1 The Changing Geography of Artefact Production in the Late Antique and Early Byzantine Mediterranean

Abstract: Archaeology is helping to define the changing geography of artefact production between the 6th and the 8th centuries, a seminal period for the economic development of the later Middle Ages. This paper presents a selection of the evidence for different classes of resources and objects, arguing that the geography of professional artefact production was largely conditioned by a policy of survival of the post-Roman successor states, particularly Byzantium, the élite and the capital cities. It permitted the maintenance or redirection of communication networks and the distribution of many products to government officials, the army and other privileged parties, throughout the Mediterranean and beyond. The bulk of the population, on other hand, with limited access to capital and to marketplaces, had to rely ever increasingly on self-sufficiency in the supply of fundamental items of daily use.

For some time various scholars have avoided using terms like “decline and fall”, “collapse”, or even “crisis”, in the context of the end of the Roman Empire in the West, preferring to use words that hold no necessarily negative attributes, such as “transformation”.1 Of course, one person’s or one Empire’s ruin may well have been someone else’s success, as all depends upon individual fortunes and standpoints. In the Western world, scholars often tend to use these words in the context of the western Roman Empire looking outwards, from the “Roman” point of view, rather than inwards, from the point of view of the peoples who supplanted the Empire. I do not want to enter into a debate that is not my current remit, if only to say that I greatly appreciate this aspect of the book by Bryan Ward-Perkins2 that attempts to address the question of the fall of the Western Roman Empire as the collapse of a civilisation, rather than of its transformation, once again placing a certain amount of weight on the shoulders of successor populations who, given Rome’s economic decline, entered what had been for many centuries a somewhat self-centred Roman “world” Empire. I

1 See, for instance, Cameron 2012.

Note: I would like to thank Salvatore Cosentino for inviting me to take part in this volume. Vasco La Salvia has generously helped me understand Byzantine mining and metallurgy. I also take the opportunity of thanking my former students Brunella Bruno, Simona Catacchio and Marco Leo Imperiale for discussion and useful observations.

https://doi.org/10.1515/9783110684346-002
also find quite convincing the view of Harper\(^3\) that suggests that much had to do with climatic changes and their consequences, quite beyond Roman control or perception. Nonetheless, even racked by crisis, the Empire did not collapse in Late Antiquity, but substantially reshaped its borders, shifting its centre of gravity from the ever more precarious Rome, to the more strategic and defensible Constantinople, and both sought and was made to adapt to the severe changes of the times.\(^4\)

This paper will examine one aspect of adaptation, how the geography of artefact production changed as the western part of the Roman Empire substantially came apart and was eventually replaced, whilst the eastern part was able to survive as a coherent block, largely centred on the Aegean, for centuries to come. It will therefore concentrate on the years from the later 6th century when the emperor Justinian briefly re-conquered part of the West, to the beginning of economic revival during the course of the 8th century, which material effects were to be more clearly seen through the years of growth during the Middle Byzantine period of the 9th and 10th centuries.\(^5\) Indeed, it will be argued that the geography of professional artefact production was largely conditioned by a policy of survival of the State, the élite and their capital city, which permitted the maintenance or redirection of communication networks and the distribution of many products. Conversely, the bulk of the population, with limited access to capital and to marketplaces, had to rely ever more on self-sufficiency in the supply of fundamental items of daily use.

The theme of the “Geography of artefact production in late antique and early Byzantine Mediterranean” is vast and would require a book or more unto itself, as it is by no means an easy task to try and define a pattern or an all-embracing model with such disparate and imbalanced evidence that currently exists. This contribution will thus concentrate on some aspects that I personally find to be of particular interest, and from the viewpoint of an archaeologist working principally on Byzantine Italy. I have also been careful not to dwell exclusively on the production of ceramics, which are the most studied category of ancient manufactured goods and have been dealt with elsewhere, including in the magisterial synthesis by Wickham on the early Middle Ages.\(^6\) Ceramics have indeed, and perhaps all too often, been used as proxy-data for the ups and downs of production and exchange, but cannot paint the whole picture. Furthermore, far more has been written about the movement of goods (particularly concerning ceramics, as just noted) than about their production, also because of the prevailing archaeological evidence for the former, in the form of recovered objects with

---

3 Harper 2017; although see the critique by Sessa 2019.
4 Haldon 2016. In writing this paper I have reread the old but still very readable essay by Lopez 1957, which has much that is relevant to the topics discussed here.
5 Decker 2016.
6 Wickham 2005.
provenance related to their use, rather than for the latter. As Enrico Zanini has perceptibly observed, the archaeology of goods and of productive and commercial structures is also, in part, the archaeology of the rather textually silent productive and commercial “middle-class”.

That there was a breakdown in the production and circulation of many mass-produced items across most of the ancient Roman Empire is now assured. One of the largest and most efficient industries, that of African Red Slip Ware (Fig. 1) and Tunisian amphorae (Fig. 2), which products were distributed throughout the Mediterranean, the Black Sea and parts of northern Europe, witnessed recession during the second half of the 6th century and effectively collapsed by the beginning of the 8th. The economic trajectory of African Red Slip Ware, as with many amphorae, appears to witness a gradual reduction in its markets during this period, with products being sent to specific and privileged sites.

**Fig. 1:** Distribution of late African Red Slip ware forms 105–106 (courtesy Michel Bonifay).

---

7 An important exception is now the volume edited by Molinari, Santangeli Valenzani, Spera 2015, that concentrates on Rome.
8 Zanini 2006.
Over the last dozen years or so I have been excavating the remains of a later 7th to early 9th century village in the heel of Italy, at Supersano in southern Puglia, in what was then Byzantine territory. Alongside the recovery of about 7,500 fragments of pottery, all made locally, we found only one fragment of imported pottery, a residual piece of North African Red Slip Ware, possibly part of an heirloom, one glass beaker probably from northern Italy and a few fragments of imported volcanic rotary querns apparently from the island of Melos. In sum, long-distance imports at the site were all but absent, and those very few found seem to represent either rare status objects (the glass), or irreplaceable necessities.

In quite stark contrast to these finds are the plethora of objects that come from the many urban and rural contexts dated to the 5th and 6th centuries that have

---

11 In this essay I will regard exchange as being local (<50 km/1-day travel), regional or interregional, as has recently been defined by Morrisson 2012, 4–5.
12 Uboldi 2009.
13 Arthur 2011.
been excavated throughout the Mediterranean and beyond (Fig. 3). These late antique sites are almost invariably characterised by abundant imported table-wares and amphorae from North Africa and the East, including Greece, Turkey and the Levant, bronze coins struck at a range of mints, and glass and other artefacts fashioned at a number of, often unidentified, places. The differences between these earlier sites and Supersano is both in the quantity and in the quality of imported goods, with the former witnessing their position within a context of extensive and long-distance trade, and the latter implying substantial self-sufficiency, with negligible trade and external contact. The abundant pottery at Supersano, nonetheless, was still turned on the wheel by professional, perhaps part-time, local potters, likely working mainly within a radius of about 15 km from the site, and possibly exchanged for the fruits of the earth. At the same time, in extreme cases, such as in parts of Greece and on the island of Cyprus, some people even relied on hand-made ceramics, perhaps produced at a household level, although there is no reason to suppose that they too did not appear in local markets as well.14

Fig. 3: The impressive quantity of 6th and 7th century finds, mainly imported ceramics, from the Crypta Balbi, Rome (courtesy Mirella Serlorenzi).

Before examining the changing geography of artefact production, it is worth recalling conditions or regulatory factors necessary for artefact production, which I believe may be summarised as:

1. Demand for basics and commodities;
2. Availability of raw materials. Of course, some raw materials were transported afar (e.g. metals, glass);
3. Availability of labour and technological (and, at times, artistic) ability.
4. Availability of markets;
5. Availability of transport infrastructures and communication networks.

Whilst not being possible to gauge the respective influences of these factors in the processes of change, it is undeniably their decline in scale, triggered by the political and environmental changes of Late Antiquity, that led to the changing geography of artefact production and distribution. The varying crises of Late Antiquity led to a flagging population, with diminishing resources and capital, that led to a fall in supply and demand, both in quantity and in quality of basics and commodities. Furthermore, weakening State expenditure, with redirection of many resources to the army and the administration, curtailed investment in the upkeep of a large number of infrastructures and communications.

The early part of this time period is tolerably well known and for which there are abundant studies on artefact production throughout the Mediterranean world and beyond, both as regards what were probably perceived of as daily necessities, and what may be considered to have been luxury items. Indeed, such had been the scale of production and consumption in Late Antiquity that Anthea Harris\(^{15}\) has referred to the period as one of incipient globalization, viewing the Mediterranean and Eurasian world as a form of commonwealth.

After the end of antiquity State regulation and control seems to have become ever more rigorous in an attempt at survival, although market forces did persist which, according to Laiou and Morrisson,\(^{16}\) helped the Byzantine Empire not only to survive, but also to grow after the crises of the 6th to 8th centuries. Indeed, as archaeology progresses, one can now begin to discern the existence of various exchange mechanisms that reflect the diversity of consumers, needs and corresponding productions or goods.

On a scale of production we may first of all recognize the high quality manufacture of artefacts for the Imperial court and for important functionaries that included items for use and items for gift exchange, which latter may substantially be equated with diplomacy.\(^{17}\) Wealthy landowners will have had access to some such products, although control in the production of important gold and silver metalwork, ivories

---

15 Harris 2007.
16 Laiou/Morrisson 2007, especially 89.
17 Baldini Lippolis 1999, 235.
and silk was largely in the hands of the State. Thus, a large part of the production was centred on Constantinople itself, or in areas where the Empire had access to primary resources. The manufacture of luxury products together with those essential to the State, was controlled or carried out in Imperial workshops (the *ergodosia*), some of which were located near the Imperial palace in Constantinople (Fig. 4).\(^{18}\) All this relied upon the importation of small precious and semi-precious stones, pearls, ivory, some cloths, woods, metals and other materials, as well as on re-use.\(^{19}\) The studies of Marlia Mundell Mango have enlightened us on some of these aspects of production, particularly for silver plate, thankfully often bearing control stamps, which would have been produced either from reworking aged items, or working silver from quarries.\(^{20}\) Workshops

*Fig. 4:* Silver dish manufactured in Constantinople and dated by its control mark to A.D. 628–9, during the reign of Emperor Heraclius (The Metropolitan Museum of Art, New York).

---

\(^{18}\) Oikonomides 2002, 993.

\(^{19}\) Imported gemstones: Drauschke 2010. On luxury manufacture in general see the volume Entwistle/Adams 2010.

\(^{20}\) Mundell Mango 2009.
included sites in Cilician Turkey, an area repeatedly contested with the Arabs, but also Rome, Tarsus and Antioch.\textsuperscript{21} Until the Arab invasions, goldsmiths are attested at Nessana in Palestine and Aphrodisias in Egypt,\textsuperscript{22} probably for the minor productions of jewellery, and there must have been countless others, especially for less costly products. Top-end luxury goods will often have been objects of patronage, either through the control of specialised artisans or through commandeering. In such cases, there must often have been direct contact between client and craftsman.

Aside from court manufacture, Byzantium also needed to produce items that served the various arms of the State, including the army (largely for defence) and the public administration. Thus, to the list of things mentioned above we should add clothes made of various textiles, leather items, weapons and armour, cooking and eating utensils, things that during the later Empire were made across the lands and redistributed through a complex logistic machinery.\textsuperscript{23} Given the heterogeneous nature of the Byzantine forces, some weapons and other items may, perhaps at times, have been manufactured even outside of the Empire’s boundaries. As the decades passed, an even more significant part of this strictly regulated production must have also occurred at Constantinople itself, although various other cities and towns certainly continued to take part so as to be nearer to the consumers, as the arms for the majority of the forces were provided for by provincial or thematic administration.\textsuperscript{24} The Byzantine historian Angeliki Laiou claimed that “most of the early Byzantine workshops for arms, dyeing and weaving which provided arms for the army and the court all over the Empire disappeared in the 7th century crisis”, with production of important armaments being relocated at a few major centres.\textsuperscript{25} A significant archaeological site as regard’s official manufacture is that recently excavated at Hadrian’s Athenaeum near the Capitoline in Rome, which served for the production of various metal items between the late 6th and beginning of the 8th century, and may also have been linked to the Imperial mint.\textsuperscript{26}

Some of the most frequent Byzantine objects found in excavations are bronze buckles, which have been made the object of numerous studies. Some types have a surprisingly extensive distribution. The so-called Corinth-type buckle (Fig. 5), for instance, datable in and around the 7th century,\textsuperscript{27} is to be found within and without the Byzantine Empire, from southern Spain to the Crimean peninsula. It is very difficult to imagine a single workshop for the manufacture of such a ubiquitous object, although one might hypothesize that it was produced for Byzantine officials or troops at

\textsuperscript{21} Mundell Mango 2009, 222.
\textsuperscript{22} Jones 1964, 847.
\textsuperscript{23} On the late Roman arms factories we may consult James 1988.
\textsuperscript{24} Haldon 2002, especially 72.
\textsuperscript{25} Laiou/Morrisson 2007, 74. On the earlier, late Roman, arms factories see James 1988.
\textsuperscript{26} La Salvia 2015.
\textsuperscript{27} Riemer 2000; Schulze-Dörrlamm 2009, 19–26.
various centres. The fact that it is sometimes found outside of the Empire, and even in female burials,\textsuperscript{28} might not be too surprising if we consider the mercenaries that worked within the Byzantine army. Another widely distributed buckle is the D-type, which concentration in Sicily suggests that it may have been produced on the island.\textsuperscript{29}

Indeed, Sicily was probably one of the major centres of artefact manufacture and, more specifically, the town of Syracuse, that archaeology suggests was a major producer of goods in early Byzantine times. Such was its strategic importance that Syracuse had even been considered as a potential alternative to Constantinople as capital of the Empire by Emperor Constans II, even if it turned-out to be site of his assassination in 668. The island was a significant centre of agricultural production from Justinianic times into the 9th century, as well as being the site of two imperial mints at Catania and Syracuse, the latter from whose bronze (and a certain amount of gold) coins circulated in the Balkans and Black Sea as late as the 8th century.\textsuperscript{30}

The numerous objects studied by Paolo Orsi,\textsuperscript{31} and the wealthy corpus recently compiled by Suzanne Metaxas,\textsuperscript{32} display an abundance of 6th, 7th and 8th century Byzantine material from the island. To the list of metal brooches, buckles, rings, earrings, and encolpia, which often find close parallels in other parts of the Byzantine world, we may perhaps add larger metal items such as the so-called “Coptic” bronze hanging bowls, that have a large distribution both within and outside the boundaries of the Empire,\textsuperscript{33} as well as bronze candlesticks, perhaps for the Church.

\textsuperscript{28} Curta, 2014, 101–103.
\textsuperscript{29} Metaxas 2012.
\textsuperscript{30} Morrisson 1998; Papadopoulou 2012, 313.
\textsuperscript{31} Orsi 1942; see also Metaxas 2008.
\textsuperscript{32} Metaxas 2009.
\textsuperscript{33} Decker 2016, 169; see also Baldini/Schiaffino 2015.

Fig. 5: Corinth-type bronze fibula or belt-buckle from Puglia (Laboratory for Medieval Archaeology, University of Salento).
Indeed, in many regards, the production dependant on the Western and Eastern Churches had close parallels with State manufacture. The Roman and Greek Churches both needed to provide for their courts, both in the centres and in the peripheries (the dioceses), for administration and for diplomacy and gift exchange. It is interesting to read, for instance, of Pope Gregory the Great gifting western wood to Eulogius, Bishop of Alexandria, in 595/6 in order to build ships.\footnote{Gregory the Great, \emph{Epistulae} VII, 40.} Gregory also reprimanded Bishop Paschasius of Naples for spending an inordinate amount of his time building ships and losing 400 \textit{solidi} through his labours!\footnote{Gregory the Great, \emph{Epistulae} XIII 29.} Such craft may have been intended to market the Church’s own produce, as may be hypothesised by the appearance of George, the priest and \textit{naukleros} (ship-captain), whose name was inscribed on a bronze steelyard found on the early 7th century Yassi Ada shipwreck, off the coast of south-east Turkey.\footnote{Van Alfen 1996, 212.} Both the Eastern and Western Churches, of course, were also important agents involved in the manufacture of quotidian items, including ceramics and metalwork. For instance, small crosses in bronze, lead, steatite or bone, and reliquary crosses in bronze, which do not seem to have been for the exclusive use of members of the clergy or monastic orders, appear to have been produced at many sites which were not necessarily directly linked to religious foundations. Such crosses are extremely common across the entire Byzantine world and stone moulds for their manufacture have been found stretching from Chersonesos to Naples.\footnote{Pitarakis 2006.} Their manufacture at Carthage is, interestingly, attested by a 6th or 7th century unfinished pendant cross from a cuttlefish mould.\footnote{Eger 2010, 136–137.}

Monasteries also played a part in the production network. The most eloquent archaeological evidence for craft production in the early medieval Mediterranean comes from the excavations at the Crypta Balbi in Rome, site of the monastery of San Lorenzo in Pallacinis. The discovery of over 800 objects illustrates the production of metal and ivory items during the course of the 7th century, from common bronze buckles to composite luxury objects. The stock of materials to be reworked into objects included old Roman intaglios and gemstones (even broken), rock crystal, garnets, sapphires, emeralds, obsidian, coral and coloured glass. Of particular interest is the mix and synthesis of styles in the objects retrieved, from Romano-Byzantine to Germanic and Lombard, some with such close parallels to items in Lombard cemeteries in Italy that it is almost certain that Rome’s production was also addressed to and perhaps even commissioned by an international and not just Byzantine élite clientele.\footnote{Ricci 2001; Christie 2010.}
Early medieval monastic production is also very well illustrated by the excavations of the Benedictine monastery at San Vincenzo al Volturno which, whilst not Byzantine, but Carolingian, provides us with an idea of the productive functions of such religious centres.40

Books were also produced in ecclesiastical and monastic scriptoria. Indeed, they were widely disseminated, as is becoming ever more evident through the archaeological findings of bronze bookbinding pins and ring fasteners, in the absence of the books themselves. They are, unfortunately, rarely well dated, although an example from Salamina on Cyprus would appear to have been associated with a coin of Constans II.41 Apart from Salamina, the list of find spots includes Amorium, Rome, Ravenna, Otranto, Sicily (possibly Syracuse or its hinterland), Pliska (Bulgaria), Chersonesos, Corinth, Spetses (off the eastern Peloponnesian) and, of course, Istanbul. The papyrus pages of these books, eventually to be supplanted by parchment, would have come from the Mediterranean, and traditionally from Egypt, although Syracuse may have been an alternative, although limited, source of supply, at least until the Arabs invaded Sicily.42

Religious production did not end at manufacture by the Church itself. External craftsmen will have worked for the Church, either as specialists, for sculpture, painting, and other tasks, or as labourers. Many smaller religious items such as pectoral crosses and pilgrim flasks (Fig. 6),43 for instance, or items with religious connotations, such as lamps, or ceramics that often bore crosses, were undoubtedly manufactured by independent artisans.44

Large-scale manufacture of objects for public use still continued after the demise of the Western Roman Empire, perhaps until the later 6th century in the West and the later 7th century in the East. As Arnold Jones has shown, a 6th-century tax list of the large village of Aphrodito in Egypt lists many minor producers, including linen-weavers, wool-weavers, a dyer and fullers, tailors, shoemakers, a potter, three carpenters, two boat builders, coppersmiths, and five goldsmiths.45

Gradually, however, during the course of the 6th and 7th centuries, there was both a quantitative and a qualitative scaled-down continuity in professional production, that was evermore restricted to the centres of population where there was still sufficient demand and spending capability. It was thus generally only relatively large centres that could guarantee the manufacture of goods, whilst there must have been a lack of easily available commodities for a substantial part of the population, living

40 Hodges/Leppard 2011.
41 Metaxas 2009, 212–3; See also Lightfoot 2014.
42 “Of necessity imported from Egypt” according to McCormick 2001, 633.
44 Caseau 2014.
45 Jones 1964, 847; see also Mundell Mango 2009, 7.
afar from the few “large” urban centres and markets.46 This can be seen particularly through the study of ceramics, the most common and researched manufactured product. After the disappearance of the red-slipped wares in North Africa, Cyprus and Anatolia, by far the largest amount of professional fine and table wares was made to supply Constantinople, possibly in kilns on the nearby Sea of Marmara. However, even the output of places such as Rome, Naples or Gortyn on the island of Crete, was of better technical and artistic quality than ceramics produced in many other locations, thus witnessing a general decline in production. The recently-discovered kiln complex at Philosophiana in Sicily illustrates the ceramics that were available to what was possibly a relatively large local population in the 8th and first half of the 9th century.47 According to the excavators, the site, originally 21 hectares in dimension, had shrunk to some 10 hectares by the early Middle Ages. Few other kiln sites have been excavated, including one at Misenum,48 close to the important centre of Naples, and one at Otranto, the major port-city and network node that united the Byzantine East with the Byzantine West.49

**Fig. 6:** Pilgrim flask from the sanctuary of St. Menas in Egypt, depicting the saint between two camels. Circa 7th century. (The Metropolitan Museum of Art, New York).

46 Of course, it was not just a matter of being able to afford goods but also of being able to carry them home and, in a non-monetized economy, of being able to transport exchangeable surplus to the marketplace.
47 Vaccaro/La Torre 2015.
48 De Rossi 2015.
Despite the appearance of some hand-made pottery on Cyprus during the course of the 8th century or later, many ceramics found by archaeologists there continue to reveal “a confident use of technology, traditional manufacturing techniques, and skilled workmanship” particularly from the well-known Dhiorius kilns, that eventually also benefitted from the importation of Islamic technology.\textsuperscript{50} Indeed, as has often been remarked, in contrast to Byzantine territories, both ceramics\textsuperscript{51} and other cultural products developed in eastern Mediterranean Islamic areas,\textsuperscript{52} illustrating a shift of the economic balance within the Middle Sea. Cyprus, nonetheless, also appears to have been one of the last areas to have manufactured and exported red-slip tablewares, well into the 8th century.\textsuperscript{53}

Chris Lightfoot, in his studies of the town of Amorium in Asia Minor,\textsuperscript{54} remarked upon the gradual disappearance of mould-made lamps in the Byzantine world during the 7th century, followed by the disappearance of almost all ceramic oil lamps. They were presumably substituted by alternative forms of lighting, particularly candles, perhaps because of rising costs of olive-oil. Besides Constantinople,\textsuperscript{55} mould-made lamps were still being made into the 8th century in the Levant, where the Arabs may have ensured production after the end of Byzantine domination,\textsuperscript{56} as well as in the western Byzantine centres of Rome,\textsuperscript{57} at Misenum, near Naples\textsuperscript{58} and on the island of Sicily (Syracuse) (Fig. 7). Conversely, in 8th century Otranto they were being manufactured by hand.

One of the few innovations in pottery production during the 8th century was the spread of lead glazed ceramic manufacture, again probably stimulated by production and consumption at Constantinople. Alongside the capital, Rome, Naples, Sicily, Ravenna, Otranto and, significantly, various places in Asia Minor produced glazed wares, which often included the chafing-dish, a very cultural-specific cooking vessel that perhaps circulated along with new Byzantine eating habits influenced by Middle Eastern cooking.\textsuperscript{59}

Glass, instead, seems to have become scarcer after the 6th century. Its production was largely a two-fold process involving, firstly, the preparation of raw glass in primary kilns, and secondly the manufacture of glass items, often elsewhere and sometimes very far from the primary production. Slabs or ingots of raw glass were made in areas like northern Egypt and the Levantine coast, where quartz sands and natron were in

\begin{itemize}
\item \textsuperscript{50} Zavagno 2017, 168–169.
\item \textsuperscript{51} E.g. Vroom 2009.
\item \textsuperscript{52} E.g. Evans 2015.
\item \textsuperscript{53} Armstrong 2006.
\item \textsuperscript{54} Lightfoot 2007, 285.
\item \textsuperscript{55} Hayes 1992.
\item \textsuperscript{56} Hadad 2002.
\item \textsuperscript{57} Romei 2004 291–292.
\item \textsuperscript{58} De Rossi et al. 2010, 495.
\item \textsuperscript{59} Cacciaguerra 2009; Vroom 2012, 364–367; Vassiliou 2016.
\end{itemize}
good supply, although a few other less significant areas are known.\textsuperscript{60} These slabs were exported around the Mediterranean to secondary manufacturing centres, where they were used to manufacture glass objects. In the absence of imported glass slabs, recycled glass or cullet was often used in the production of glass objects. In Late Antiquity there must have been myriad secondary workshops,\textsuperscript{61} including centres such as Ravenna’s port of Classe,\textsuperscript{62} Thessaloniki\textsuperscript{63} and Labraunda,\textsuperscript{64} to cite just a few. Higher quality items were the monopoly of a few specialised workshops located traditionally in the East, in Syria, the Levant and Alexandria,\textsuperscript{65} close to the supplies of suitable sand and natron, as well as in the Rhineland, centred on Köln.\textsuperscript{66}

With the loss of Egypt and the Levant to the Arabs during the 7th and 8th centuries, the centralised preparation of natron glass ingots appears to have come to an end. From about the 6th century a new glass appears in the Mediterranean, based on soda-ash instead of natron, and much more reliance seems also to have been made of recycled waste glass, which often combined waste from both natron and soda-ash based glass.\textsuperscript{67} Nonetheless, in late 8th century Butrint, in Albania, wine glasses were made from raw chunks of glass apparently imported mainly from

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{Fig7.jpg}
\caption{Seventh and eighth-century pottery lamps from Sicily (The British Museum, London).}
\end{figure}

\textsuperscript{60} Neri 2016, 28–31.
\textsuperscript{61} Putzeys/Lavan 2007, 85–93.
\textsuperscript{62} Augenti 2011, 26–27.
\textsuperscript{63} Antonaras 2014; 2016.
\textsuperscript{64} Schibille 2017.
\textsuperscript{65} Rodziewicz 2009.
\textsuperscript{66} In general see Keller/Price/Jackson 2014.
\textsuperscript{67} Neri 2016, 31.
the south-eastern Mediterranean. The authors note that “together with the scarcity of supply, glass appears to have been used increasingly for small utilitarian vessels of limited function”. Similarly, writing about Athens, Stern commented that glass vessels appear “to have become increasingly rare in the 7th century”.

In the early 1960’s Polish archaeologists excavating on the island of Torcello made the extraordinary find of a workshop for glass vessels and mosaic tesserae, now dated to the 9th century, perhaps heralding the industry for which the Venetian lagoon was soon to become renowned.

The relatively scarcity of glass objects after the 7th century, nonetheless, suggests a decline in the number of production sites and their concentration in fewer significant centres. However, given its ease of manufacture, many basic objects may have been manufactured by itinerant craftsmen who moved around the country, producing items on demand by making use of broken glass. Itinerant glass workers are attested in documentary sources in Anglo-Saxon England.

Itinerants artisans probably also produced metal objects that, aside from jewellery or pectoral crosses, have received relatively little attention. Many articles are likely to have been produced in small workshops annexed to shops for immediate retail, as appears to have been the case of metalware, and possibly glass and jewellery at Sardis in Turkey, before destruction in the early 7th century. Later, retail workshops such as those at Sardis, may have largely become unsustainable outside of major population centres. Apart from the important workshops at the Crypta Balbi in Rome (Fig. 8), the iron and bronze-working atelier recently discovered at Piazza Bovio in Naples, dating to the later 6th and early 7th century, may be of particular significance, as it appears closely related to the port, and suggests manufacture not solely for local consumption.

The evidence for metalworking on the sites of old Roman villas after the 6th century, including that of Faragola in northern Apulia, may appear rather curious. It might perhaps be explained in the contexts of both the reuse of material and the presence of itinerant craftsmen. Despite the paucity of evidence, it would seem that, at least into the 7th century in Italy, a certain amount of itinerant craftsmanship occurred. This could be suggested by the mould for crescent-shaped earrings found at the small

68 Jennings/Stark 2013.
69 See also Jennings 2010, 234.
70 Stern 2012, 58.
71 Bayley 2000.
72 Pitarakis 2006.
73 See now Böhlendorf-Arslan/Ricci 2012.
74 Foss 1976, 16.
75 Sogliani 2010.
76 Volpe et al. 2012.
77 Castrorau Barba 2017.
agro-town of Ruvo di Puglia, although it may date to the 10th century when demand, production and commerce was on the increase. Indeed, by the 10th century, blacksmiths seem to become more common in villages in Byzantine southern Italy. Such rural blacksmiths may first have been largely an itinerant category during the 7th and 8th centuries, to finally settle-down during the course of the 9th and 10th, with increase in demand for metalwork.

The manufacture of some objects would appear to have been geared substantially so as to assist the people in producing and distributing agricultural goods, often for the benefit of the State, whether through supply or taxation. Lava millstones may be telling. Good quality rotary querns, an advantage for the efficient production of flour and bread, were manufactured near sources of suitable volcanic rock. Perhaps the largest manufacturer was the island of Melos in the Aegean, although with the lack of publication and analysis of such objects in the Mediterranean, we may just be seeing the tip of an iceberg that may one day prove to be as impressive as the distribution of similar volcanic rotary querns in northern Europe. Known

---

79 Arthur 2011.
80 Pohl 2011.
find-sites include Chersonesos on the northern Black Sea, Butrint in Albania and south-east Italy. Other rotary querns were made around Mt. Etna, in Sicily and, possibly, close to Naples, at Roccamonfina in northern Campania.81

Around the same time as Melian quernstones may began to have been distributed across the Byzantine Empire, we may perhaps place the appearance of what is now generally known as the “globular amphora”. The standardised ceramic form appeared towards the end of the 7th century and lasted until the 9th, supplanting the many earlier and quite varied commercial amphora types (Fig. 9). Globular amphorae for wine, and perhaps also for olive-oil, were made in the Crimea, in the Meander Valley, on Kos, on Crete, near Naples, on Sicily, at Otranto, and, surely, in various other places. Although their study is still in its infancy,82 it is interesting to see how, on the island of Sicily, their distribution indicates a pattern of differential supply, with Tyrrenhian globular amphorae appearing mainly in western Sicily and “Aegean” globular amphorae appearing largely in the eastern half of the island.83 Even though the emergence of the form might simply respond to greater efficiency in production and transportation, its great standardisation across the Empire

Fig. 9: Globular amphorae and kiln sites (grey stars) across and beyond the Mediterranean (Laboratory for Medieval Archaeology, University of Salento).

81 E.g. Soricelli/Grifa/Morra 2012.
82 See the papers in Gelichi/Molinari 2018.
83 Arcifa/Longo 2015.
suggests that the manufacture and exchange of such vessels was strongly regulated by the Byzantine State, intent on controlling the production, supply and taxation of agricultural produce.  

Reworking of broken or discarded objects in metals, glass and stone, also became increasingly commonplace through Late Antiquity and the early Middle Ages, and there even appear to have been specialists in the recycling of materials, particularly in major centres such as Rome. The small 10th century(?) hoard from Beycesultan in Anatolia, interpreted as belonging to a “metal merchant’s store”, with its mix of broken early and mid-Byzantine bronzes, not only suggests collection of old objects for reuse, but also the longevity of use of individual items.

At the very lowest end of the production scale, after the mid 6th century, there was probably an increase in household or community production of basic necessities, both qualitatively and technologically of simple manufacture, which nonetheless served their purpose. This has been suggested for some of the hand-made ceramics found in parts of Greece. In contexts of self-sufficiency, perhaps many such items did not even reach the marketplace, to be used by their producers or to be locally bartered. Returning to Supersano in Apulia, I wonder if the bone implements, probably used in the production of linen, or the wooden objects discovered, ever reached a market, although the oak cup does presuppose the use of a lathe, which was likely a professional tool.

With the abundant archaeological evidence now available, I take the view that a significant part of the ancient Roman economy was non-agricultural and based on exchange and market forces (Diocletian’s price edict appears to support this), although essentially permitted by substantial agricultural productivity and surplus. Furthermore, I also think that the difficulties that came to the fore in the period under study in this paper weighed evermore in the favour of greater emphasis on agricultural production and controlled distribution, ever further accentuated as both population and surplus diminished across the Byzantine Mediterranean. The State, the Church and other landlords regulated much of the production and distribution of both luxury goods and staples, and it was perhaps the albeit restricted and directed movement in bulk of agricultural goods that still largely encouraged the manufacture and trade in selected artefacts. Thus, the continuity of craft
production, based primarily on sufficient demand, would have benefitted, if not actually been promoted, by being located at a node on an exchange network. Until the 7th century, the enormous distribution of African and eastern red-slipped tablewares was made possible by the traffic in African oil and grain, which relied on a strong transport network (ports, infrastructures, ships and people). When the latter failed, so did the former. Through Late Antiquity, as the ancient Roman world broke apart and population declined, so did the scale of communications and exchange across the Mediterranean and beyond.

Dramatic change appeared earlier in most of the West (but perhaps later in North Africa and Sicily) than in the East, where there was a greater measure of political or social continuity and financial security. Nonetheless, by the mid 7th century, even in the Byzantine heartlands of the East there was a “severe dislocation of those mechanisms that sustained such specialized industries and commercial activities”. 89 There was, to use the words of Bryan Ward Perkins, 90 a lower level of economic complexity.

A large part of North Africa, France, the Spanish peninsula and Italy had already succumbed to invading population groups from northern Europe and the Ukraine by the 6th century. Although some of these territories were retaken by the Emperor Justinian, much of Italy was once again lost with the arrival of the Lombards in 568, whilst the Balkans succumbed to the Slavs around the same time, and the entire Levant and the Maghreb were finally lost to Arab expansion during the course of the 7th century. One immediate consequence of these invasions was, clearly, the loss of certain key areas for the extraction of raw materials which, above all, concerned fundamental metals for the State. Indeed, it is not difficult to imagine a substantial decline in mining and metalwork in the dropping levels of windborne lead and copper particles during Late Antiquity that are evident in the atmospheric pollution documented by scientists through Greenland ice-cores and Swiss peat bogs. 91

The subsequent decrease in the quantity of long-distance exchange during the course of the 6th and 7th centuries led to a substantial reorganisation and relocation of manufacturing activity, although within a context of reduced demand by the Byzantine institutions and populace, abetted by severely diminished urban populations. Less dramatic than has been advocated in the past, connectivity (to use the Horden and Purcell keyword 92) appears to have become far more cellular, being favoured through a series of relatively small, but nonetheless interlocked, communication

89 Lightfoot 2007, 272.
90 Ward-Perkins 2005, 118.
91 McCormick 2001, 53. Rather than being contradicted, this is nuanced by the evidence for environmental pollution during the Roman/Byzantine period in Egypt and the Levant: Mundell Mango 2009, 221. For Spain see Kylander et al. 2005. See also the cautionary words of Scheidel 2009, concerning the use and interpretation of archaeological data.
92 Horden/Purcell 2000.
and trade networks that probably permitted greater regional, than interregional, exchange.\textsuperscript{93} The networks seem mainly to have been centred on coastal and island nodes, as Byzantium became a thalassocracy, with far less contact with most interior regions as overland connectivity waned. This is not to say that such or similar exchange networks did not exist in Roman times, but that they are not as evident today, concealed by the considerable interregional exchange exemplified by the \textit{ammona} and by the free-trade of Rome, and now by the archaeological identification of ceramics and other goods from southern Spain, North Africa, the Aegean and Asia Minor and elsewhere that stocked the markets of the Empire. Naturally, as a major player in the post-antique Mediterranean, Byzantium was able to maintain an extended communication network that contained these smaller overlapping networks, leading to the possibility of a capillary distribution of a series of artefacts. Only prestige goods or those fundamental to the State, the Church and their wellbeing could be had through the extended network, channelling British silver and tin through monastic sites in Cornwall,\textsuperscript{94} for instance, or alamandine gemstones from Afghanistan through Red Sea ports, largely to be worked into precious objects at Constantinople, Carthage (until it lasted) or at few other major specialised towns.\textsuperscript{95} Such long-distance contacts may even have permitted monks in Ireland to obtain papyrus.

However, it is still a mute-point as to how much production and exchange occurred at local or regional levels in the Mediterranean, although attentive archaeology should resolve the question in the not too distant future. In contrast to the greater movement of goods in earlier times, commodities of daily and popular use were apparently manufactured wherever conditions permitted, at short distances from their consumption sites, within local and regional networks based on market sites and ports or simple harbours (even beach-front), where \textit{cabotage} could be conveniently practised.

For instance, the study of early medieval cooking ware forms has suggested the formation of a network in the lower Adriatic and the Aegean during the course of the 7th and 8th centuries, which supplanted a much larger late Roman regional ceramic style-area that had embraced much of southern Italy. Similarly, Richard Hodges has recently proposed the existence of three Adriatic-sea networks around the 8th century, based on the study of Adriatic emporia and goods.\textsuperscript{96} He also postulated an Ionian Sea network, with Syracuse towards its eastern edge, that interlocked with the lower Adriatic Sea network.\textsuperscript{97} In the eastern Aegean, Pamela Armstrong, furthermore, has suggested the existence of “an extensive trade network operating between Cyprus and the Asia Minor coast, including the islands as far as Chios, along the

\textsuperscript{93} Hodges 2012, 230–234.
\textsuperscript{94} Thomas 1988; see also Fulford 1989; Duggan 2018.
\textsuperscript{95} Roth 1980.
\textsuperscript{96} Hodges 2012.
\textsuperscript{97} For Syracuse’s long-distance contacts, see now Cacciaguerra 2018.
Levantine coast and inland into Syria, Jordan and Palestine. It will be interesting to examine how much archaeologically-attested commercial networks and historically-attested Byzantine themes overlapped in reality.

These and other networks were based on hubs, Enrico Zanini’s so-called directional centres that, by way of their political significance and role as centres of population (although we are only talking of a few hundred or thousand people at most), were also significant foci of artefact production: Antioch, Ephesus, Chersonesos, Athens, Corinth, Rome, Naples, Syracuse, Reggio Calabria, Taranto, Otranto, etc. To these should perhaps be added the emporia, apparent centres of administered trade and nodes often sited at political interfaces. The evidence for such emporia in the Mediterranean is still somewhat slight, although the argument for their existence has recently been given a certain weight by the archaeological excavations at Comacchio in the Po delta, north of Ravenna, but south of the Venetian lagoon, and its comparison to the better-known emporia of northern Europe. Sauro Gelichi has brought to light the remains of a trading site particularly active from the end of the 6th century until the beginning of the 8th century. A workshop for metal (iron and others?) and glass production functioned during the second half of the 7th, until the early 8th century. Items may have been manufactured so as to be exchanged with goods from the eastern Mediterranean that could, furthermore, be traded to inland settlements up the Po valley, many in Lombard territory. A particularly interesting bronze mould of a classicizing youth from Comacchio is closely paralleled by a glass cameo of a reliquary casket in the diocesan museum of the Lombard centre of Cividale. Comacchio was eventually a failed centre, in so far that it lasted for a short time as an emporium of political significance, giving way to the islands of Venice, located some 84 km (52 miles) to the north.

Other Byzantine emporia in which artefact production was an integral part of their activities also existed. For various, such as Amalfi, their early history is still debateable. The Campanian port-town certainly acted as an emporium, perhaps largely for the exportation of agricultural produce and wood, alongside items manufactured in Naples, although there is little evidence concerning its own artefact production in early Byzantine times, which may have included ivories, bronze-work and textiles.

Perhaps, archaeologically, the best-known emporium, however (though not as well-known as it should be amongst western scholars), is Chersonesos, on the coast of southern Crimea. It was an important Byzantine centre, which manufacturing and trading facilities even aided the development of cultures to the north, including the Scandinavian settlement and later state centred on Kyiv.

98 Armstrong 2009.
100 Hodges 2012, 282.
102 Citarella 1977; Gaglione 2014.
Artefacts professionally manufactured within the empire are generally quite recognisably Byzantine, whether produced in Constantinople or in one of the various centres scattered throughout the Mediterranean and the Black Sea. Indeed, in the case of some objects, such as belt fittings, pectoral crosses or globular amphorae, it is often very difficult to say where in the empire they were made. This relative homogeneity in material culture104 must, at the time, have helped recognition, reinforcing and, at times, even creating a sense of identity or being a part of Byzantine society, even in places like Bulgaria that politically Byzantine they were not. A sense of identity and place in communities across the Mediterranean may have helped the empire to survive the political and economic crises of the early Middle Ages.

Archaeology is now beginning to shed light on the changing geography of production between the 6th and the 8th centuries, a seminal period for the economic development of the later Middle Ages. There is clearly still much to do for the future as we hand over our research to younger generations. Production sites need to be explored and fully published, particularly those concerning the manufacture of non-ceramic commodities, and the same goes for studies of artefact distributions in and around the Mediterranean area. Indeed, from the point of view of both production and consumption some major key sites, though perhaps shadows of their former Roman selves, are hardly known. We can only hope that further enlightened excavation, buttressed by research demands, will soon take place. With the current plethora of available analytical techniques for provenance analysis, residue characterisation and manufacture, they could go a long way towards the understanding of Byzantine workshops, production and the early medieval economy and society.

**Bibliography**

**Primary Sources**


**Secondary Sources**


104 As in language, religion, food, exchange values, etc.; see the thought-provoking study by Hamilakis 2013.


Duggan, Maria. 2018. Links to Late Antiquity. Ceramic Exchange and contacts on the Atlantic Seabord in the 5th to 7th centuries AD. Oxford.


Entwistle, Christopher and Adams, Noël, eds. 2010. Intelligible Beauty, Recent research on Byzantine jewellery. London.


Sagui, Lidia Paroli, Marco Ricci, Lucia Sagui and Laura Vendittelli. Milano.


