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**XIth CONGRESS AIECM3 ON
MEDIEVAL AND MODERN PERIOD
MEDITERRANEAN CERAMICS PROCEEDINGS**

**XI. AIECM3 ULUSLARARASI
ORTA ÇAĞ VE MODERN AKDENİZ DÜNYASI
SERAMİK KONGRESİ BİLDİRİLERİ**

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DEFINING THE MAIN "MIDDLE BYZANTINE PRODUCTION" (MBP): CHANGING PERSPECTIVES IN BYZANTINE POTTERY STUDIES

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Résumé

L'exemple de la MBP - pour "main Middle Byzantine Production", ou principale production médio-byzantine - montre bien comment l'approche basée sur une définition de ces céramiques en tant que production peut changer nos perspectives. La définition de la MBP, initialement basée sur des données archéométriques, inclut également des données céramologiques "classiques". Elle correspond à plusieurs types, encore considérés indépendamment dans la littérature, dont la diffusion a été largement assurée par le commerce maritime au 12^{ème} - 13^{ème} siècles depuis les ateliers de Chalcis. Seule leur prise en compte globale - qui suppose un changement dans nos pratiques - rend compte de l'importance quantitative de cette production, même si les terminologies typologiques usuelles ont encore un rôle à jouer, notamment dans les aspects chronologiques.

Introduction

Since pioneer studies such as D. Talbot Rice's and Ch. Morgan's in the first part of the 20th century (Talbot Rice 1930; Morgan 1942), our knowledge of Byzantine pottery has gradually built on the publication of key sites for typo-chronologies, such as Saraçhane in Istanbul and Corinth (Hayes, 1992, Sanders, 1995, 1999, 2003), and on a number of sites studies throughout the Byzantine Empire and beyond. However, the study of Byzantine pottery is still based on a tradition owing more to art history than to modern archaeological methodology and has little benefitted from the latter when compared to Roman pottery or to medieval ceramics in Western Europe for instance¹.

Still, scholars became increasingly aware of the shortcomings of this approach and more attention was gradually paid to archaeological evidence, especially to those related to pottery workshops (e.g. von Wartburg, 1997; Papanikola-Bakirtzi, 1999). Archaeological science also contributed to this evolution, including extensive research carried out in Lyon since the late 1990's (e.g. Megaw and Jones, 1983; Blackman and Redford, 2005; Waksman and François, 2004-2005; Waksman and von Wartburg, 2006; Waksman

2012; Waksman, Kontogiannis, Skartsis and Vaxevanis, 2014).

The case study of the main «Middle Byzantine Production» represents, in our opinion, a good example of how the way we look at Byzantine pottery could evolve. It is building on both a definition of wares as productions, based on archaeological science, and on a «classical» one based on typo-chronology. Although the former is privileged here, the two viewpoints may be used in a complementary way, to deepen our understanding of Byzantine pottery and of the society behind it. The example presented here is not special in the methodology we would like to emphasize. But it is exceptional from an economic viewpoint. As we were able to show in recent studies (Waksman et al., 2014, 2016; Kontogiannis et al. forthcoming), it was probably the most widely traded tableware production in the 12th - 13th centuries, through maritime trade especially as was favoured by its manufacture in the Euboean harbour of Chalcis. The new terminology of main «Middle Byzantine Production» we introduced (Waksman et al. 2014) refers both to its large diffusion, and to the chronological frame it encompasses².

1 There are several exceptions, such as Corinth and Amorium for instance. The way Byzantine studies are dealt with in educational systems is probably at least partly responsible for this situation.

2 As Scott Redford recently remarked at the POMEDOR conference in Lyon, this term may seem misleading as the time span considered includes periods of both Byzantine and Frankish rule in that part of the Aegean. However, the terminology "MBP" refers to the chronological frame, in its usual sense, and not to the political

It is proposed as an alternative - or rather as a complement - to traditional terminologies based on types, which may now appear misleading (François, 2015b). This new terminology is also conceived as an incentive for ceramologists to provide quantified data according to productions as well.

Methodology: a definition initially based on the clayey material

In our methodology, we define a production as the repertoire of wares which were manufactured in a workshop, or a group of workshops, using similar clayey material. The latter combines the properties of the raw material and their possible modifications through the manufacturing process. Our definition primarily relies on laboratory analyses of the clayey material, in the case of Lyon laboratory (CNRS UMR5138) using chemical analysis by wavelength-dispersive X-ray fluorescence. With the help of multivariate statistical tools, ceramic samples which may be representative of different types, come from different sites and belong to different periods, are clustered into compositional groups according to the material they were made of (fig. 1). These compositional groups may then be interpreted in terms of productions and workshops, taking various parameters including geological, technological and analytical ones into account (Waksman 2014, 2017).

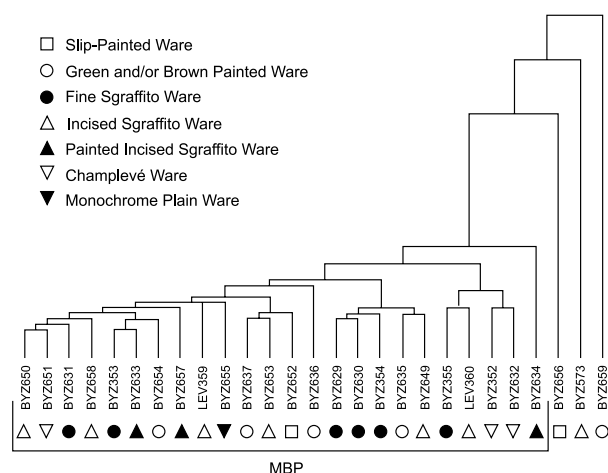


Fig. 1 Classification according to their chemical compositions of samples of different sites and types, the latter are indicated by symbols. The chemical group corresponding to the MBP is underlined (after Waksman and von Wartburg 2006).

rules, and its main point is to go beyond the initial typological/stylistical terminology. When “MBP” proves to be too confusing, alternatives such as “MAP” for “Main Medieval Aegean Production” could be proposed.

Once representative samples are clustered into compositional groups, we may define productions both by their archaeometric characteristics (in our case their chemical compositions, but also petrographic features, analytical data concerning the coatings: glazes, slips, etc.), and by the usual criteria of form, decoration, surface treatment, fabric... The latter is the most closely related to the material itself; it is also still little used in the study of Byzantine pottery (with some exceptions, e.g. Armstrong 1989; Sanders 1995). The final aim of this approach is that enough criteria are available to identify examples in the field, without the help of further laboratory analyses.

At the same time, we aim at defining productions which are both localized and contextualized. Re. the former, special attention is paid to archaeological evidence, such as pottery wasters and kiln furniture, which point out the presence of a workshop and constitute references samples for the local clayey materials. Re. the latter, analysis of pottery samples from consumption contexts enable us to study the diffusion of productions on the one hand, and to complement their definition on the other hand. Consumption contexts may significantly contribute to our knowledge of the chronology of productions, and of their typological repertoire.

In the case of the MBP, although no direct evidence of its manufacture was available, we were able to define the production (Waksman and von Wartburg 2006), to identify its origin (Waksman et al. 2014), and to propose it as one of the most widely traded production of tablewares in the 12th - 13th centuries (Waksman et al. forthcoming). We propose it here as a methodological example.

Defining the main “Middle Byzantine Production” (MBP)

Typo-chronology: a long-term and typologically composite production

Chemical analysis showed that this production encompasses a large number of types which are characterized by different decoration techniques, stylistic features and chronology (fig.1, Waksman and von Wartburg 2006; Waksman et al. 2014; for some initial clues obtained thanks to chemical analysis see Boas 1994; Doğer 2000; Blackman and Redford 2005). Figures 2 and 3 present some typical examples which we analyzed and identified as MBP. They correspond to a variety of profiles and sizes, decorations and stylistic features known in the literature as “Fine Sgraffito Ware”, “Painted Fine Sgraffito Ware”, “Incised Sgraffito Ware”, “Painted Incised Sgraffito Ware”, “Aegean

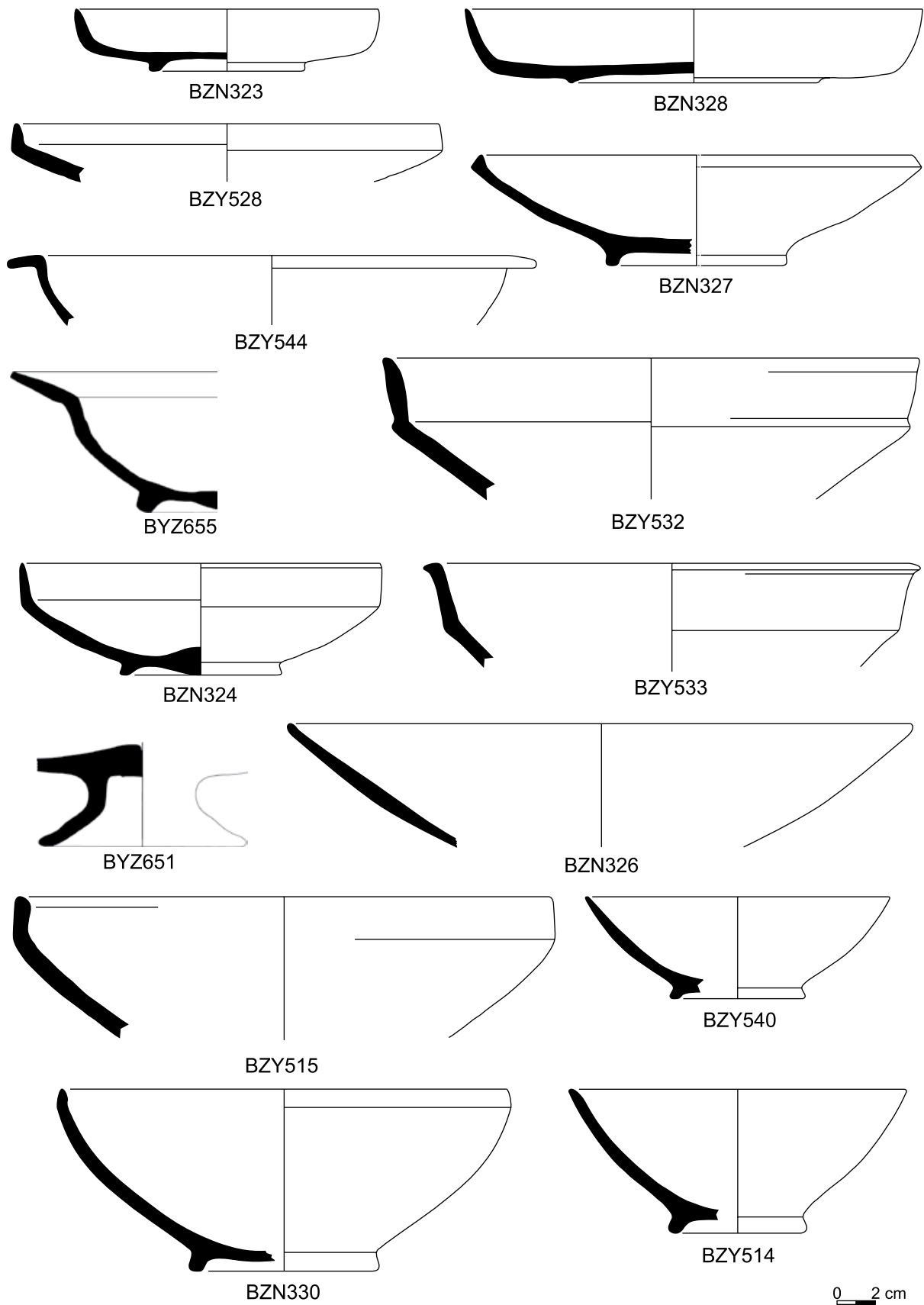


Fig. 2 Analyzed examples of MBP representative of different profiles and sizes, found in Chalcis (BZY540, BZY544), Thebes (BZY514, BZY515, BZY528, BZY532, BZY533, BZN323, BZN326), Aliveri (BZN328, BZN330), Akraifnion (BZN324), Orhomenos (BZN327), Kouklia (BYZ651) and Paphos (BYZ655) (Lyon laboratory id., drawings and layout S.Y. Waksman, DAO C. Brun and F. Notter-Truxa, except BYZ651, BYZ655 taken from Waksman and von Wartburg 2006).



Fig. 3 Analyzed examples of MBP representative of different types, found in Chalcis (BZY540, BZY544, BZY560, BZY562), Thebes (BZY514, BZY515, BZY520, BZY530, BZY534), the Kavalliani shipwreck (BZY869, BZY872), Akraifnion (BZN324), Chersonese (BYZ352) or kept in Sèvres at the “Cité de la céramique” (MNC26751, MNC24782) (Lyon laboratory or Cité de la céramique ids., photos S.Y. Waksman).

Ware”, “Champlevé Ware”, “Green and Brown Painted Ware”, “Slip-Painted Ware”, not to forget monochrome plain glazed wares (e.g. Papanikola-Bakirtzi 1999; Megaw 1975; Vroom 2005).

These typological designations are important when dealing with chronology, although shipwreck finds suggest to adopt a nuanced view (see for instance fig.3 BZY869 and BZY872 from the Kavalliani shipwreck, the former as an example of “Fine Sgraffito

Ware” being usually considered earlier than the latter “Incised Sgraffito Ware”). Only few of the analyzed samples come from contexts which are well defined chronologically³. But the chronological range of the

³ Samples BYZ651 and BYZ652 come from a closed context in the sanctuary of Aphrodite in Kouklia (Waksman and von Wartburg 2006); the Kavalliani shipwreck (Koutsouflakis and Tsompanidis presented at XIth Congress AIECM3 on Medieval and Modern

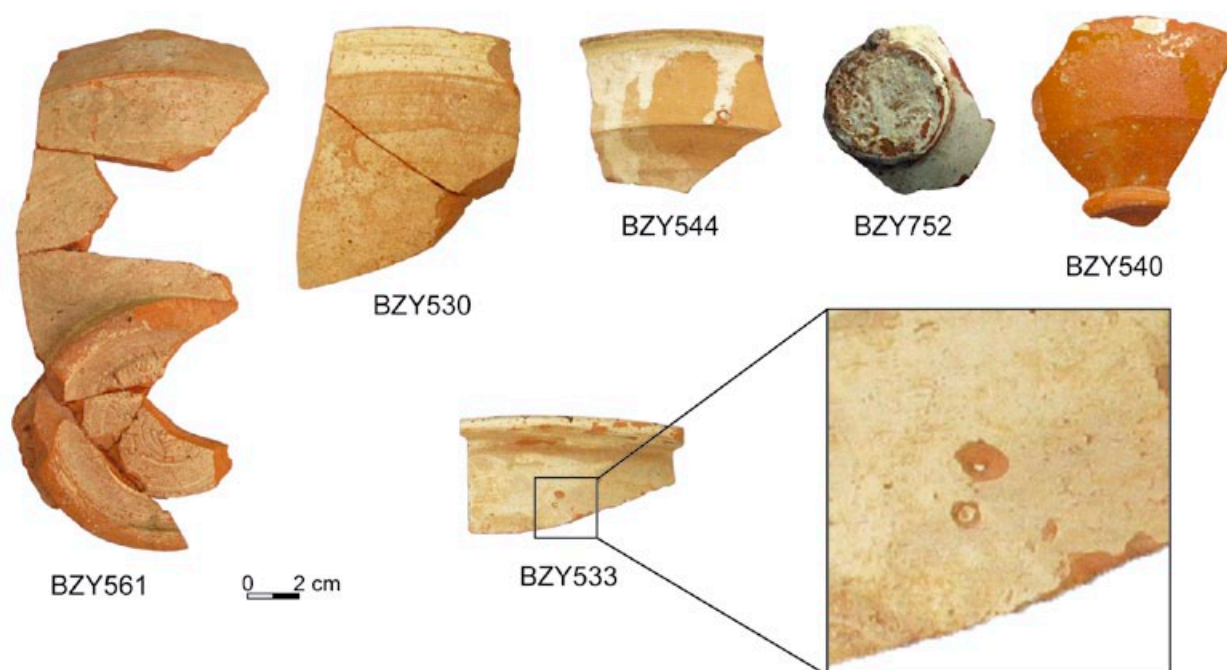


Fig. 4 Analyzed examples of MBP representative of different aspects of the external surface, found in Chalcis (BZY540, BZY544, BZY561, BZY752) and Thebes (BZY530, BZY533) (Lyon laboratory id., photos S.Y. Waksman).

MBP may be inferred from close parallels, especially with Corinth (Sanders 1995, 1999, 2003), where MBP seems to take a larger part in ceramic assemblages from the mid 12th century onwards (White, Jackson and Sanders, 2006). The latest occurrence of the MBP is dated back to the beginning of the 14th century in Kinet Höyük (Blackman and Redford 2005). In both Corinth and Kinet Höyük, chemical analyses (White et al. 2006: group D, 'Phyllite fabric'; Blackman and Redford 2005: Group 1) provided results which seem compatible⁴ with the chemical signature we defined for the MBP (table 1, Waksman and von Wartburg 2006: table 2).

Surface treatments of the external surface and fabric

Within the analyzed samples, the surface treatment of the external surface (fig. 4) typically consists of a thin clear wash, sometimes on the entire reverse including the foot. Some variants are observed, such as a thicker slip covering the upper part of the reverse, either evenly or with drips, with or without glaze. In rarer cases glaze covers the whole external surface, sometimes without an underlying slip.

	CaO	Fe ₂ O ₃	TiO ₂	K ₂ O	SiO ₂	Al ₂ O ₃	MgO	MnO	(Na ₂ O)	(P ₂ O ₅)
MBP group (n=93)										
m	5.05	7.38	0.856	3.74	58.67	19.86	2.46	0.1184	1.37	0.19
σ	0.54	0.39	0.013	0.18	1.43	0.83	0.12	0.0048	0.16	0.09
min	3.75	6.47	0.818	3.25	55.78	17.58	2.23	0.1056	0.91	0.13
max	7.55	8.29	0.884	4.15	62.46	21.53	2.89	0.1281	1.95	1.00

	Zr	Sr	Rb	Zn	Cr	Ni	(La)	Ba	V	Ce
m	177	108	150	104	150	107	38	642	136	84
σ	17	13	10	6	12	9	8	37	9	10
min	145	85	104	90	133	86	23	561	111	57
max	232	166	169	122	206	140	59	740	154	117

Table 1 Mean chemical compositions, standard deviation and range of values of a sample of c. 100 samples of MBP (samples from shipwrecks were not included). Major and minor elements in oxide weight percent, trace elements in ppm; m: mean, σ: standard deviation; n: number of samples.

The surface of the body is usually red or orange-red, which makes it easy to distinguish the MBP from related wares manufactured in Corinth and Athens having a buffer surface and fabric (Waksman and Courbe forthcoming). However, there are at least some cases, such as a few examples from the Kavalliani shipwreck, which have a clearer, buffer surface. But the fabric is the MBP one, and the analysis of one of these Kavalliani examples showed it to belong to the MBP (fig. 2: BZY872, Waksman et al. forthcoming a). Although the ceramic body of the MBP is globally low-calcareous (table 1), lime spalling is frequently observed around a few large calcite inclusions (fig. 4, zoom on BZY533), due to the rehydration of lime formed from calcite during the firing process. The

Period Mediterranean Ceramics, Antalya, October 19-24, 2015) constitutes another closed context.

4 Recent analyses in Lyon of examples from Kinet Höyük confirm their attribution to Chalcis.

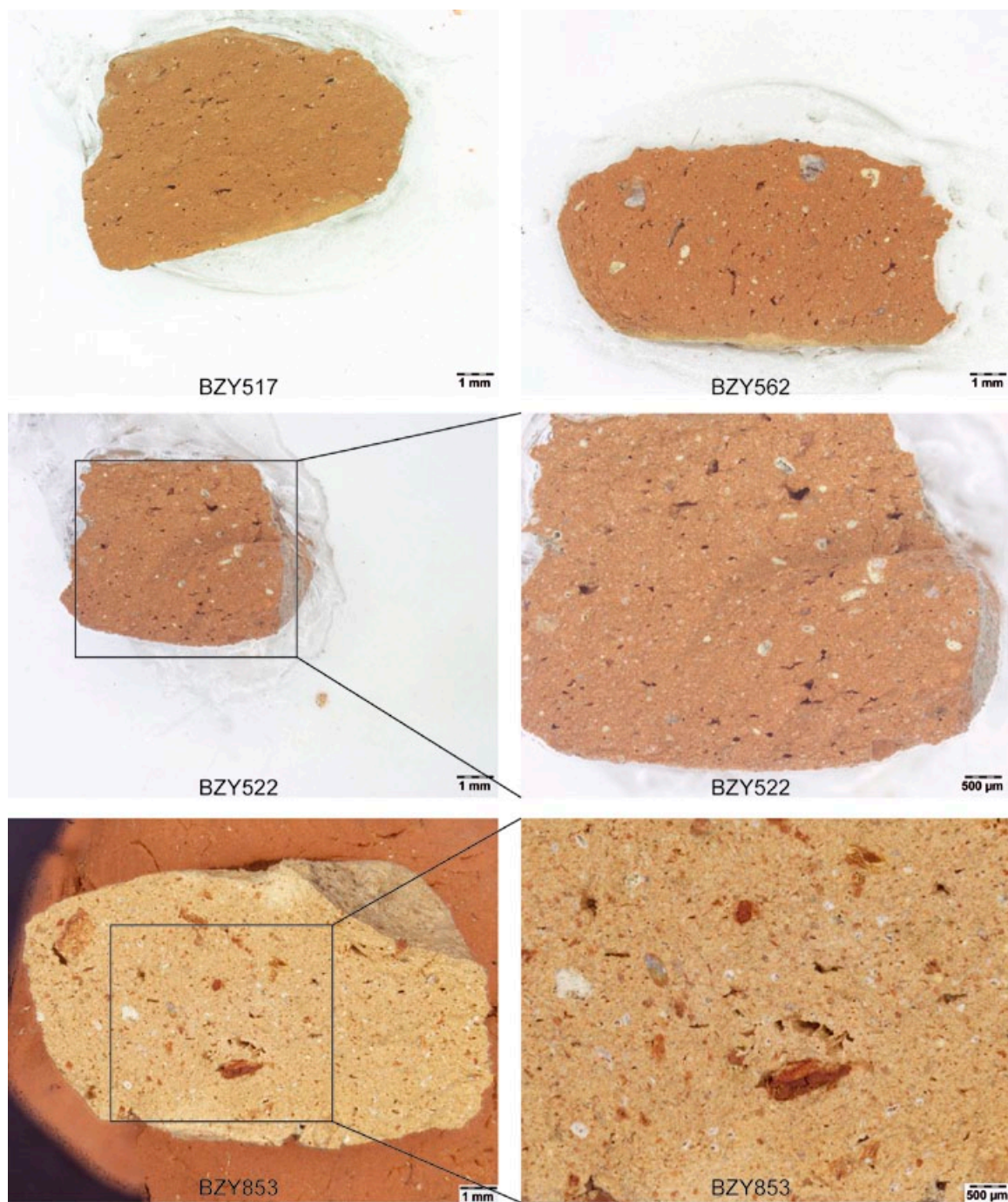


Fig. 5 Photos of fabrics taken under the binocular microscope: MBP found in Chalcis (BZY562) and Thebes (BZY517, BZY522); Athens production related to the MBP, found in Athens (BZY853) (Lyon laboratory id., photos S.Y. Waksman, L. Courbe).

rather coarse paste and careless wheel-throwing, leading to the asymmetry of several examples, point to a mass production (François, 2015a).

The fabric of the MBP has been described by several authors, including Armstrong (1989); Sanders (1995); von Wartburg (Waksman and von Wartburg 2006); Skartsis (Waksman et al. 2014). We present

here the range of fabrics described by C. Brun⁵: MBP fabric is generally red in colour, ranging from red-orange to red-brown, a range of colours usually indicative of low-calcareous pastes⁶ (Picon 2002). The fir-

⁵ We would like to thank C. Brun (CNRS UMR5138, Lyon) for her work on the MBP fabrics.

⁶ It could also correspond to low-fired calcareous ones.

ing mode is mode A as defined by Picon (2002), that is a reducing firing followed by an oxidizing cooling. The fabric is globally rather fine and compact, but the matrix is not always homogeneous and well refined, and contains variable amounts of inclusions. The latter are mostly white hollow inclusions and clear grey translucent ones. The white hollow inclusions are usually of small (less than 0.2 mm) to medium (between 0.2 and 0.5 mm) size, with some rare bigger examples, spherical to quadrangular, rounded to sub-rounded. The grey translucent inclusions are usually small, rarely big (between 0.5 and 1 mm), quadrangular, sub-rounded to angular. Rare white inclusions, medium to big, are also observed, while the presence of red or black inclusions is exceptional.

Examples of photos of fabrics taken under the binocular microscope are given figure 5. They show the variability of the fabric (compare BZY517 and BZY562), and the whitish hollow inclusions of various sizes which are usually present (see zoom, BZY522). These are however not discriminant as a stand-alone criterium, as similar inclusions are also present in the fabric of related productions manufactured in Athens, which is very different otherwise especially by their buffer (calcareous) matrix and their medium to big red inclusions (BZY853, Waksman and Courbe forthcoming).

Chemical and petrographic features, clay resources and location of the MBP workshops

Chemical analysis of MBP examples (circa 100 samples coming from 15 sites were analyzed in Lyon so far, fig. 6) shows that this production constitutes a fairly homogeneous and well defined chemical group (table 1). It corresponds to low-calcareous pastes (mean CaO c. 5%), with relatively low strontium contents (mean Sr c. 100 ppm) while baryum is consistently⁷ fairly high for such low-calcareous pastes (mean Ba c. 600 ppm). The magnesium, chromium and nickel contents (respectively c. 2.5% MgO, 150 ppm Cr and 100 ppm Ni) initially seemed to exclude Chalcis as the origin of the MBP⁸, as the city is sitting on an ultrabasic outcrop which would result in high concentrations in these elements (Geological map of Greece, Halkida sheet 2007). However, clay resources having different chemical features are present in the close vicinity, and we suggested to identify those used for the MBP to the

extensive clay beds of the Lelantine plain, about 6 km East of Chalcis (Waksman et al. 2014). They are known as a main resource for pottery and building materials at least since the Bronze Age, and were used until recently by the potters of modern Chalcis (Jones, 1986, pp. 143-145, pp. 867-868). Some chemical variability is observed⁹, which may be interpreted as natural variations occurring in a clay resource which was heavily exploited and may have been quarried in different points over the period of manufacture of the MBP.

For petrographic features, we may refer to previous work carried out by White (White et al., 2006), Shapiro (2012) and Capelli (Capelli, Richarté, Vallauri, Cabella and Parent, 2008). According to White, whose group D matches chemically the MBP, the petrographic features may be described as follows: «This is a heterogeneous fabric group [...], containing phyllites, fine-grained schists, and metamorphosed polycrystalline quartzes, chert, plagioclase and serpentinite in varying proportions and grain-size frequencies so that it ranges from rare fine inclusions in the clay micromass to frequent fine inclusions and very few poorly sorted coarse inclusions, to few coarse inclusions in the clay micromass with very rare to few fine inclusions.» (White et al. 2006: group D, "Phyllite fabric"). This description is compatible with recent archaeometric research on wares found in Eretria, on the other side of the Lelantine (or Lilas river) plain, for which the same clay resources may have been used (Charalambidou, Kiriati, Müller, Georgakopoulou, Müller Celka and Krapf, 2015, especially group FG8 which is the closest chemically to the MBP).

The precise location of the workshops of the MBP - as well as those of amphorae of types Günsenin 2 and 3 manufactured using the same clays (Waksman et al., 2016) - is still unknown, presumably somewhere between the city of Chalcis and the Lelantine plain. Rescue excavations, carried out by the Byzantine Ephorate of Chalkida, unearthed pottery kiln furniture, in the form of tripod stilts, inside and outside the city walls of Chalcis, whose chemical analysis enabled us to identify Chalcis *largo sensu* as the production place of the MBP (Waksman et al. 2014). But they may correspond to a later production, and we have at present no evidence of workshops operating on a large scale, likely to be the workshops of the MBP¹⁰.

⁷ The distribution of baryum suggests that such relatively high values for low-calcareous pastes are not related to alteration processes.

⁸ For the reasons which led us to look for the production site of the MBP in the region of Thebes or Chalcis, see Waksman et al. (2014).

⁹ In the concentrations of silicon, aluminium, potassium, iron, zirconium, rubidium, vanadium, baryum, see Waksman et al. 2014 (especially Fig.16) for a discussion of this aspect.

¹⁰ Clues of production of the MBP might have been recently identified in the city itself (G. Vaxevas, J. Vroom, pers. comm.), but we would like to wait for further information to be more affirmative.



Fig. 6 Distribution of findspots of samples of MBP analyzed in Lyon (black dots) and in other laboratories (white dots).

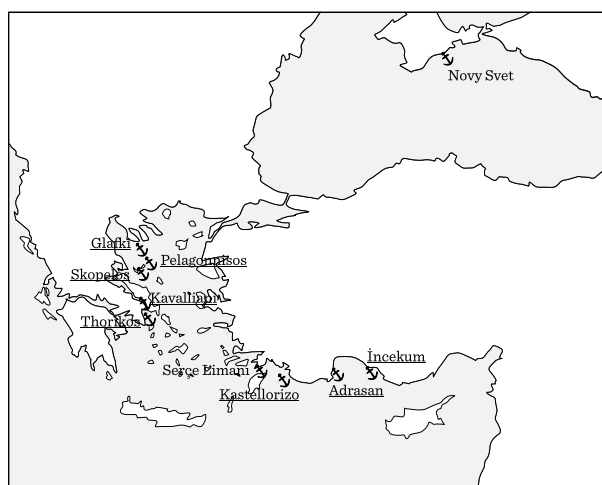


Fig. 7 Medieval shipwrecks archaeologically identified and containing significant cargoes of tablewares. Cargoes shown (Kavallaini) or expected to correspond to the MBP are underlined.

The MBP as a key pottery production in the 12th - 13th centuries

Figure 6, based on analyzed samples (Waksman and von Wartburg 2006; Waksman 2013, 2015; Waksman et al. 2014; for Israel: Boas 1994; Shapiro 2012; Kinet Höyük: Blackman and Redford 2005; Corinth: White et al. 2006; Marseille: Capelli et al. 2008), is only an incomplete reflect of the distribution of the MBP in the 12th and 13th centuries, as it is found in all major sites in the Mediterranean, especially harbours (Stern 2012). Analysis of examples from the Kavallaini shipwreck (Waksman et al. forthcoming a) supports the role of maritime trade in this wide distribution. It was favoured by its manufacture in Chalçis, the harbour of the important city of Thebes in the Byzantine period, and later on a Venetian hub under the name of Negroponte, and by the involvement of Chalçis in the trade of silk and agricultural products (Jacoby 2010, Kontogiannis et al. forthcoming).

Our results emphasize the quantitative prominence of the MBP, as they strongly suggest that among the few shipwrecks identified in the area in the 11th to 13th c. which carried significant cargoes of tablewares, the vast majority carried cargoes of MBP (fig. 7, see Waksman et al. forthcoming a for bibliography)¹¹. Other production sites including Corinth (Sanders 1999, White et al. 2006), Athens (Waksman and Courbe

forthcoming; Vroom forthcoming) and Constantinople (Waksman and von Wartburg, 2006: BYZ573, Waksman et al. forthcoming) manufactured pottery in the MBP style, but no evidence indicates that their wares were distributed on such a large scale. The shipwrecks carrying MBP cargoes seem to be concentrated near Chalçis, or on two main routes leading North to Thessaloniki and Constantinople, and East across the Aegean towards the Crusader states. The abundance of the MBP in sites like Anaia (Mercangöz, 2013), its presence in the Levant even in rural sites (Stern and Thatcher, 2009), the connections between Negroponte, Anaia and the Levant through Italian merchants known from historical sources (Jacoby, 2014), may support the latter point. Further investigations into the distribution and dating of these shipwrecks would be needed to bring insight into the evolution of MBP trade, and possibly into medieval maritime trade in general. The shipwrecks carrying amphorae also manufactured in Chalçis (types Günsenin 2 and especially Günsenin 3: Waksman et al., 2016; Morozova, Waksman, and Zelenko, forthcoming) should be taken into account in this picture, which is starting to emerge for the Aegean (Koutsouflakis forthcoming).

A consequence of the predominance of the MBP in shipwreck finds is its presence in most museums worldwide having collections of Byzantine pottery (cf. Waksman et al. forthcoming and François 2015a for bibliography), as can be confirmed for instance by examples at the “Cité de la céramique” in Sèvres (France) (fig. 3: MNC26751 and MNC24782, Bouquillon et al. forthcoming). It is likely that many of these

¹¹ See especially the contributions of Koutsouflakis and Tsompanidis, and Tsanana and Amprazogoula, in this volume. We would like to thank the organizers of the conference for bringing us to the Alanya Archaeological Museum, where the Incekum shipwreck material was shown to us.

came from looted shipwrecks¹², where whole plates are more frequently found than in terrestrial excavations. The origin of these objects, often shown in museums without any indication of context, may now be identified and re-contextualized for a larger audience.

Changing terminology, changing perspectives

The example of the MBP shows how pottery defined in terms of production may change perspectives, especially in quantitative aspects related to manufacture and trade but also in other aspects, not developed here, such as dining habits (Kontogiannis et al. forthcoming). The change in terminology, from "Fine Sgraffito Ware", "Aegean Ware" and other wares composing the MBP to main "Middle Byzantine Production" is not just a caprice motivated by the pleasure of adding another name to previous terminologies. It corresponds to a paradigmatic shift, which makes it possible to take such quantitative aspects into account. We believe that only the viewpoint based on productions may take into account the repertoire of wares manufactured and traded by a given production site, and the related fluxes of diffusion. Identifying pottery as types still too often leads to consider that they came from different production sites (e.g. Vroom 2005). Although one may consider that the "old" terminology became inoperative (François, 2015b), we do not think it should substitute to the typo-chronological one. Both terminologies may be used in a complementary way, the former giving insight into economic realities, the latter into chronological and stylistical aspects. The combination may be fruitful for an in-depth approach, provided that we clearly distinguish if we reason in terms of types or in terms of productions, or a combination of both (e.g. "Incised Sgraffito Ware" manufactured in Chalcis).

It also supposes a change in methodology. Most of the quantified data - still rare as far as Byzantine pottery is concerned - propose sherds counts according to types. To evaluate the diffusion of a given production, all the types belonging to it should theoretically be included, not forgetting monochrome glazed wares, often disregarded due to their "plain" character, but which may have represented significant quantities. Reasoning in terms of productions supposes that quantitative data are available at this level, and that we are able to separate the different productions which may be related to a given type (see also the case of the Zeuxippus-related wares, Waksman and Fran-

çois 2004-2005). In the case of the MBP, distinguishing related productions such as Corinth's, Athens', and even Istanbul's should not be too problematic¹³. But this would require that more attention is given to criteria such as fabrics; thus a change which takes its roots in our educational systems, and often a change in working practices. This represents a challenge for future research, which could certainly be met as it is common practice in Roman pottery studies for instance. But undoubtedly more work is needed to provide tools for the identification of productions - such as hands-on reference collections and online databases such as the ones we are developing in Lyon, and more time for us to adapt our practices and views.

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12 Incrustations on the external surface are clear indications of shipwreck finds.

13 For misidentified examples see e.g. Waksman and von Wartburg 2006: BYZ656, BYZ659, Shapiro 2012: 112.

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