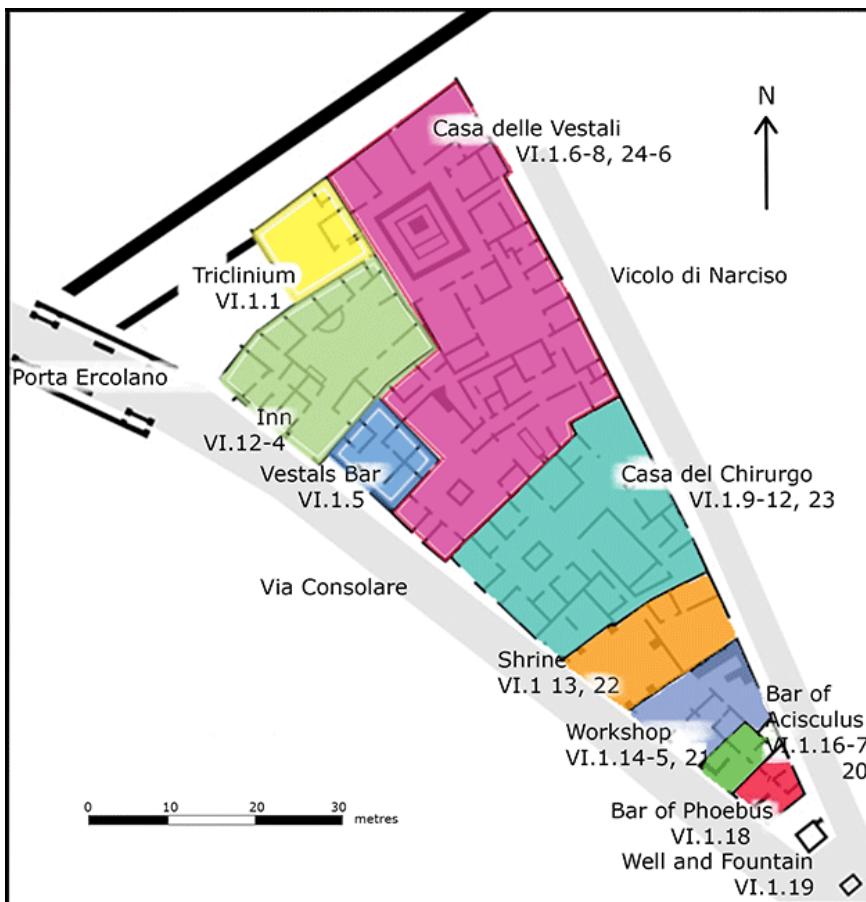


Figure 11: Map of Insula VI.1 (<http://www.pompeivi1.com/site.html>).

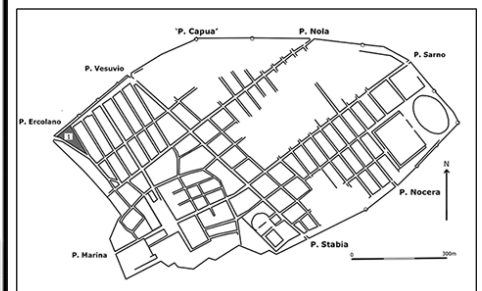


Figure 10: Map of Pompeii, with indication of Insula VI.1 (<http://www.pompeivi1.com/site.html>).

In this context, numerous fragments of blown glass have been found (Cool 2016, 11).

The building phase of the other atrium house, Casa del Chirurgo, took place at the end of the third century BC at the earliest. In phase three, levelling and construction work were executed at the house. In this layer a broad span of materials with dating ranging from the late second century BC to the mid first century AD were found. This might be the case because of later building work. During the complete renovations in the Augustan period, interesting assemblages were discovered, with a lot of coins (Cool 2016, 13).

The inn and the triclinium were situated next to each other. Both buildings started out as two small industrial and commercial buildings. Based on different pottery sherds, this phase was dated to the late second century BC. During the Sullan Siege, both buildings were destroyed. It was not until the Augustan time that the area was levelled out and prepared for new buildings. The place where later the inn would be built was, during the Augustan time, associated with blacksmithing and metalworking. Later, in the mid-first century AD, a bar was built with an entrance alongside a courtyard of the inn with an addition of different rooms. The triclinium was probably contemporary with the first building phase of the inn, thus mid-first century BC. The triclinium was associated with a water system and a small shrine. However, both in the first building phase and the second, not much material has been found (Cool 2016, 9).

The shrine consists of two areas, the western side and the eastern side. In general, the eastern side is dated slightly later than the western side. The western side was originally dated to the mid to late second century BC. During this time, the original terracing and levelling took place. Around the early first century BC, the tanks and cisterns were built and the area was subdivided. Only much later, in phase 5, dated to the mid-first century AD, the shrine itself was built. The dating is based on different coins found in the level of the shrine (Cool 2016, 14).

The area which consists of the two bars, the workshop and the well, is called the Commercial Triangle. The building of the original well was probably carried out in the late second or early first century BC. The workshop was built as one single property, even though it comprised multiple rooms in which different industrial activities took place. In the chambers large pits and tanks were found. Later, around 35 AD, a second storey was added to the building (Cool 2016, 15).

The walls of the bars of Acisculus and Phoebus were built at the end of the second century or early first century BC. During the mid-first century AD, a second storey was added to the bars (Cool 2016, 16).

The building of the well is primarily attributed to the second half of the second century BC and was an open space during the existence of the insula. During the first phase, the well was also the focus of different small votives. In the second phase, the well became the focus of a crossroad shrine with a small altar (Cool 2016, 16).

4.3 Analysis of glass

The glass assemblage found in Insula VI.1 contained over 3000 fragments of glass, of which 450 fragments could be identified as tableware and domestic containers (Cool 2016, 122). In the category household equipment, only cups, beakers, vessels, jugs, flasks, bottles, unguent bottles and bases have been included in the discussion. Dress accessories, jewellery, toilet, pharmaceutical and medical equipment, interior decoration (like windows), craft equipment, recreational equipment and religious equipment have been left out of the analysis. This selection has been made based on the categories that Cool described in his publication, and because this thesis is primarily focused on household and storage wares and not on the luxury items.

For the analysis of the household glass fragments in Insula VI.1, a couple of diagrams have been made, based on the information written in chapter 5 of the publication of (Cool 2016). These numbers in this chapter might differ slightly from the numbers in the table that Cool has published. This might be because not all the fragments have been described in the catalogue or were published with the exact number of fragments. Moreover, the analysis of Cool has been done based on the weight in grams of the glass assemblage. In this thesis the analysis has been done based on the number of fragments, because the publications of Cosa and the San Rocco villa focussed on the number of fragments rather than the weight of the glass. However, these diagrams do give a general overview of the dispersion of the glass fragments that have been found based on dating, context, colour and form.

Figure 12 shows the general trend of the number of glass fragments found in the excavations of Insula VI.1 in Pompeii. The figure shows a clear increase in the number of glass fragments throughout the different time periods. The extreme value of the Post AD62 part is primarily being caused by a peak in the total

amount of glass in the triclinium. Furthermore, in most of the other parts of the insula the glass amount is in the Post AD62 period the highest. This is a reflection of the expanding glass industry throughout the first century AD. The lower amount of glass in the Modern phase can be caused by the fact that the timespan of this period was shorter, so the amount of glass could not have grown as much as it did in the Post AD 62 period.

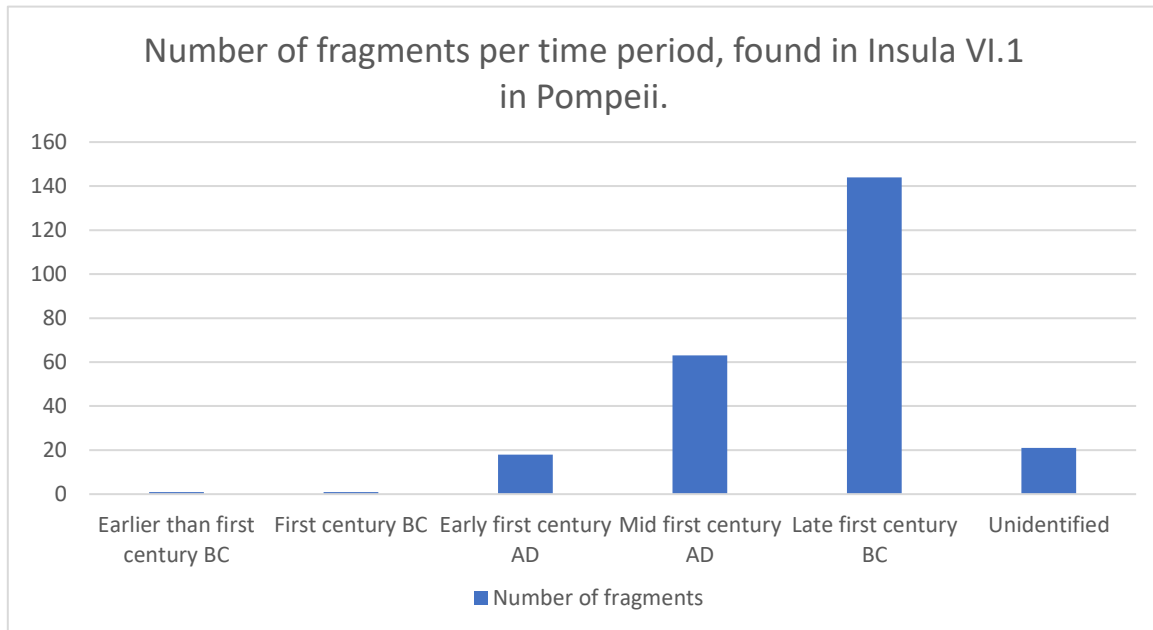


Figure 12: Number of glass fragments per time period (after Cool 2016).

In Insula VI.1, as can be seen in figure 13 and 14 below, most of the glass fragments have been found in public buildings, and not in domestic areas. However, only two out of the nine places that were researched, are domestic areas. This can cause a biased outcome. Only in Casa delle Vestali, an enormous amount of glass has been found. This might be because Casa delle Vestali has been an elite house, and since glass was (certainly at the beginning of the emerge of glass goods) a luxury good, it is not surprising that it is present here in such a large extent, for the elite was most of the time rich and were able to afford glass. Since only large elite houses have been researched in this insula, it is hard to see if the ratios between a large glass assemblage and richer or poorer people change. However, the amount of glass grows throughout time, so it can be assumed, that if the glass assemblage grows in elite residence, it might also grow in houses for the more common people.

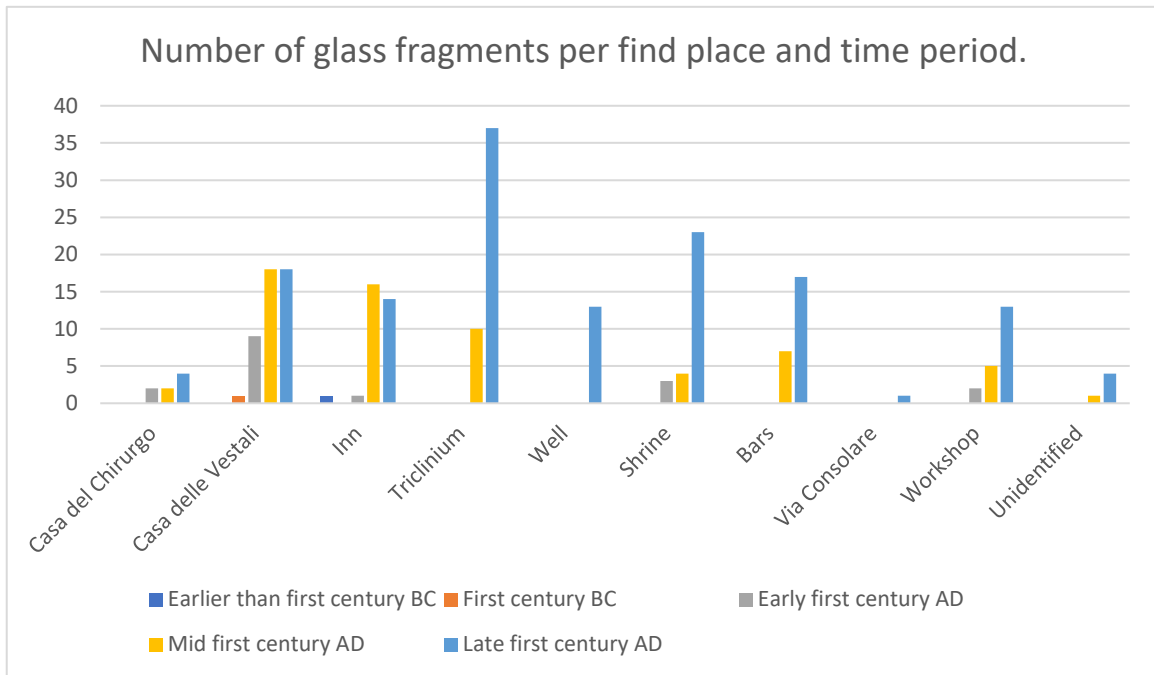


Figure 13: Number of glass fragments per find place (after Cool 2016).

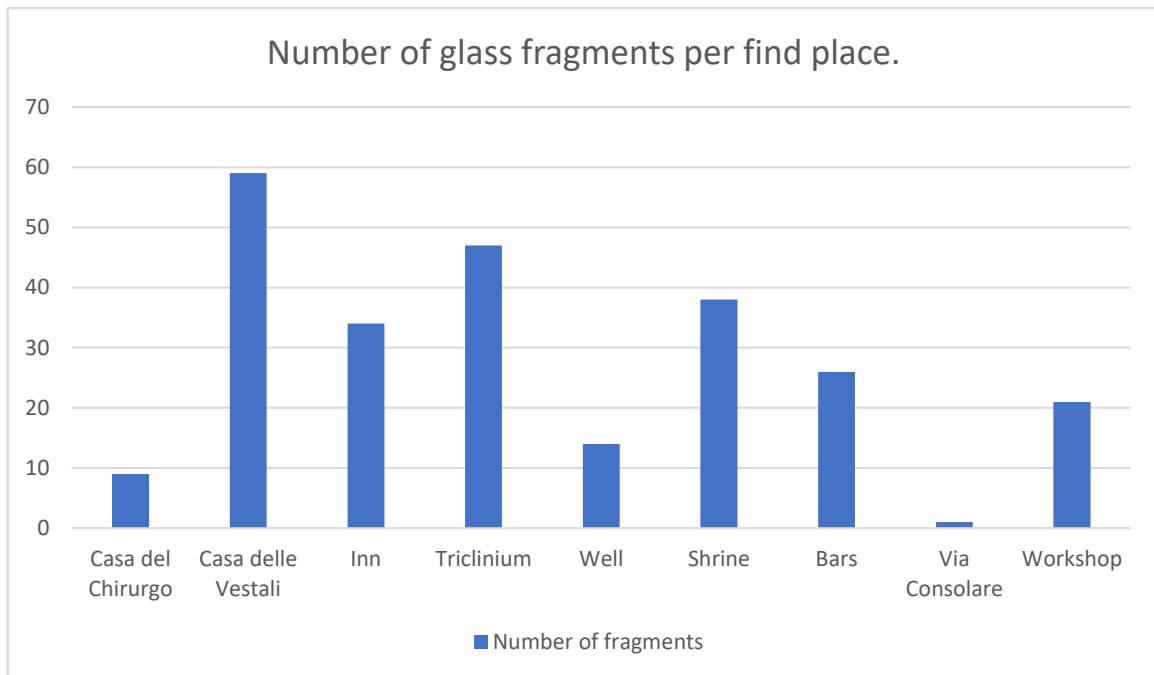


Figure 14: Number of glass fragments per find place and time place (after Cool 2016).

Another distinct feature of the glass assemblage is that the colour of the glass changes. This can be seen in figure 15. At the beginning of the emergence of blown glass, glass was made in many different and bright colours. However, after a while this changed. This is very noticeable in figure 15, namely that the number of fragments in blue/green glass increases much over the first century

AD. It also becomes clear that until the AD 62 layer many different colours are still present, but a decline in the quantity of different colours can be seen after this period. The cause for this development is not entirely clear, but both Pliny as well as Seneca wrote that it was a great property of glass to be able to see what the jar or other form of glass contained (*Naturalis Historiae* 9.30, *Naturales Quaestiones* 1.3.9, 1.6.5, 3.18.4).

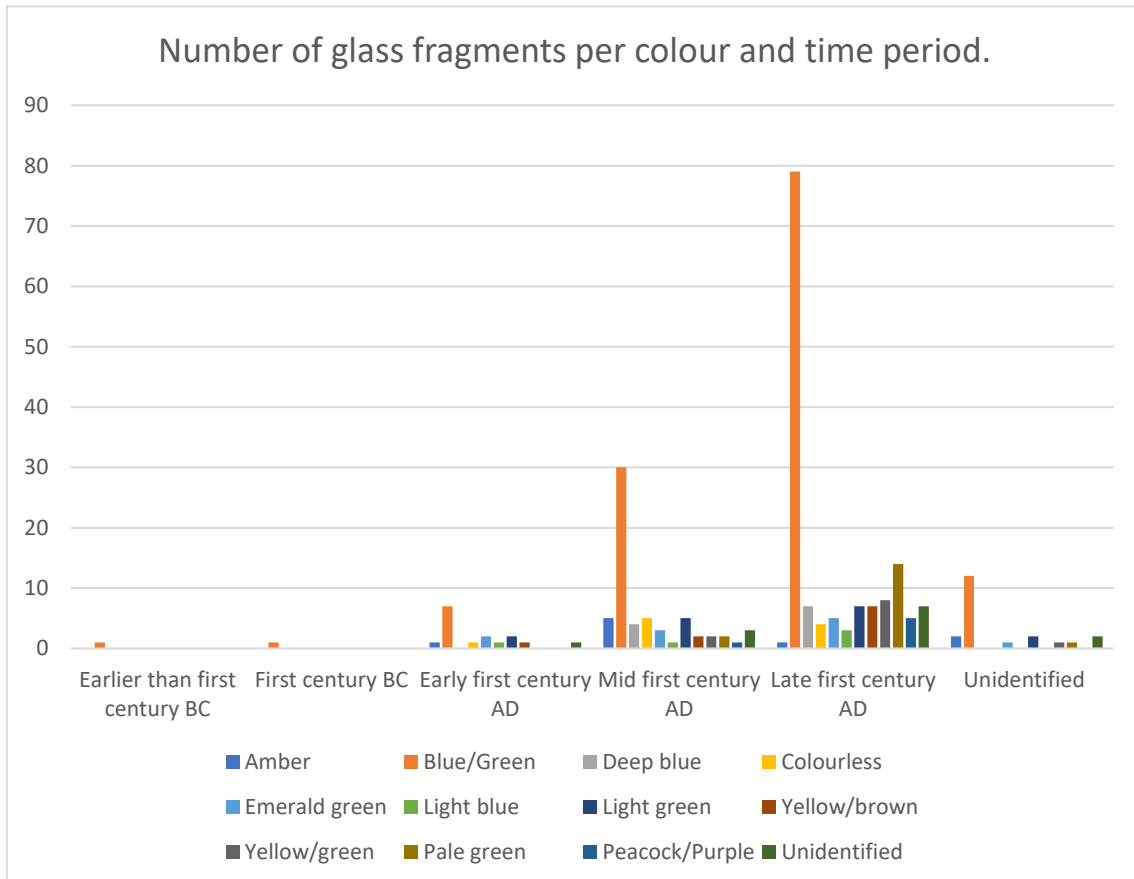


Figure 15: Development of colours per time period (after Cool 2016).

Figure 16 shows that in late first century AD the number of containers, like jugs, flasks, bottles and jars increases. This might be due to the fact that glass was more often used in trade and storage, for which purpose jugs, jars, flasks and bottles were very convenient. Also, these forms were mostly produced in blue, green or colourless fabric, as can be seen in figure 17, which supports the statements of Pliny and Seneca.

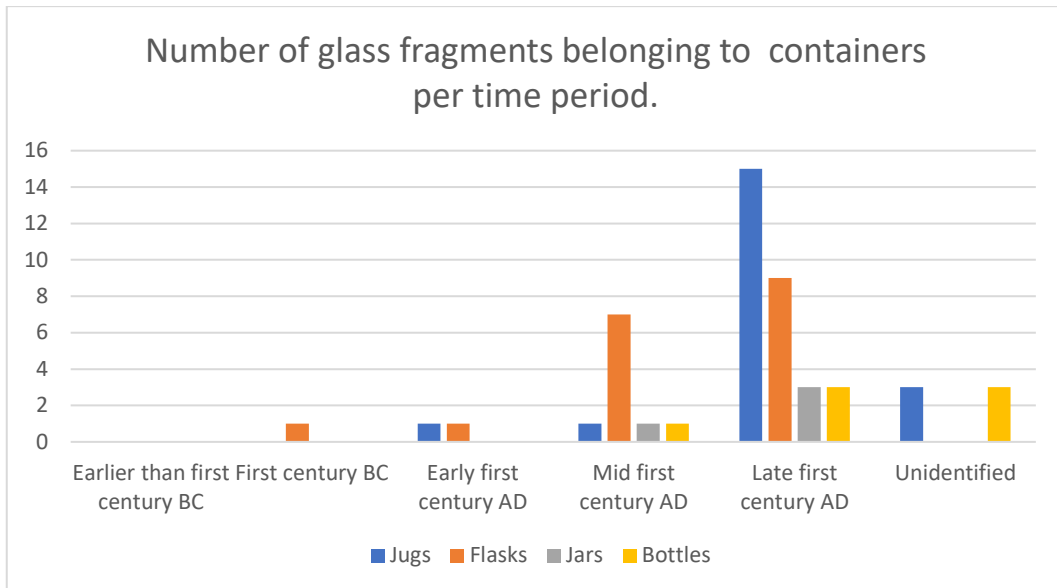


Figure 16: Number of glass fragments from glass storage wares and other containers per time period (after Cool 2016).

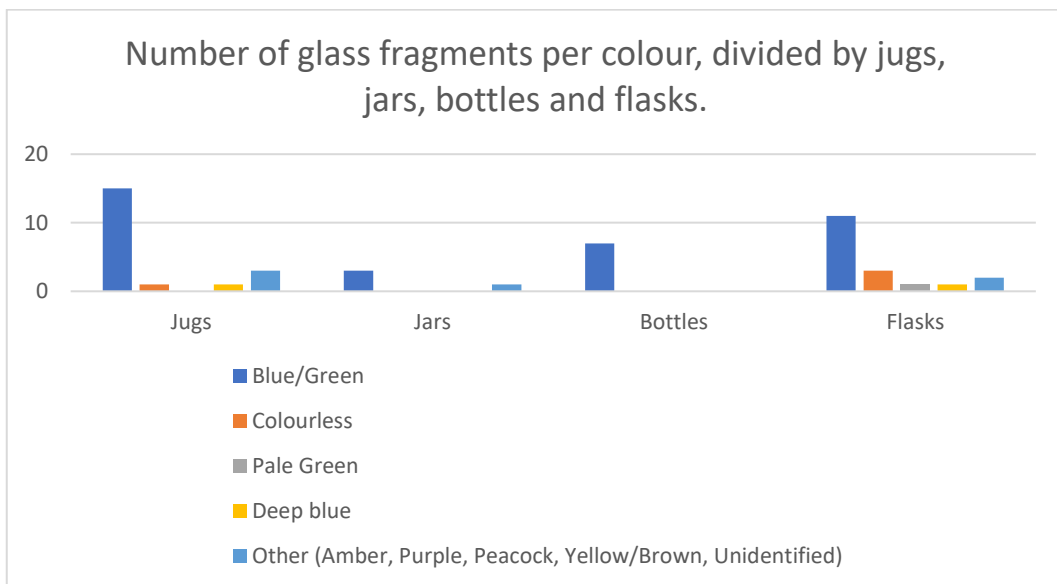


Figure 17: Number of glass fragments per colour and form of containers (after Cool 2016).

As mentioned above, Fleming stated that during the late first century AD glass wares replaced some forms of thin-walled ceramic (Fleming 1997, 47). As can be seen in the figures above, the number of glass fragments does increase, however, since the number of thin-walled ceramics is not known, the statement of Fleming can only be partly confirmed.

5. Cosa

5.1 An introduction to the site

Cosa was a Roman town situated in Etruria, nowadays South-Western Tuscany. It was founded in the third century BC and flourished from the second century BC onwards. Around 72-70 BC, the town was destroyed. It took until the Augustan time before the city was rebuilt and repopulated. Until the fourth century AD, Cosa had a stable, yet slightly declining, occupation. The occupation probably continued until the 6th century AD, however, there is not much evidence for this statement. Later onwards, during the middle ages, the site was owned by different monastic orders, and finally came in hands of vassals of a group of Italian nobles. In 1329, the vassals moved out of Cosa and the city got into a state of deterioration (Grose 2017, 2).

The site is divided into a grid system, consisting of squares measuring 50 by 50 meters. Different inventory numbers are assigned to the grids and they

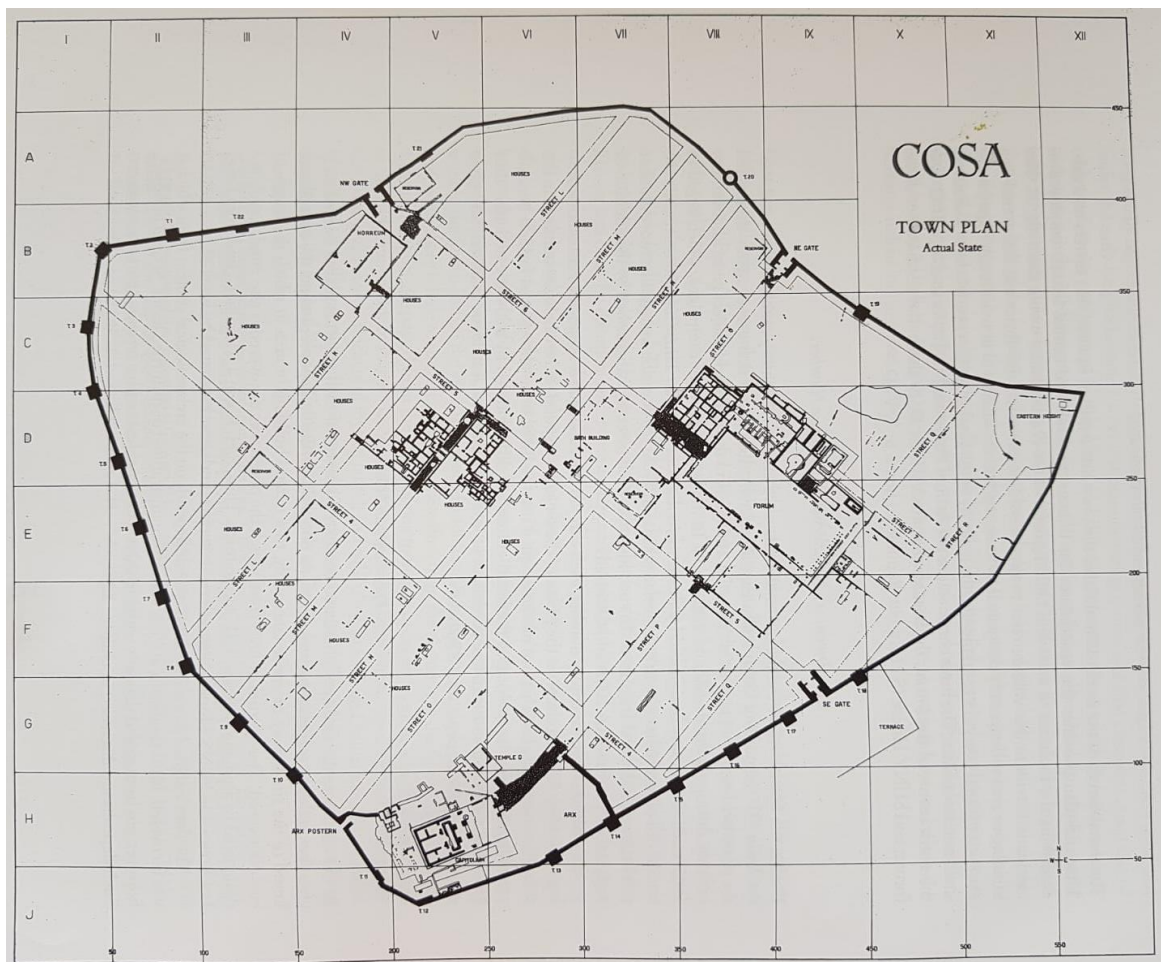


Figure 18: Map of Cosa (Grose 2017, 4).

provide coordinates, which were used to describe the locations of the structures and other finds (Grose 2017, 3).

Although the glass assemblage from Cosa that has been researched in this thesis has been unearthed during the excavation campaigns between 1948 and 1972, the greater part of the research and analysis of the glass assemblages took place between 1972 and 2004. However, Grose passed away and his research was continued later by another group of scholars and published in 2017. The excavation campaigns resulted in ca. 15.000 fragments of glass. The glass that has been found at the site, is for a greater part in a fragmentary state. From most of the vessels, only one or two pieces were found, which in these cases are mostly rim and base fragments. Next to the glass finds, the other materials like ceramics, were also found in a fragmentary state as well (Grose 2017, 5). Only a few of the finds can be securely dated, for the habitational layer is buried beneath less than a meter soil, which is also very disturbed. This might also be the reason why the objects are in a deteriorated state.

The dating of the finds is based on a couple of fixed datable events. These consist of the founding of the city in 273 BC, the partial destruction of the site around 72/70BC, the reoccupation under the reign of Augustus, which is dated between 25 and 15BC, and the collapse of the forum basilica ca. AD 40/45 together with the destruction of the adjacent rooms of the *Atrium Publicum* (Grose 2017, 7). Between AD 50/55, the basilica has been reconstructed (Grose 2017, 8). The dates published by Grose have been modified for this thesis. Prior to 25/15BC has been altered to first century BC. The period 25/15BC to AD 40/45 is changed to early first century AD. Decade before AD40/45 and Prior to AD 50/55 have been taken together and are called mid first century AD. First to early third century AD has been changed to late first century AD. However, this time period does not appear in the glass database used for this site. Lastly, fourth through mid-fifth century AD has been changed to later than first century AD.

There are several datable deposits, consisting of the basilica, the Suny House, the *Atrium Publicum*, the Forum Cistern and the Forum SW. 72/70BC.

The basilica was a public building where courts were held or where people traded goods. After its collapse in 72/70 BC, it was reconstructed as an odeon⁶ around AD 50/55. In the northeast side of the building, a layer of debris was added to the building which consisted of a considerable amount of pottery,

⁶ A name for a Roman or Greek theatre like building build for music and other performances.

glass and other objects. The material is dated to the Tiberian (AD14-37) or early Claudian (AD40s) periods (Grose 2017, 11).

The Suny House is part of a Republican house. It was constructed in the second century BC and occupied until its destruction in 72/70 BC. In Augustan times, a new house was built on top of the Republican house. This was done after the courtyard was filled with debris of the earlier building material and sealed with a signinum floor⁷. This layer is dated prior to ca. 25/15 BC. Special about this place is that the rim of a blown glass vessel has been found in the debris layer, which is probably one of the earliest securely dated examples of blown glass in Italy (Grose 2017, 9).

The *Atrium Publicum* is a municipal house which connected a lot of different buildings, including an Augustan house, build around 25/15 BC and destroyed ca AD 45, and a store with a storeroom. In the Augustan house, both cast and blown glass have been found in large numbers. In the storeroom, excavators found a great amount of Arretine ceramics, thin-walled ceramics and other fabrics, amphorae, coins, lamps, marble, and 76 complete glass vessels. Cast glass is quite uncommon⁷ in the storeroom (Grose 2017, 11). The shop also contained a lot of other material next to the glass finds. These finds are mostly dated to the second century AD, but also some material comes from the late first century AD and the early third century A.D (Grose 2017, 13).

The Forum SW is a trench, which is placed inside the outer wall of several shops in the *Atrium Publicum*. The Forum SW dated between 50/40 BC to ca. AD 25/50, however, also later and earlier material has been found in this place. After the abandonment of the shops, the material remained relatively undisturbed. Cast glass, as well as early blown tableware have been found in this specific trench (Grose 2017, 14).

5.2 Glass finds

Free blown as well as mould-blown glass fragments have been found at Cosa. The mould-blown pieces were low in number, only 28 fragments have been found at the entire site and they date to the early first century AD (Grose 2017, 98). No other excavation has yielded prove of mould-blown glass from before the second quarter of the first century. This makes Cosa special, since it holds the earliest

⁷ Floor made of broken ceramic pieces mixed with mortar.

recorded mould-blown vessel from a securely dated deposit, dating to the decade before ca. AD40/45 AD (Grose 2017, 99).

The assemblage of blown glass expands around the mid-first century AD. It contains a broad spectrum of forms in large numbers, which include plates, dishes, bowls, saucepans, beakers and jars, jugs, and even amphoriskoi⁸ and bottles, since the glassmakers discovered how to manufacture a wide array of open and closed forms. However, decorations found on the glass fragments are quite limited, for only grooves, abrasions, cut-out ledges and applied blobs or streaks are found. The most common colours in which the glass was produced are green and blue, and in lesser extent also purple, peacock blue and deep blue-green occur (Grose 2017, 143).

The glass fragments that have been found, are mostly assigned to the second half of the first century AD, when the glass production already developed quite far. Even though, there are also a few examples which can be dated to the Augustan period, like the earliest recorded mould-blown vessel (Grose 2017, 144).

In general, there is no extensive typological classification of glass yet, especially for undecorated free-blown glass. For the glass assemblage of Cosa, this caused a small problem, for most of the glass found at this site belongs to this specific kind and is very fragmentary.

5.3 Analysis of the glass

In the publication of the glass finds from Cosa, a difference has been made between several categories of glass first categorized by core formed, cast and blown glass, and more specifically on the external characteristics. For the analysis made in this thesis, the glass fragments from the categories “coloured translucent table wares and storage wares”, the “naturally coloured and colourless table wares”, and the “naturally coloured and colourless storage wares” were used. In total, 295 shards have been processed in the database. These are not all the fragments that have been published, for not every fragment was published with information and sometimes the amount of glass was indicated as “numerous”.

In figure 19, the total amount of glass fragments divided per time period has been presented. As can be seen, there is a lot of glass which has been found

⁸ A small amphora, usually around four inches high.

in a context which could not be dated. This influences the outcome of the figure considerably. What can be concluded from this figure, is that from the period before AD 30, very few glass fragments have been recovered. This might be a consequence of the upcoming glass industry which was not fully developed yet. Also, the city was not rebuilt until the Augustan time, so before ca 15 BC the city was still in recovery and might not have been rich enough to be able to afford a lot of glass, since glass was in this period still a luxury item.

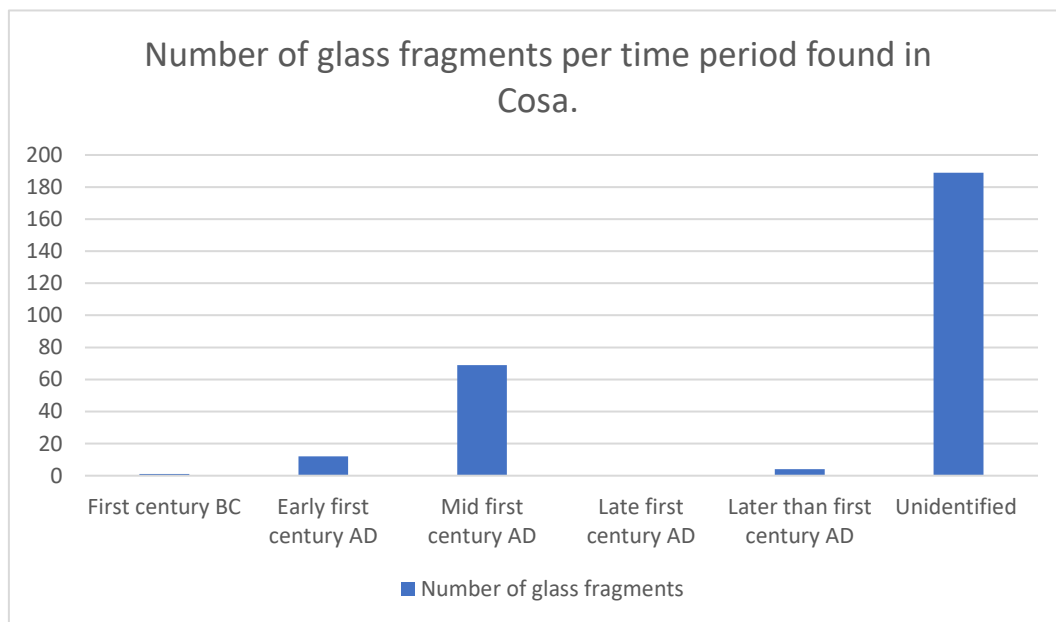


Figure 19: Number of glass fragments per time period (after Grose 2017).

Figures 20 and 21 show the number of glass fragment per find place. It is very interesting to see that a large part of the glass fragments has been found in domestic areas, namely primarily in the Suny House, but also in the domestic part of the *Atrium Publicum* and even a single fragment in the House of Quintus Fulvius. The public areas contain overall more glass fragments, but they are more dispersed and most of the public places contain a very small number of glass fragments except for the *Atrium Publicum* (storeroom and shop), the basilica and the Forum. However, all the glass fragments found in the forum cannot be dated. The fragments from the basilica date to the period prior to AD 50/55. The fragments from the *Atrium Publicum* date mostly to the decade prior to AD 40/45, but there is also a large part derived from layers dated to late first century AD through the early third century AD and the smallest part can be dated to ca 25/15 BC to AD 40/45. These dates are based on the context of the finds. However, as can be seen in figure 20 and figure 21, from the greater part of the

assemblage the period is undefinable. Especially for the forum, basilica, and the Suny House, this might make a difference in the conclusion about the presence of the glass. Based on the glass fragments that were possible to date, it might seem that most of the glass has been found in public context.

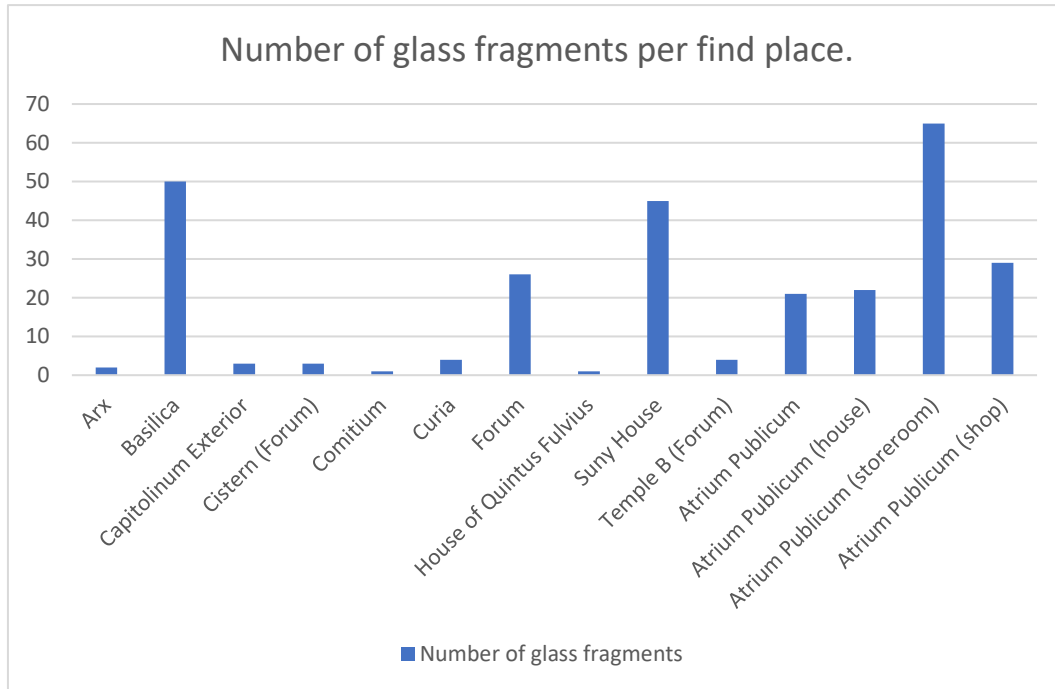


Figure 20: Number of glass fragments per find place (after Grose 2017).

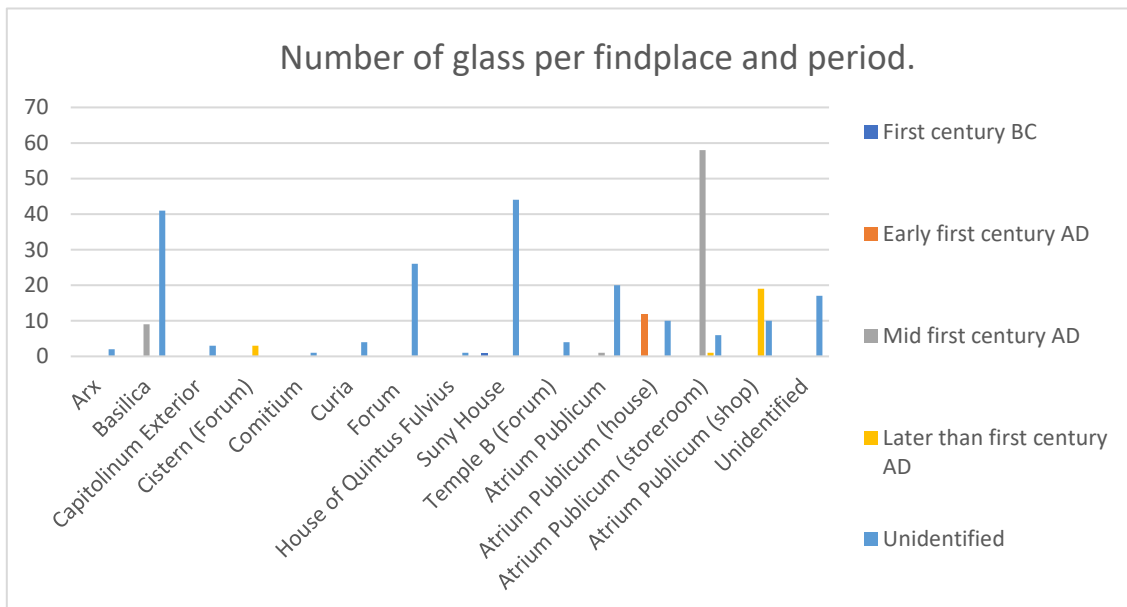


Figure 21: Number of glass fragments per find place and timeperiod (after Grose 2017).

The number of glass storage ware is also the highest in the period of AD 40/45, probably because this was largely present in the storage rooms of the store which were situated in the *Atrium Publicum*. So, also not much can be concluded about the replacement or supplementation of ceramics by glass. However, what can be stated is that even though the glass remained quite brightly coloured and coloured in a wide variety, the number of glass fragments with a bluish-green, green, blue and colourless fabric grows during the first century AD as can be seen in figure 22. This supports the claims of Seneca and Pliny, who state that people prefer glass storage ware which is see-through and shows what its content is (*Naturalis Historiae* 9.30, *Naturales Quaestiones* 1.3.9, 1.6.5, 3.18.4).

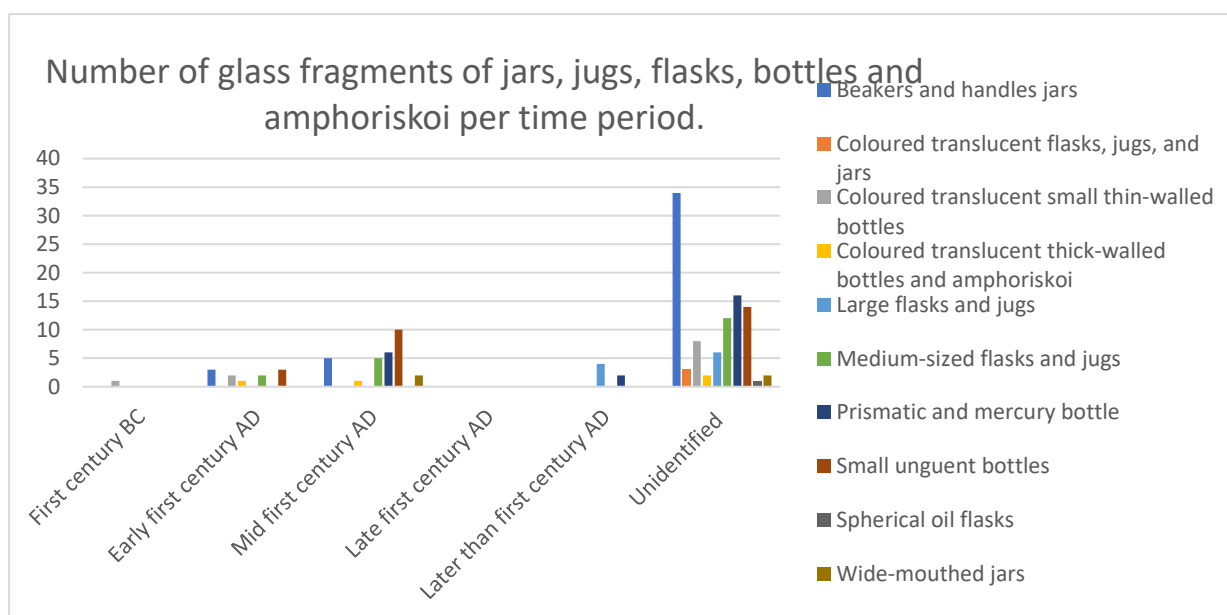


Figure 22: Number of glass fragments of jars, jugs, flasks, bottles and amphoriskoi per time period (after Grose 2017).

In the publication of Grose (2017), the colour of the glass is described in very much detail. These descriptions have been used to create figure 23. Even though the colours have been determined so specifically, most of the glass is a shade of green or blue, or colourless. However, some of the fragments are brightly coloured in yellow or purple. These brightly coloured fragments date primarily to the decade prior to AD40/45. From this decade onwards, the colourless glass becomes more prominent in the find assemblages. However, most of the fragments are undatable, which makes it difficult to draw a conclusion from these numbers.

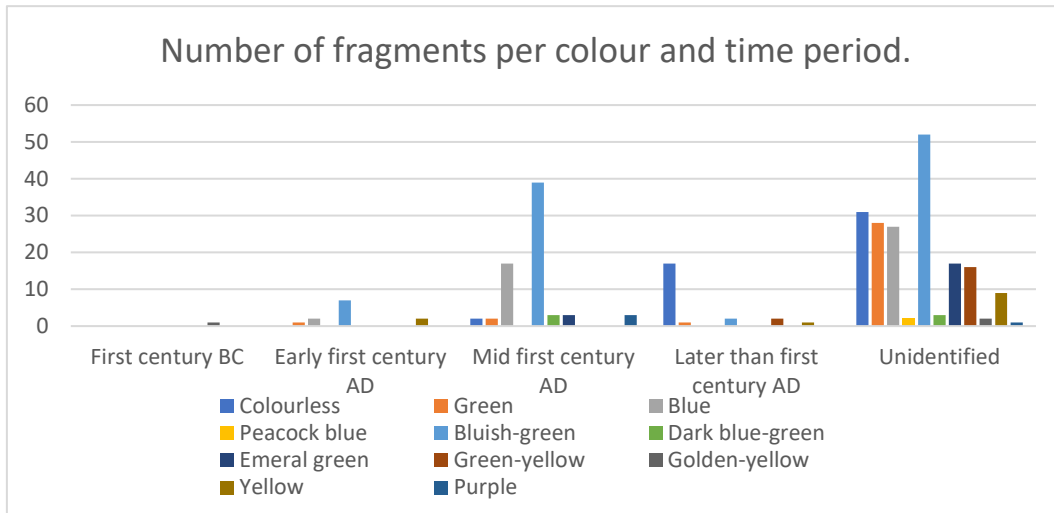


Figure 23: Number of glass fragments per colour and time period (after Grose 2017).

In figure 24 can be seen that the colours of jugs, jars, flasks, bottles and amphoriskoi are divided, however, three colour types are most prominent, which are colourless, light green and bluish green. This confirms the theory of the see-through containers, in which it is stated that people preferred containers to be see-through, so they were able to see the content of the bottles. Also, in figure 24 can be seen that blue, colourless and bluish-green are the most dominant colours in the entire glass assemblage.

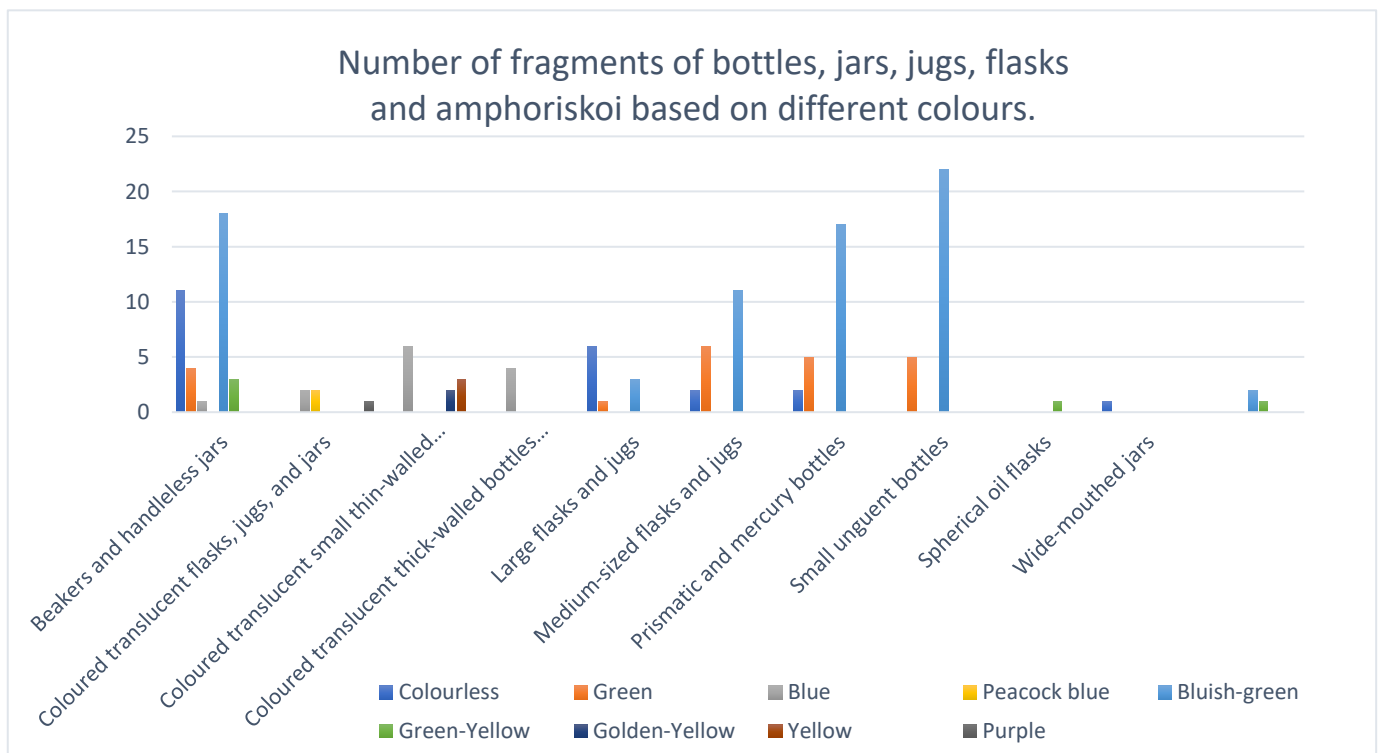


Figure 24: Number of glass fragments of bottles divided by colour (after Grose 2017).

6. Discussion

In this thesis the main research question is:

To what extent do we see a development in the consumption of storage and table ware glass between the first century BC and the first century AD on the Italian peninsula, based on the publications of the sites of Insula IV.1 of Pompeii, Cosa, and the San Rocco villa?

To answer this question, four specific characteristics of the glass assemblages have been taken into account, namely the dating of the fragments, context per site, the colour and the form of the original object.

At all three sites it becomes clear that in the first century AD there was a growth in the discovered number of blown glass fragments. There was not a steady growth at all three sites, since every site had its own frame of reference and dating. The fact that the San Rocco villa was situated in the inlands of Italy and not alongside the coast or near a harbour, might have influenced the presence of glass. In the second half of the first century AD glass becomes more prominent at the San Rocco villa in contrast to Cosa and Insula VI.1. The latter two have a growing glass presence since the beginning of the first century AD or even earlier. It becomes clear that it took less time for the glass to reach these larger cities, because they were probably better situated in a road network or trade network, so traders could easily reach them. Furthermore, there were also more different people from different (higher) social levels who could afford the glass, even though it was still a luxury good. However, in period II at the San Rocco villa, dating to 30BC-AD200+, the villa is expanded and probably owned by a rich houseowner, who might have been able to afford glass. But, since the villa might have been a residential house, where most of the time the slaves ruled the household and the owner was not present, buying glass for a holiday home was probably not the largest priority.

It can be concluded, however, that at all three sites there was an overall increase in the presence of glass fragments. This is also a confirmation of the hypothesis at the beginning of this thesis, namely that the glass assemblages were expected to increase during the first century AD, since glass production centres were expanding and became widely spread throughout Italy. At both Cosa and the San

Rocco villa can be seen that from the second half of the first century AD the glass assemblages expand. At San Rocco this trend continues into the next centuries AD, for the site continues to exist into the next centuries in contrast to Pompeii which was destroyed by the eruption of the Vesuvius.

The context per site was harder to compare since the San Rocco villa mainly exists of a private setting and does only consist of one villa, in contrast to Cosa and Insula VI.1, which exists of multiple complexes of domestic and public nature. Therefore, in this thesis, for the comparison, the *domus* part of the San Rocco villa will be considered as a domestic area and production part as a public area.

Both at Cosa and Insula VI.1 most of the glass has been found in public areas. At the San Rocco villa, all the glass has been found in the domestic spaces. However, the glass assemblages retrieved from domestic spaces at Cosa and Insula VI.1 are quite large and have been building up for a longer time than the assemblages found in public spaces. The reason for this is that the domestic areas were most of the time elite residences. These residences were occupied for a long time and inhabited by people who were able to afford glass when it was still a luxury good, so the glass assemblage could stay in use and enlarge over a long period of time.

Concluding, overall glass has been found primarily in public spaces, however, the assemblages retrieved from private areas are quite large and expanded over a long time, and in the San Rocco villa, glass has only been found in the domestic areas of the villa. This can be explained because the San Rocco villa has had a different function and role in society than Cosa and Pompeii had.

Another important aspect of the glass assemblages was the change in colour of the glass fragments. The hypothesis was that the colour changed throughout the first century AD from a wide variety of colours to primarily colourless, green or blue. As already mentioned, both Pliny and Seneca state that it was a great characteristic for glass to be colourless or blue/green, so that people were able to see what was inside the glass (*Naturalis Historiae* 9.30, *Naturales Quaestiones* 1.3.9, 1.6.5, 3.18.4).

The glass finds from Insula VI.1 show that the variety of colours actually extends throughout the first century AD, which can also be a consequence of a growing glass consumption. However, from the mid first century AD blue/green

glass is significantly more present than all the other colours, and also in a growing manner.

At Cosa, there is a decline in the variety of colours in the glass assemblage. Also, from the mid first century AD, the assemblages show an increase in the use of colourless and bluish-green glass.

At the San Rocco villa the only colours that have been found are green, blue or colourless. This is also an indication that glass came only into use at this site at the second half of the first century AD when glass became more and more green, blue or colourless. There is probably no specific relation between form and colour since the forms found at the San Rocco villa are diverse, and all the fragments were made in a green, blue or colourless fabric.

It can be concluded that two of the three sites, Cosa and the San Rocco villa, confirm the hypothesis that green, blue and colourless glass is more prominently present than brightly coloured glass. However, Insula VI.1 proves otherwise, since the colour variety of the glass does not decline. Even though, the variety of colours is not the same on all three sites, very important is that colourless, or blue/green glass does get very prominent on all three sites.

The form of the glass also played a part in this thesis. At all three of the sites, a distinction has been made between different forms and could be used to look at the main storage wares, like bottles, flasks, jars and jugs.

Especially at Insula VI.1 it is clear that the use of these storage wares increases during the second half of the first century AD.

At Cosa it is very noticeable that in the late first century AD, there is a lack of storage ware. This is very interesting since in the mid first century AD storage ware was definitely present at Cosa. This might be caused by the collapse of the *Atrium Publicum*, where most of the storage ware was found in the store and storeroom. Since it took a while to restore the building, it might explain the lack of storage ware in this period.

At the San Rocco villa the increase of storage ware is barely visible, however there is a slight growth visible in the glass flasks at the site.

The conclusion can be drawn that there definitely was an increase visible in the amount of storage ware, however not in the same amount at all three the sites.

What is not specifically emphasized in this thesis is that all three sites have a different nature and with that a different consumption pattern. Cosa and Insula

VI.1 are both cities, with a harbour and incorporated within a trade network. Also, a lot of people have lived in these cities and used public as well as private areas. For these sites, it is expected to find glass in all kinds of forms and colours since glass was used for many different purposes. The San Rocco villa is very different from these sites since it was only one residence with a production centre attached to it. However, different forms of glass are expected here. Logically storage bottles would be expected on this site to store the products produced in the villa, however, only flasks are found, and all of the glass has been found in the private areas of the villa and not in the production part. But, the San Rocco villa is in the beginning not really situated in the trade network or connected by roads, so with the improvement of the road system and the incorporation of the San Rocco villa in a broader trade system, it makes sense that more goods from the production of the villa will be traded and moved around in glass. Yet, glass was still expensive, and it can also have been chosen to trade the products in ceramics since that might have been cheaper.

7. Conclusion

Roman glass is a subject that has not been researched very abundantly yet. To be able to enlarge the knowledge about the Roman glass assemblages and their change between the first century BC and the first century AD three sites, Cosa, Insula VI.1 from Pompeii and the San Rocco villa in Francolise have been researched. The glass assemblages have been analysed based on dating, context, form and colour.

The research question that was the main focus point in this thesis is:

To what extent do we see a development in the consumption of storage and table ware glass between the first century BC and the first century AD on the Italian peninsula, based on the publications of the sites of Insula IV.1 of Pompeii, Cosa, and the San Rocco villa?

The main hypothesis is that the glass assemblages found in this particular period expanded for the glass production became bigger and more developed. This however, is not seen in all three sites. The glass fragments from the San Rocco villa are, however, all in a greenish, bluish or colourless fabric, which might indicate that they have been produced in the second part of the first century AD. From this the conclusion can be drawn that there is an increase in the glass assemblage throughout the first century AD in the San Rocco villa.

Concerning the glass assemblage of Cosa, it is more difficult to draw a conclusion for the best-preserved glass assemblage dates to the period of AD 40/45, for after this period the datable glass assemblage decreases and most of the fragments are derived from disturbed layers. From this information, no conclusion can be drawn about a possible increase of glass fragments. In Insula VI.1 at Pompeii there was an increase in the glass assemblage throughout the first century. The material is very well preserved in datable layers.

The three sites are hard to compare on the context of the glass. The San Rocco villa is a single villa and does not have a “public” or “domestic” area, although it does have a living area and a production area. Therefore, the living quarters are seen as the “domestic” areas and the production spaces are treated like “public” spaces. At the San Rocco villa, most of the glass has been found in layers at the living area. Cosa as well as Insula VI.1 both have public buildings and domestic areas. However, the division between them is not equal, for mostly public

buildings have been researched at each site. Therefore, most of the glass has been found at public buildings, even though for example in the Suny House at Cosa and the Casa delle Vestali in Pompeii a large quantity of glass fragments has been discovered. Both houses belonged originally to the elite and therefore it is not strange that glass has been found at these places. Rich people were able to afford luxury items, to which glass belonged in the end of the first century BC and the beginning of the first century AD. This can also be concluded from figure 14. Casa delle Vestali has yielded a glass assemblage dating already from the first century BC and extending over the next century. In Casa del Chirurgo the glass assemblage has been dated to the early first century BC and has been growing since this time period. Also, in figure 21, it can be seen that the glass assemblage found in the *Atrium Publicum* (house) already existed in the early first century AD. However, there is no growth visible in this assemblage. At the Suny House, the glass assemblage is dated to the first century BC. But after this period, there is a large gap and the rest of the glass retrieved from the Suny House is undatable.

Also, as stated by Stern in her publication in 1999, glass was often sold in sets, which resulted immediately in a large quantity of glass present at a house.

In short, more glass has been found in public areas, even though the glass assemblages retrieved from domestic areas are often older and larger.

The three sites have also been compared based on the form of the glass. What was mainly important, was the fact that there probably was an increase in the use of glass for trade and storage. At the San Rocco villa, this is seen in a slight increase in the number of fragments that belong to bottles. Not much more storage ware has been found at the San Rocco villa.

At Pompeii, there is a clear increase in storage ware, this can be seen in figure 16. Also, at Cosa an increase in storage can be seen in figure 22. However, this is an increase from the early first century AD to the mid first century AD. The late first century AD layer does not contain any storage ware at all.

Concluding, even though Cosa and the San Rocco villa are hard to compare to each other and Pompeii, the three sites overall confirm the hypothesis that glass was more often used for common purposes and not only as a luxury item in the second half of the first century AD.

Another change in the glass assemblages is supposed to be a shift in colour change. In the beginning of glass production, glass was made in a wide variety of colours. However, at the end of the first century AD this is supposed to shift to mostly blue, green or colourless glass. This hypothesis can be partly confirmed by the glass assemblage of Pompeii. The variety in colours does not really decrease, but the prominence of green, blue and colourless glass increases significantly. Also, at the villa San Rocco only blue, green or colourless glass is present and from this site it is suspected that the glass dates to the second half of the first century AD. At Cosa can be seen that colourless glass becomes more prominent in the find assemblages from the mid first century AD onwards. Furthermore, the variety of different colours becomes smaller from the mid first century onwards. Thus, this might also be seen as a confirmation of the hypothesis.

To answer the research question, the glass assemblages change significantly on all four of the focus points. Namely, the glass assemblages all became larger during the first century AD. Also, overall more glass has been found in public spaces, but the glass found in domestic areas existed for a longer period of time. Furthermore, the colour of the glass does not get less variable, however, blue, green and colourless glass becomes more prominent and get the upper hand. Lastly, the number of fragments belonging to storage ware also increases during the first century AD.

For future research, it might be important to enlarge the focus on glass assemblages collected from excavations, so that the assemblages can be documented more completely and better compared to each other. Also, not much is known about the use of glass in the villa community, for example how many glass objects were generally kept in a *villa* or *domus*. Another interesting research idea could be to compare the glass assemblages at a provincial level, to see how trade networks and romanization influence the assemblages.

8. Abstract

This thesis is focussed on the change in the consumption of storage ware and table ware glass. The glass used for this research is derived from three different sites from the Italian peninsula, namely the San Rocco villa at Francolise, Cosa, and Insula VI.1 from Pompeii. The glass assemblages are all dated between the first century BC and the first century AD.

The purpose of this thesis was to find out how the glass assemblages change throughout the first century BC and the first century AD on the Italian peninsula, since during this period, blown glass was invented and caused a shift in the already existing glass assemblages.

It is proposed that the glass assemblages would have grown throughout this time, since the production of glass grew and became more widespread. Another theory is that the colour of the glass shifts from a broad variety of colours to mainly green, blue or colourless. A third aspect that plays an important role in this thesis is the increasing use of glass for storage and transport. Furthermore, an important aspect is context of the glass per site.

These four aspects have been taken into account for each site and it can be concluded that the glass assemblages do change significantly on all four aspects. What is prominent is that the glass assemblages expand due to an increasing glass production throughout the first century AD. Also, the glass colours change in a way that the colour variety stays the same or slightly declines and blue, green or colourless become very outstanding in the glass assemblages. The context of the glass shows that most of the glass comes from public areas, however, the glass assemblages from the private spaces, exist for a longer time span. In the assemblages, it can be seen that the use of glass storage ware increases throughout the first century AD. These forms also exist mainly of green, blue and colourless fabric.

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11. Appendix with databases

11.1 The San Rocco villa

Number	Catalogue-number	Fragment s	Findplace	Period	Colour	Form
1	761	1	Alterations and additions (Period IIA)	Late first century AD	Colourless	Flasks
10	589	1	Destruction levels (A.D.200+)	Unidentified	Unidentified	Shallow bowls or plates
11	72	1	Destruction levels (A.D.200+)	Unidentified	Unidentified	Shallow bowls or plates
12	19	1	Alterations and additions (Period IIA)	Mid first century AD	Colourless	Small bowls
13	762	1	Alterations and additions (Period IIA)	Mid first century AD	Colourless	Small bowls
14	763	1	Alterations and additions (Period IIA)	Mid first century AD	Colourless	Small bowls
15	594	1	Alterations and additions (Period IIA)	Mid first century AD	Colourless	Small bowls
16	448	1	Alterations and additions (Period IIA)	Mid first century AD	Colourless	Small bowls
17	542b	1	Alterations and additions (Period IIA)	Mid first century AD	Unidentified	Small bowls
18	185 and 184	2	Western and eastern terrace; domus and villa rooms (Period II)	Early first century AD	Emerald green	Small bowls
19	542a	1	Destruction levels (A.D.200+)	Later than first century AD	Unidentified	Small bowls
2	130	1	Occupation levels 9Period II/IIA)	Later than first century AD	Colourless	Flasks
20	161	1	Destruction levels (A.D.200+)	Later than first century AD	Unidentified	Small bowls

21	587	1	Destruction levels (A.D.200+)	Unidentified	Colourless	Beakers
22	185 and 86	2	Destruction levels (A.D.200+)	Unidentified	Greenish	Beakers
23	13	1	Destruction levels (A.D.200+)	Unidentified	Greenish	Beakers
24	143	1	Destruction levels (A.D.200+)	Unidentified	Bluish colourless	Beakers
25	284	1	Occupation levels 9Period II/IIA)	Late first century AD	Colourless	Beakers
26	95	1	Destruction levels (A.D.200+)	Unidentified	Colourless	Bases
27	15b	1	Destruction levels (A.D.200+)	Unidentified	Greenish colourless	Bases
28	522	1	Destruction levels (A.D.200+)	Unidentified	Unidentified	Bases
29	46	1	Destruction levels (A.D.200+)	Later than first century AD	Greenish colourless	Bases
3	185	1	Occupation levels 9Period II/IIA)	Later than first century AD	Colourless	Flasks
30	622	1	Destruction levels (A.D.200+)	Unidentified	Greenish colourless	Bases
31	440 and 760	2	Destruction levels (A.D.200+)	Unidentified	Unidentified	Miscellaneous
32	431	1	Destruction levels (A.D.200+)	Unidentified	Unidentified	Miscellaneous
33	764	1	Occupation levels 9Period II/IIA)	Early first century AD	Green	Miscellaneous
34	54	1	Occupation levels 9Period II/IIA)	Mid first century AD	Green	Miscellaneous
35	97	1	Destruction levels (A.D.200+)	Unidentified	Colourless	Miscellaneous
4	432	1	Occupation levels 9Period II/IIA)	Later than first century AD	Colourless	Flasks

5	70		1 Occupation levels 9Period II/IIA)	Late first century AD	Natural green	Flasks
6	441		1 Occupation levels 9Period II/IIA)	First century BC	Greenish	Bowls
7	485		1 Occupation levels 9Period II/IIA)	Later than first century AD	Colourless	Bowls
8	546		1 Destruction levels (A.D.200+)	Unidentified	Unidentified	Bowls
9	74		1 Destruction levels (A.D.200+)	Unidentified	Colourless	Bowls

11.2 Cosa

Number	Fragments	Findplace	Period	Colour	Form
	1				
307	4	Atrium Publicum (shop)	Unidentified	Blue	Coloured translucent plates and dishes
307a	1	Atrium Publicum (shop)	Unidentified	Blue	Coloured translucent plates and dishes
308	32	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent plates and dishes
308a	2	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent plates and dishes
309	5	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent plates and dishes
310	15	Atrium Publicum (storeroom)	Mid first century AD	Emerald green	Coloured translucent plates and dishes
311a	1	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent plates and dishes
311b	1	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent plates and dishes
311c	4	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent plates and dishes
311d	7	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent plates and dishes
311e	3	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent plates and dishes
312	2	Basilica	Unidentified	Blue	Coloured translucent plates and dishes
313a	1	Basilica	Unidentified	Emerald green	Coloured translucent plates and dishes
313b	1	Basilica	Unidentified	Emerald green	Coloured translucent plates and dishes
313c	1	Suny House	Unidentified	Emerald green	Coloured translucent

					plates and dishes
313d	1	Forum	Unidentified	Emerald green	Coloured translucent plates and dishes
313e	1	Unidentified	Unidentified	Emerald green	Coloured translucent plates and dishes
313f	1	Forum	Unidentified	Blue	Coloured translucent plates and dishes
313g	1	Atrium Publicum	Unidentified	Emerald green	Coloured translucent plates and dishes
314	1	Basilica	Unidentified	Dark-blue green	Coloured translucent plates and dishes
314a	1	Atrium Publicum	Unidentified	Dark blue-green	Coloured translucent plates and dishes
314b	1	Atrium Publicum	Unidentified	Dark blue-green	Coloured translucent plates and dishes
315	3	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent bowls
316	3	Atrium Publicum (storeroom)	Mid first century AD	Purple	Coloured translucent bowls
317	10	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent bowls
318	4	Atrium Publicum (storeroom)	Mid first century AD	Dark blue-green	Coloured translucent bowls
319a	6	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent bowls
319b	1	Atrium Publicum	Unidentified	Blue	Coloured translucent bowls
321	2	Unidentified	Unidentified	Emerald green	Coloured translucent bowls
322	1	Atrium Publicum	Unidentified	Blue	Coloured translucent bowls
323	2	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent bowls
324a	1	Suny House	Unidentified	Emerald green	Coloured translucent bowls
324b	1	Atrium Publicum (shop)	Unidentified	Emerald green	Coloured translucent bowls
324c	1	Forum	Unidentified	Emerald green	Coloured translucent bowls
324d	1	Forum	Unidentified	Emerald green	Coloured translucent bowls
324e	1	Unidentified	Unidentified	Emerald green	Coloured translucent bowls
325	2	Atrium Publicum	Unidentified	Blue	Coloured translucent bowls
326	1	Atrium Publicum (house)	Unidentified	Blue	Coloured translucent bowls
327	2	Suny House	Unidentified	Blue	Coloured translucent bowls
328	3	Atrium Publicum	Unidentified	Blue	Coloured translucent

		(house)			bowls
329	1	Suny House	Unidentified	Blue	Coloured translucent bowls
330	3	Suny House	Unidentified	Blue	Coloured translucent bowls
331	1	Forum	Unidentified	Blue	Coloured translucent bowls
332	1	Unidentified	Unidentified	Emerald green	Coloured translucent bowls
333	1	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent bowls
334	1	Suny House	Unidentified	Emerald green	Coloured translucent bowls
335a	1	Basilica	Unidentified	Blue	Coloured translucent bowls
335b	1	Forum	Unidentified	Emerald green	Coloured translucent bowls
335c	1	Suny House	Unidentified	Emerald green	Coloured translucent bowls
336	1	Atrium Publicum (storeroom)	Mid first century AD	Dark blue-green	Coloured translucent bowls
337	1	Atrium Publicum (storeroom)	Mid first century AD	Dark blue-green	Coloured translucent bowls
338	1	Basilica	Unidentified	Dark blue-green	Coloured translucent bowls
339	1	Suny House	Unidentified	Blue	Coloured translucent bowls
340	1	Suny House	Unidentified	Blue	Coloured translucent saucepans
341	1	Atrium Publicum (house)	Unidentified	Emerald green	Coloured translucent saucepans
342	10	Atrium Publicum (storeroom)	Mid first century AD	Purple	Coloured translucent beakers
343	1	Basilica	Unidentified	Yellow	Coloured translucent beakers
344	2	Basilica	Mid first century AD	Blue	Coloured translucent beakers
345	1	Atrium Publicum	Unidentified	Lime green	Coloured translucent beakers
346	2	Forum	Unidentified	Purple	Coloured translucent beakers
347	1	Basilica	Unidentified	Light blue	Coloured translucent beakers
348	1	Basilica	Unidentified	Green	Coloured translucent beakers
349	1	Suny House	Unidentified	Blue	Coloured translucent beakers
350	2	Atrium Publicum	Unidentified	Golden-yellow	Coloured translucent beakers
351	1	Atrium Publicum	Mid first	Emerald green	Coloured translucent

		(storeroom)	century AD		beakers
352	1	Atrium Publicum (storeroom)	Mid first century AD	Emerald green	Coloured translucent beakers
353	29	Atrium Publicum (storeroom)	Mid first century AD	Light blue	Coloured translucent flasks, jugs, and jars
354	19	Atrium Publicum (storeroom)	Mid first century AD	Purple with opaque white decoration	Coloured translucent flasks, jugs, and jars
355	8	Atrium Publicum (house)	Unidentified	Light blue with opaque white decoration	Coloured translucent flasks, jugs, and jars
356	6	Atrium Publicum	Unidentified	Peacock blue	Coloured translucent flasks, jugs, and jars
357	1	Basilica	Unidentified	Peacock blue	Coloured translucent flasks, jugs, and jars
358	5	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent thick-walled bottles and amphoriskoi
359	1	Curia	Unidentified	Blue	Coloured translucent thick-walled bottles and amphoriskoi
360	1	Atrium Publicum (house)	Early first century AD	Dark blue	Coloured translucent thick-walled bottles and amphoriskoi
361	1	Suny House	Unidentified	Dark blue	Coloured translucent thick-walled bottles and amphoriskoi
362	6	Suny House	Unidentified	Golden-yellow	Coloured translucent small thin-walled bottles
363	4	Atrium Publicum	Unidentified	Yellow	Coloured translucent small thin-walled bottles
364	1	Suny House	First century BC	Golden-yellow	Coloured translucent small thin-walled bottles
365	1	Basilica	Unidentified	Blue	Coloured translucent small thin-walled bottles
366	2	Unidentified	Unidentified	Blue	Coloured translucent small thin-walled bottles
367	1	Atrium Publicum	Unidentified	Dark blue	Coloured translucent small thin-walled bottles
368	1	Atrium Publicum (house)	Unidentified	Blue	Coloured translucent small thin-walled bottles
369	1	Atrium Publicum (house)	Unidentified	Blue	Coloured translucent small thin-walled

					bottles
370	1	Basilica	Unidentified	Blue	Coloured translucent small thin-walled bottles
371	1	Atrium Publicum (house)	Early first century AD	Yellow	Coloured translucent small thin-walled bottles
372	1	Atrium Publicum (house)	Early first century AD	Yellow	Coloured translucent small thin-walled bottles
373	5	Atrium Publicum (storeroom)	Mid first century AD	Blue	Coloured translucent ladle
374	5	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
375	7	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
375a	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
376	10	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
376a	3	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
377	6	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
378	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
379	5	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
380	14	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
381	3	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
382	9	Atrium Publicum (house)	Early first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
383	1	Basilica	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
384	2	Basilica	Mid first century AD	Natural bluish-green	Various naturally coloured plates,

					dishes and bowls
385	3	Atrium Publicum	Unidentified	Pale greenish-yellow	Various naturally coloured plates, dishes and bowls
386	2	Atrium Publicum	Unidentified	Natural pale yellowish-green	Various naturally coloured plates, dishes and bowls
387	1	Suny House	Unidentified	Natural bluish-green	Various naturally coloured plates, dishes and bowls
388	2	Atrium Publicum (storeroom)	Unidentified	Natural pale yellowish-green	Various naturally coloured plates, dishes and bowls
389	1	Suny House	Unidentified	Natural light green	Various naturally coloured plates, dishes and bowls
390	1	Forum	Unidentified	Dark greenish-yellow	Various naturally coloured plates, dishes and bowls
391	1	Atrium Publicum (shop)	Unidentified	Natural bluish-green	Various naturally coloured plates, dishes and bowls
392	1	Basilica	Unidentified	Greenish-yellow	Bowls with applied fillets
394	1	Suny House	Unidentified	Colourless	Bowls with applied fillets
395	1	Forum	Unidentified	Greenish-yellow	Bowls with applied fillets
396	1	Basilica	Unidentified	Greenish-yellow	Bowls with applied fillets
397	1	Basilica	Unidentified	Green	Bowls with applied fillets
398	1	Suny House	Unidentified	Greenish-yellow	Bowls with applied fillets
399	2	Suny House	Unidentified	Colourless	Bowls with applied fillets
400	1	Suny House	Unidentified	Green	Bowls with applied fillets
401	1	Suny House	Unidentified	Greenish-yellow	Bowls with applied fillets
402	1	Basilica	Unidentified	Colourless	Bowls with applied fillets
403	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Bowls with triangular rims
404	6	Unidentified	Unidentified	Colourless	Bowls with triangular rims
405	5	Atrium Publicum (house)	Unidentified	Pale bluish-green	Bowls with triangular rims
406	1	Atrium Publicum	Later than	Colourless	Bowls with triangular

		(shop)	first century AD		rim
407	2	Atrium Publicum	Unidentified	Colourless	Bowls with triangular rims
408	19	Basilica	Unidentified	Pale bluish-green	Bowls with triangular rims
409	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Bowls with triangular rims
410	4	Atrium Publicum (shop)	Later than first century AD	Bluish-green	Bowls with triangular rims
411	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Bowls with triangular rims
412	2	Atrium Publicum (shop)	Later than first century AD	Pale bluish-green	Bowls with triangular rims
413	1	Suny House	Unidentified	Colourless	Bowls with triangular rims
417	2	Atrium Publicum (shop)	Later than first century AD	Colourless	Colourless plates, dishes and bowls
418	1	Atrium Publicum (house)	Unidentified	Colourless	Colourless plates, dishes and bowls
419	2	Atrium Publicum (shop)	Later than first century AD	Colourless	Colourless plates, dishes and bowls
419a	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Colourless plates, dishes and bowls
420	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Colourless plates, dishes and bowls
421	1	Temple B (forum)	Unidentified	Colourless	Colourless plates, dishes and bowls
422	1	Temple B (forum)	Unidentified	Colourless	Colourless plates, dishes and bowls
423	1	Suny House	Unidentified	Natural bluish-green	Naturally coloured saucepans
423a	1	Suny House	Unidentified	Natural bluish-green	Naturally coloured saucepans
423b	1	Unidentified	Unidentified	Natural bluish-green	Naturally coloured saucepans
424	9	Atrium Publicum	Unidentified	Light green	Beakers and handleless jars
425	2	Atrium Publicum	Unidentified	Natural light green	Beakers and handleless jars
426	1	Atrium Publicum (house)	Early first century AD	Natural bluish-green	Beakers and handleless jars

427	2	Forum	Unidentified	Greenish-yellow	Beakers and handleless jars
428	1	Basilica	Unidentified	Pale bluish-green	Beakers and handleless jars
429	3	Atrium Publicum (house)	Unidentified	Light bluish-green	Beakers and handleless jars
430	1	Atrium Publicum (house)	Early first century AD	Natural bluish-green	Beakers and handleless jars
431	1	Basilica	Unidentified	Colourless	Beakers and handleless jars
432	1	Atrium Publicum	Unidentified	Colourless	Beakers and handleless jars
433	6	Arx	Unidentified	Green	Beakers and handleless jars
434	2	Suny House	Unidentified	Colourless	Beakers and handleless jars
435	1	Basilica	Unidentified	Natural light green	Beakers and handleless jars
436	2	Atrium Publicum (house)	Early first century AD	Natural pale blue	Beakers and handleless jars
437	1	Atrium Publicum (shop)	Unidentified	Bluish-green	Beakers and handleless jars
438	1	Forum	Unidentified	Bluish-green	Beakers and handleless jars
439	2	Basilica	Unidentified	Bluish-green	Beakers and handleless jars
440	2	Atrium Publicum (storeroom)	Unidentified	Bluish-green	Beakers and handleless jars
441	1	Basilica	Unidentified	Light green	Beakers and handleless jars
442	1	Unidentified	Unidentified	Colourless	Beakers and handleless jars
443	1	Basilica	Unidentified	Light green	Beakers and handleless jars
444	2	Atrium Publicum (storeroom)	Unidentified	Greenish-yellow	Beakers and handleless jars
445	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Beakers and handleless jars
446	1	Basilica	Unidentified	Natural bluish-green	Beakers and handleless jars
447	2	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Beakers and handleless jars
447a	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Beakers and handleless jars
448	1	Forum	Unidentified	Natural light green	Beakers and handleless jars
449	1	Forum	Unidentified	Colourless	Beakers and handleless jars
450	4	Atrium Publicum (storeroom)	Mid first century AD	Colourless	Bowls with triangular rims

451	5	Suny House	Unidentified	Colourless	Beakers and handleless jars
452	1	Atrium Publicum (storeroom)	Mid first century AD	Colourless	Beakers and handleless jars
453	1	Atrium Publicum (shop)	Unidentified	Colourless	Bowls with triangular rims
454	2	Atrium Publicum (storeroom)	Mid first century AD	Bluish-green	Beakers and handleless jars
455	1	Basilica	Unidentified	Colourless	Beakers and handleless jars
456	2	House of Quintus Fulvius	Unidentified	Colourless	Beakers and handleless jars
457	1	Suny House	Unidentified	Natural bluish-green	Beakers and handleless jars
458	1	Unidentified	Unidentified	Bluish-green	Beakers and handleless jars
459	1	Unidentified	Unidentified	Green	Beakers and handleless jars
460	3	Suny House	Unidentified	Natural bluish-green	Beakers and handleless jars
461	1	Arx	Unidentified	Bluish-green	Beakers and handleless jars
462	1	Unidentified	Unidentified	Natural light green	Beakers and handleless jars
463	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Bowls with triangular rims
464	1	Suny House	Unidentified	Natural bluish-green	Beakers and handleless jars
465	1	Suny House	Unidentified	Greenish-yellow	Beakers and handleless jars
466	2	Suny House	Unidentified	Colourless	Beakers and handleless jars
467	1	Suny House	Unidentified	Colourless	Beakers and handleless jars
468	1	Basilica	Unidentified	Colourless	Beaded stemmed cups
469	1	Suny House	Unidentified	Colourless	Beaded stemmed cups
470	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Beaded stemmed cups
470a	2	Atrium Publicum (shop)	Later than first century AD	Colourless	Beaded stemmed cups
470b	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Beaded stemmed cups
470c	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Beaded stemmed cups

471	1	Forum	Unidentified	Greenish-yellow	Beaded stemmed cups
472	1	Atrium Publicum (shop)	Unidentified	Colourless	Beaded stemmed cups
473	1	Atrium Publicum (shop)	Unidentified	Colourless	Beaded stemmed cups
474	1	Basilica	Unidentified	Colourless	Beaded stemmed cups
474a	2	Atrium Publicum	Mid first century AD	Natural bluish-green	Various naturally coloured plates, dishes and bowls
475	1	Suny House	Unidentified	Natural bluish-green	Various stemmed cups
476	1	Basilica	Unidentified	Natural bluish-green	Various stemmed cups
477	1	Forum	Unidentified	Natural pale yellow	Various stemmed cups
478	1	Curia	Unidentified	Natural pale yellowish-green	Various stemmed cups
479	1	Atrium Publicum (house)	Unidentified	Natural pale yellow	Various stemmed cups
480	1	Cistern (Forum)	Later than first century AD	Natural pale yellowish-green	Various stemmed cups
481	1	Cistern (Forum)	Later than first century AD	Natural yellowish-green	Various stemmed cups
482	1	Atrium Publicum	Unidentified	Natural pale green	Various stemmed cups
483	1	Capitolinum Exterior	Unidentified	Natural bluish-green	Various stemmed cups
484	1	Forum	Unidentified	Natural pale yellow	Various stemmed cups
485	1	Basilica	Unidentified	Natural pale yellow	Various stemmed cups
486	1	Cistern (Forum)	Later than first century AD	Natural pale yellow	Various stemmed cups
487	1	Forum	Unidentified	Natural pale yellow	Various stemmed cups
488	1	Curia	Unidentified	Natural pale yellow	Various stemmed cups
489	1	Curia	Unidentified	Natural pale yellow	Various stemmed cups
490	1	Basilica	Mid first century AD	Natural bluish-green	Wide-mouthed jars
491	1	Basilica	Mid first century AD	Natural bluish-green	Wide-mouthed jars
492	1	Basilica	Unidentified	Colourless	Wide-mouthed jars

493	1	Basilica	Unidentified	Natural yellowish-green	Wide-mouthed jars
494	6	Atrium Publicum (shop)	Unidentified	Colourless	Large flasks and jugs
495	1	Temple B (forum)	Unidentified	Colourless	Large flasks and jugs
496	9	Atrium Publicum	Unidentified	Natural bluish-green	Large flasks and jugs
497	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Large flasks and jugs
498	2	Suny House	Unidentified	Natural bluish-green	Large flasks and jugs
499	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Large flasks and jugs
500	2	Basilica	Unidentified	Natural bluish-green	Large flasks and jugs
501	1	Basilica	Unidentified	Colourless	Large flasks and jugs
502	3	Atrium Publicum (shop)	Later than first century AD	Natural light green	Large flasks and jugs
503	5	Atrium Publicum (shop)	Later than first century AD	Colourless	Large flasks and jugs
504	1	Atrium Publicum (shop)	Unidentified	Natural bluish-green	Medium-sized flasks and jugs
505	1	Forum	Unidentified	Natural bluish-green	Medium-sized flasks and jugs
506	1	Basilica	Mid first century AD	Natural bluish-green	Medium-sized flasks and jugs
507	1	Basilica	Mid first century AD	Natural bluish-green	Medium-sized flasks and jugs
508	1	Unidentified	Unidentified	Natural light green	Medium-sized flasks and jugs
509	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Medium-sized flasks and jugs
510	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Medium-sized flasks and jugs
511	1	Forum	Unidentified	Natural bluish-green	Medium-sized flasks and jugs
512	1	Atrium Publicum (house)	Early first century AD	Natural bluish-green	Medium-sized flasks and jugs
513	2	Forum	Unidentified	Natural light green	Medium-sized flasks and jugs
514	1	Atrium Publicum (house)	Early first century AD	Natural pale green	Medium-sized flasks and jugs
515	1	Suny House	Unidentified	Natural light green	Medium-sized flasks and jugs
516	1	Basilica	Unidentified	Natural bluish-	Medium-sized flasks

				green	and jugs
517	2	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Medium-sized flasks and jugs
518	1	Basilica	Unidentified	Natural bluish-green	Medium-sized flasks and jugs
519	1	Basilica	Unidentified	Colourless	Medium-sized flasks and jugs
520	1	Suny House	Unidentified	Colourless	Medium-sized flasks and jugs
521	1	Temple B (forum)	Unidentified	Natural light green	Medium-sized flasks and jugs
522	1	Capitolinum Exterior	Unidentified	Natural light green	Medium-sized flasks and jugs
524	3	Unidentified	Unidentified	Natural pale yellowish-green	Spherical oil flasks
525	1	Unidentified	Unidentified	Natural bluish-green	Prismatic and mercury bottle
526	1	Forum	Unidentified	Natural bluish-green	Prismatic and mercury bottle
527	1	Suny House	Unidentified	Natural bluish-green	Prismatic and mercury bottle
528	1	Basilica	Unidentified	Natural bluish-green	Prismatic and mercury bottle
529	1	Forum	Unidentified	Natural bluish-green	Prismatic and mercury bottle
530	1	Basilica	Unidentified	Natural light green	Prismatic and mercury bottle
531	5	Suny House	Unidentified	Natural bluish-green	Prismatic and mercury bottle
532	1	Basilica	Unidentified	Natural bluish-green	Prismatic and mercury bottle
533	1	Unidentified	Unidentified	Natural light green	Prismatic and mercury bottle
534	1	Atrium Publicum (storeroom)	Mid first century AD	Natural light green	Prismatic and mercury bottle
535	1	Atrium Publicum (storeroom)	Later than first century AD	Colourless	Prismatic and mercury bottle
536	1	Atrium Publicum (shop)	Later than first century AD	Colourless	Prismatic and mercury bottle
537	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Prismatic and mercury bottle
538	2	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Prismatic and mercury bottle
539	3	Suny House	Unidentified	Natural light green	Prismatic and mercury bottle
540	2	Basilica	Unidentified	Natural light green	Prismatic and mercury bottle

541	18	Atrium Publicum (storeroom)	Unidentified	Natural bluish-green	Prismatic and mercury bottle
542	4	Forum	Unidentified	Natural bluish-green	Prismatic and mercury bottle
543	1	Atrium Publicum (storeroom)	Unidentified	Natural bluish-green	Prismatic and mercury bottle
544	1	Atrium Publicum	Unidentified	Natural bluish-green	Prismatic and mercury bottle
545	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Prismatic and mercury bottle
546	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Prismatic and mercury bottle
547	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Prismatic and mercury bottle
548	1	Atrium Publicum (storeroom)	Unidentified	Natural bluish-green	Prismatic and mercury bottle
549	1	Atrium Publicum (house)	Early first century AD	Natural bluish-green	Small unguent bottles
550	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Small unguent bottles
551	2	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Small unguent bottles
552	1	Forum	Unidentified	Natural bluish-green	Small unguent bottles
553	1	Unidentified	Unidentified	Natural bluish-green	Small unguent bottles
554	1	Suny House	Unidentified	Natural bluish-green	Small unguent bottles
555	1	Atrium Publicum (house)	Early first century AD	Natural bluish-green	Small unguent bottles
556	1	Suny House	Unidentified	Natural bluish-green	Small unguent bottles
557	1	Basilica	Mid first century AD	Natural light green	Small unguent bottles
558	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Small unguent bottles
559	4	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Small unguent bottles
559a	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Small unguent bottles
560	1	Unidentified	Unidentified	Natural bluish-green	Small unguent bottles
561	1	Basilica	Mid first century AD	Natural bluish-green	Small unguent bottles
562	3	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Small unguent bottles
563	2	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Small unguent bottles
564	1	Atrium Publicum (storeroom)	Mid first century AD	Natural bluish-green	Small unguent bottles

565	1	Atrium Publicum (house)	Early first century AD	Bluish-green	Small unguent bottles
566	1	Forum	Unidentified	Natural bluish-green	Small unguent bottles
567	2	Suny House	Unidentified	Natural light green	Small unguent bottles
568	1	Suny House	Unidentified	Natural light green	Small unguent bottles
569	1	Suny House	Unidentified	Natural light green	Small unguent bottles
570	1	Comitium	Unidentified	Natural bluish-green	Small unguent bottles
571	1	Capitolinum Exterior	Unidentified	Natural light green	Small unguent bottles
572	1	Basilica	Unidentified	Natural bluish-green	Small unguent bottles
573	1	Suny House	Unidentified	Natural bluish-green	Small unguent bottles
574	1	forum	Unidentified	Natural bluish-green	Small unguent bottles

11.3 Insula VI.1

Number	Fragments	Findplace	Period	Colour	Form
177	19	Workshop	Early first century AD	Amber	Wheel-cut and abraded beakers and cups
178	18	Triclinium	Late first century AD	Yellow/green	Wheel-cut and abraded beakers and cups
179	4	Bars	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
180	1	Inn	Late first century AD	Deep blue	Wheel-cut and abraded beakers and cups
181	1	Casa delle Vestali	Unidentified	Unidentified	Wheel-cut and abraded beakers and cups
182	1	Bars	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
183	1	Workshop	Late first century AD	Pale green	Wheel-cut and abraded beakers and cups
184	2	Casa delle Vestali	Mid first century AD	Colourless	Wheel-cut and abraded beakers and cups
185	1	Inn	Late first	Blue/green	Wheel-cut and

			century AD		abraded beakers and cups
186	6	Workshop	Late first century AD	Unidentified	Wheel-cut and abraded beakers and cups
187	6	Inn	Late first century AD	Yellow/green	Wheel-cut and abraded beakers and cups
188	1	Casa del Chiruro	Late first century AD	Light yellow/green	Wheel-cut and abraded beakers and cups
189	1	Triclinium	Late first century AD	Pale green	Wheel-cut and abraded beakers and cups
190	1	Inn	Mid first century AD	Blue/green	Wheel-cut and abraded beakers and cups
191	1	Shrine	Late first century AD	Light green	Wheel-cut and abraded beakers and cups
192	1	Inn	Mid first century AD	Yellow/green	Wheel-cut and abraded beakers and cups
193	1	Shrine	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
194	1	Well	Unidentified	Amber	Wheel-cut and abraded beakers and cups
195	2	Bars	Unidentified	Blue/green	Wheel-cut and abraded beakers and cups
196	1	Inn	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
197	1	Triclinium	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
198	4	Inn	Mid first century AD	Blue/green	Wheel-cut and abraded beakers and cups
199	1	Casa delle Vestali	Mid first century AD	Blue/green	Wheel-cut and abraded beakers and cups
200	1	Shrine	Mid first century AD	Deep blue	Wheel-cut and abraded beakers and cups
201	2	Shrine	Early first century AD	Deep blue	Wheel-cut and abraded beakers and cups

202	1	Casa delle Vestali	Mid first century AD	Blue/green	Wheel-cut and abraded beakers and cups
203	1	Workshop	Late first century AD	Deep blue	Wheel-cut and abraded beakers and cups
204	1	Inn	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
205	1	Bars	Late first century AD	Yellow/green	Wheel-cut and abraded beakers and cups
206	1	Triclinium	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
207	1	Casa delle Vestali	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
208	1	Inn	Mid first century AD	Blue/green	Wheel-cut and abraded beakers and cups
209	1	Workshop	Mid first century AD	Deep blue	Wheel-cut and abraded beakers and cups
210	1	Casa del Chiruro	Mid first century AD	Blue/green	Wheel-cut and abraded beakers and cups
211	1	Shrine	Late first century AD	Peacock	Wheel-cut and abraded beakers and cups
212	1	Triclinium	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
213	1	Shrine	Early first century AD	Blue/green	Wheel-cut and abraded beakers and cups
214	1	Workshop	Late first century AD	Deep blue	Wheel-cut and abraded beakers and cups
215	1	Shrine	Late first century AD	Yellow/brown	Wheel-cut and abraded beakers and cups
216	1	Triclinium	Late first century AD	Light green	Wheel-cut and abraded beakers and cups
217	1	Triclinium	Mid first century AD	Blue/green	Wheel-cut and abraded beakers and cups
218	1	Inn	Mid first century AD	Blue/green	Wheel-cut and abraded beakers and cups

219	1	Triclinium	Late first century AD	Amber	Wheel-cut and abraded beakers and cups
220	1	Well	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
221	1	Triclinium	Mid first century AD	Blue/green	Wheel-cut and abraded beakers and cups
222	1	Triclinium	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
223	1	Workshop	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
224	1	Unidentified	Late first century AD	Pale green	Wheel-cut and abraded beakers and cups
225	1	Unidentified	Late first century AD	Blue/green	Wheel-cut and abraded beakers and cups
226	6	Triclinium	Late first century AD	Deep blue	Wheel-cut and abraded beakers and cups
227	2	Triclinium	Mid first century AD	Amber	Ribbed cups
228	1	Shrine	Mid first century AD	Amber	Ribbed cups
229	1	Triclinium	Late first century AD	Pale green	Ribbed cups
230	2	Triclinium	Late first century AD	Deep blue	Ribbed cups
231	1	Inn	Unidentified	Amber	Ribbed cups
232	1	Casa delle Vestali	Early first century AD	Blue/green	Ribbed cups
233	1	Triclinium	Late first century AD	Blue/green	Ribbed cups
234	1	Inn	Late first century AD	Purple	Ribbed cups
235	1	Casa del Chiruro	Mid first century AD	Deep blue	Ribbed cups
236	1	Shrine	Late first century AD	Yellow/brown	Ribbed cups
237	1	Workshop	Late first century AD	Blue/green	Ribbed cups
238	1	Inn	Mid first century AD	Blue/green	Ribbed cups
239	1	Triclinium	Late first century AD	Blue/green	Ribbed cups
240	1	Casa delle	Late first	Yellow/brown	Ribbed cups

		Vestali	century AD		
241	2	Triclinium	Late first century AD	Pale green	Ribbed cups
242	5	Shrine	Late first century AD	Light yellow/brown	Ribbed cups
243	1	Shrine	Mid first century AD	Blue/green	Ribbed cups
244	1	Bars	Late first century AD	Blue/green	Mould blown beakers
245	1	Casa delle Vestali	Early first century AD	Blue/green	Mould blown beakers
246	1	Casa delle Vestali	Late first century AD	Pale green	Mould blown beakers
247	1	Casa delle Vestali	Early first century AD	Light blue	Mould blown beakers
248	1	Casa delle Vestali	Late first century AD	Pale green	Indented beakers
249	1	Casa delle Vestali	Late first century AD	Pale green	Indented beakers
250	1	Bars	Mid first century AD	Light green	Indented beakers
251	1	Casa delle Vestali	Mid first century AD	Blue/green	Indented beakers
252	1	Unidentified	Mid first century AD	Blue/green	Indented beakers
253	1	Casa delle Vestali	Mid first century AD	Colourless	Externally ground colourless beakers and other vessels
254	1	Casa delle Vestali	Mid first century AD	Unidentified	Externally ground colourless beakers and other vessels
255	1	Casa delle Vestali	Mid first century AD	Colourless	Externally ground colourless beakers and other vessels
256	1	Workshop	Mid first century AD	Unidentified	Externally ground colourless beakers and other vessels
257	1	Inn	Mid first century AD	Light green	Fire-rounded rims
258	1	Well	Late first century AD	Blue/green	Fire-rounded rims
259	1	Shrine	Late first century AD	Blue/green	Fire-rounded rims
260	1	Casa delle Vestali	Late first century AD	Blue/green	Fire-rounded rims
261	1	Casa delle Vestali	Unidentified	Blue/green	Fire-rounded rims
262	1	Casa delle Vestali	Early first century AD	Blue/green	Fire-rounded rims
263	1	Bars	Mid first	Blue/green	Fire-rounded rims

			century AD		
264	1	Inn	Late first century AD	Light green	Fire-rounded rims
265	1	Inn	Late first century AD	Yellow/green	Fire-rounded rims
266	1	Workshop	Early first century AD	Colourless	Fire-rounded rims
267	1	Inn	Late first century AD	Yellow/brown	Fire-rounded rims
268	1	Bars	Late first century AD	Blue/green	Fire-rounded rims
269	1	Casa delle Vestali	Mid first century AD	Colourless	Fire-rounded rims
270	1	Bars	Mid first century AD	Light green	Fire-rounded rims
271	1	Bars	Mid first century AD	Blue/green	Fire-rounded rims
272	3	Workshop	Mid first century AD	Amber	Fire-rounded rims
273	1	Shrine	Late first century AD	Blue/green	Fire-rounded rims
274	1	Casa delle Vestali	Unidentified	Light green	Fire-rounded rims
276	1	Workshop	Mid first century AD	Blue/green	Fire-rounded rims
277	1	Bars	Late first century AD	Blue/green	Fire-rounded rims
278	2	Casa delle Vestali	Mid first century AD	Blue/green	Fire-rounded rims
279	1	Casa del Chiruro	Late first century AD	Unidentified	Fire-rounded rims
280	3	Casa delle Vestali	Mid first century AD	Light green	Fire-rounded rims
281	1	Well	Late first century AD	Emerald green	Fire-rounded rims
282	3	Unidentified	Late first century AD	Unidentified	Fire-rounded rims
283	1	Triclinium	Late first century AD	Blue/green	Fire-rounded rims
284	1	Casa delle Vestali	Early first century AD	Emerald green	Fire-rounded rims
285	5	Casa delle Vestali	Mid first century AD	Colourless	Fire-rounded rims
286	1	Inn	Mid first century AD	Blue/green	Fire-rounded rims
287	1	Inn	Late first century AD	Blue/green	Fire-rounded rims
288	1	Shrine	Mid first century AD	Emerald green	Fire-rounded rims
289	1	Bars	Late first	Blue/green	Fire-rounded rims

			century AD		
290	1	Triclinium	Late first century AD	Emerald green	Tubular-rimmed bowls and cups
291	1	Triclinium	Late first century AD	Emerald green	Tubular-rimmed bowls and cups
292	1	Shrine	Late first century AD	Opaque light blue	Tubular-rimmed bowls and cups
293	1	Casa delle Vestali	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
294	1	Triclinium	Mid first century AD	Yellow/brown	Tubular-rimmed bowls and cups
295	1	Shrine	Late first century AD	Opaque light blue	Tubular-rimmed bowls and cups
296	2	Workshop	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
297	1	Inn	Mid first century AD	Emerald green	Tubular-rimmed bowls and cups
298	2	Casa delle Vestali	Unidentified	Light green	Tubular-rimmed bowls and cups
299	1	Inn	Early first century AD	Light green	Tubular-rimmed bowls and cups
300	1	Bars	Late first century AD	Light blue	Tubular-rimmed bowls and cups
301	1	Bars	Late first century AD	Yellow/green	Tubular-rimmed bowls and cups
302	1	Inn	Mid first century AD	Pale green	Tubular-rimmed bowls and cups
303	1	Workshop	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
304	1	Bars	Mid first century AD	Light blue	Tubular-rimmed bowls and cups
305	2	Well	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
306	1	Casa delle Vestali	Late first century AD	Emerald green	Tubular-rimmed bowls and cups
307	1	Triclinium	Late first century AD	Pale green	Tubular-rimmed bowls and cups
308	1	Workshop	Late first century AD	Pale green	Tubular-rimmed bowls and cups
309	1	Shrine	Late first century AD	Purple	Tubular-rimmed bowls and cups
310	1	Inn	Unidentified	Emerald green	Tubular-rimmed bowls and cups
311	2	Triclinium	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
312	1	Workshop	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
313	3	Triclinium	Late first century AD	Yellow/green	Tubular-rimmed bowls and cups
314	1	Well	Late first	Blue/green	Tubular-rimmed

			century AD		bowls and cups
315	1	Triclinium	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
316	1	Casa delle Vestali	Unidentified	Blue/green	Tubular-rimmed bowls and cups
317	4	Bars	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
318	1	Bars	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
319	1	Shrine	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
320	1	Workshop	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
321	1	Bars	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
322	1	Casa delle Vestali	Late first century AD	Light green	Tubular-rimmed bowls and cups
323	1	Casa delle Vestali	Early first century AD	Emerald green	Tubular-rimmed bowls and cups
324	1	Bars	Late first century AD	Blue/green	Tubular-rimmed bowls and cups
325	1	Inn	Mid first century AD	Yellow/brown	Tubular-rimmed bowls and cups
326	10	Casa del Chiruro	Late first century AD	Blue/green	Handled cups
327	1	Casa del Chiruro	Early first century AD	Yellow/brown	Handled cups
328	1	Shrine	Late first century AD	Yellow/green	Handled cups
329	1	Inn	Earlier than first century BC	Blue/green	Handled cups
330	3	wh	Early first century AD	Deep blue	Handled cups
331	1	Inn	Late first century AD	Blue/green	Handled cups
332	1	Well	Late first century AD	Blue/green	Handled cups
333	3	Well	Late first century AD	Blue/green	Handled cups
334	1	Triclinium	Late first century AD	Blue/green	Handled cups
335	1	Triclinium	Mid first century AD	Unidentified	Handled cups
336	1	Casa delle Vestali	Unidentified	Blue/green	Handled cups
337	1	Bars	Late first century AD	Unidentified	Handled cups
338	1	Well	Late first century AD	Blue/green	Handled cups
339	1	Casa delle	Mid first	Purple	Jars

		Vestali	century AD		
340	1	Casa delle Vestali	Late first century AD	Blue/green	Jars
341	1	Triclinium	Late first century AD	Blue/green	Jars
342	1	Casa del Chiruro	Late first century AD	Blue/green	Jars
343	1	Shrine	Late first century AD	Yellow/brown	Jugs
344	1	Casa del Chiruro	Unidentified	Blue/green	Jugs
345	1	Casa delle Vestali	Late first century AD	Blue/green	Jugs
346	1	Shrine	Late first century AD	Blue/green	Jugs
347	1	Shrine	Late first century AD	Blue/green	Jugs
348	1	Well	Late first century AD	Blue/green	Jugs
349	2	Triclinium	Late first century AD	Blue/green	Jugs
350	1	Casa delle Vestali	Unidentified	Blue/green	Jugs
351	1	Well	Late first century AD	Peacock	Jugs
352	1	Shrine	Late first century AD	Blue/green	Jugs
353	3	Casa delle Vestali	Late first century AD	Colourless	Jugs
354	1	Well	Late first century AD	Blue/green	Jugs
355	1	Triclinium	Late first century AD	Blue/green	Jugs
356	1	Casa delle Vestali	Late first century AD	Blue/green	Jugs
357	1	Well	Late first century AD	Blue/green	Jugs
358	1	Triclinium	Late first century AD	Deep blue	Jugs
359	2	Bars	Mid first century AD	Blue/green	Jugs
360	2	Triclinium	Late first century AD	Blue/green	Jugs
361	1	Shrine	Early first century AD	Unidentified	Jugs
362	1	Casa delle Vestali	Unidentified	Blue/green	Jugs
363	8	Inn	Mid first century AD	Amber	Flasks
364	4	Casa delle	Mid first	Blue/green	Flasks

		Vestali	century AD		
365	1	Triclinium	Mid first century AD	Amber	Flasks
366	1	Casa delle Vestali	Mid first century AD	Blue/green	Flasks
367	1	Casa delle Vestali	Late first century AD	Blue/green	Flasks
368	1	Casa delle Vestali	Late first century AD	Colourless	Flasks
369	1	Casa delle Vestali	Early first century AD	Blue/green	Flasks
370	1	Triclinium	Late first century AD	Colourless	Flasks
371	1	Triclinium	Late first century AD	Colourless	Flasks
372	1	Shrine	Late first century AD	Blue/green	Flasks
373	1	Inn	Mid first century AD	Blue/green	Flasks
374	1	Casa delle Vestali	Mid first century AD	Deep blue	Flasks
375	1	Shrine	Late first century AD	Blue/green	Flasks
376	1	Casa delle Vestali	First century BC	Blue/green	Flasks
377	1	Workshop	Late first century AD	Blue/green	Flasks
378	1	Triclinium	Mid first century AD	Blue/green	Flasks
379	1	Shrine	Late first century AD	Blue/green	Flasks
380	1	Shrine	Late first century AD	Pale green	Flasks
381	1	Casa delle Vestali	Unidentified	Blue/green	Bottles
382	1	Casa delle Vestali	Unidentified	Blue/green	Bottles
383	1	Workshop	Unidentified	Blue/green	Bottles
384	1	Inn	Mid first century AD	Blue/green	Bottles
385	1	Casa delle Vestali	Late first century AD	Blue/green	Bottles
386	1	Inn	Late first century AD	Blue/green	Bottles
387	1	Casa delle Vestali	Late first century AD	Blue/green	Bottles
388	1	Casa delle Vestali	Mid first century AD	Pale green	Funnels
389	1	Inn	Mid first century AD	Pale blue/green	Funnels

390	1	Casa delle Vestali	Unidentified	Pale green	Funnels
391	1	Well	Late first century AD	Blue/green	Funnels
392	1	Triclinium	Late first century AD	Blue/green	Bases
393	1	Casa delle Vestali	Mid first century AD	Blue/green	Bases
394	1	Workshop	Mid first century AD	Blue/green	Bases
395	1	Bars	Unidentified	Unidentified	Bases
396	1	Via Consolare	Late first century AD	Light green	Bases
397	2	Triclinium	Mid first century AD	Blue/green	Bases
398	1	Bars	Late first century AD	Blue/green	Bases
399	1	Inn	Late first century AD	Blue/green	Bases
400	1	Bars	Late first century AD	Unidentified	Bases
401	1	Triclinium	Late first century AD	Purple	Bases
402	1	Bars	Late first century AD	Unidentified	Bases
403	1	Shrine	Unidentified	Blue/green	Bases
404	1	Triclinium	Late first century AD	Blue/green	Bases
405	1	Triclinium	Late first century AD	Blue/green	Bases
406	1	Triclinium	Late first century AD	Light green	Bases
407	1	Casa del Chiruro	Early first century AD	Light green	Bases
408	2	Inn	Late first century AD	Blue/green	Bases
409	2	Casa delle Vestali	Unidentified	Yellow/green	Bases
410	5	Triclinium	Late first century AD	Blue/green	Bases
411	1	Triclinium	Late first century AD	Blue/green	Bases
412	1	Triclinium	Mid first century AD	Blue/green	Bases
413	1	Shrine	Late first century AD	Yellow/brown	Bases
414	1	Casa delle Vestali	Early first century AD	Blue/green	Bases
415	1	Casa delle Vestali	Late first century AD	Light green	Bases

416	1	Bars	Mid first century AD	Yellow/green	Bases
417	1	Casa delle Vestali	Mid first century AD	Light green	Bases
418	1	Casa delle Vestali	Early first century AD	Blue/green	Bases
419	1	Casa delle Vestali	Unidentified	Blue/green	Bases
420	1	Shrine	Late first century AD	Deep blue	Bases
421	1	Triclinium	Late first century AD	Blue/green	Bases
422	1	Workshop	Late first century AD	Emerald green	Bases
424	5	Inn	Mid first century AD	Blue/green	Bases
425	1	Unidentified	Late first century AD	Unidentified	Bases
426	1	Triclinium	Mid first century AD	Emerald green	Bases