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*a cura di Sauro Gelichi*



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## DEL NOME, DELL'USO E DELLO SPAZIO

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## THE FIRST WORKSHOP OF BYZANTINE CERAMICS DISCOVERED IN CONSTANTINOPLE/ISTANBUL: CHEMICAL CHARACTERIZATION AND PRELIMINARY TYPOLOGICAL STUDY

*Résumé:* Les premiers vestiges de production de céramiques de la capitale byzantine ont été découverts à Istanbul au cours de fouilles de sauvetage liées au projet «Marmaray». Ils ont été l'objet d'une caractérisation chimique et d'une étude préliminaire du répertoire typologique, dont une première synthèse est présentée ici. Ces recherches ouvrent de nouvelles perspectives dans l'identification des céramiques constantinopolitaines et dans l'étude de leurs aires et flux de diffusion, mais présentent également une image complexe des productions byzantines de l'époque Paléologue.

### 1. INTRODUCTION

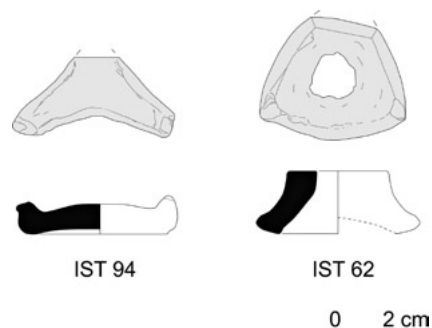
The rescue excavations carried out in Istanbul city center by the Istanbul Archaeological Museums, in the framework of the «Marmaray» infrastructure project (GÜN 2007; ISTANBUL 2010), recently unearthed the remains of one or several ceramics workshops. They are located in the district of Sirkeci, at the periphery of what used to be the main imperial and ecclesiastic complex of Constantinople.

This exceptional discovery provides, for the first time, the opportunity to study the manufacture of ceramics in Istanbul at the Byzantine period (WAKSMAN, GIRGIN 2008; WAKSMAN *et al.* 2009, 2010). Our project intended to constitute, with the help of chemical analysis, a corpus of reference data corresponding to these productions, which may help studying their diffusion. The new reference groups could also be used to test the attribution to Constantinople of several categories of ceramics. As the capital of the Byzantine empire, the city has always been considered the origin of many pottery productions, due to relative abundance and persistence of similar fabrics in the Ottoman period (“Byzantine White Ware”, HAYES 1992), or to the quality of execution and large scale of diffusion (e.g. “Zeuxippus Ware”, MEGAW 1968).

### 2. EVIDENCE OF POTTERY PRODUCTION IN THE EXCAVATIONS AT SIRKECI

Excavations have been directed by Çiğdem Girgin, then by Nihal Erhan and Suleyman Eskalen, under the supervision of İsmail Karamut and Zeynep Kızıltan, director and acting director of the Istanbul Archaeological Museums. They were carried out in four sites (access “North” and “South”, shaft “East” and “West”), corresponding to the future entrances and shafts of the subway station. In the “North” site, located inside the Sirkeci railway station, the presence of large quantities of pottery dump constitute clear evidence of production. A structure that might be interpreted as a kiln was unearthed there in 2005 (GIRGIN 2007; WAKSMAN, GIRGIN 2008: 449-450). More ambiguous evidence, including only one clear waster (sample IST 2, see *infra*), is also present in the excavation site of the Eastern shaft (sherds inventoried “BMK”, WAKSMAN, GIRGIN 2008).

Pottery dump mainly consists of tripod stilts, ceramics stuck to a tripod, and biscuit-fired pottery rejected after a first firing and before the application of the glaze. Tripod stilts are of two types (*fig. 1*, WAKSMAN *et al.* 2009, *fig. 3a*): fairly flat tripods, of a type common in Byzantine production sites from the 13<sup>th</sup> century onwards (e.g. VON WARTBURG 1997; PAPANIKOLA-BAKIRTZI 1999), and high tripods with an annular base attested in Bulgarian and northern Greek workshops in the



*fig. 1 – Examples of the two types of tripods present at Sirkeci in the same contexts (B. Tuz, Y. Montmessin, Y. Waksman).*

late Byzantine period (ZIKOS 1999, 2003). Both models are found at Sirkeci in the same contexts. Biscuit-fired sherds were slipped and usually decorated with the sgraffito or the champlévé technique. Three groups of local production were distinguished by chemical analysis (see *infra*), which correspond to very different quantities of sherds: group S2 is the dominant one, and also the one whose dating is better defined; ceramics of group S3 are much rarer, and it is not clear whether they could be contemporary with the previous group; finally, group S1 only consists of two sherds and is the only one coming from the Eastern shaft. As this “group” is so far connected to no other samples, it is not known whether it is significant.

### 3. FIRST APPROACH OF THE SIRKECI REPERTOIRE

Although our study did not intend to be a typological one, a first approach of the repertoire of the Sirkeci productions could be done, mostly based on biscuit-fired and, to a lesser extent, on overfired sherds and on ceramics identified as local by chemical analysis. Complete profiles and fragments of rims are unfortunately very rare, but some typical morphological features may be observed on bases.

Most of the finds would correspond to a production (group S2, *fig. 2*) of the late Byzantine, and more precisely Palaeologan, period, according to the dating given in the literature to motifs parallel to the Sirkeci ones: “Elaborate Incised Ware” (*fig. 2*: IST 53, 58, 84, FRANÇOIS 2003), monograms (*fig. 2*: IST 65, 81-82, 85) and birds (*fig. 2*: IST 54, 97, 102) associated up till now with the city of Thessaloniki (PAPANIKOLA-BAKIRTZI 1987, 1999).

Other motifs include geometric designs and rare human representations (*fig. 2*: IST 69, 80). Some of the simplest designs might be related to “Zeuxippus Ware” class I (MEGAW 1968) and to the “Novy Svet Ware” (*fig. 2*: IST 45, ZELENIKO 1999;

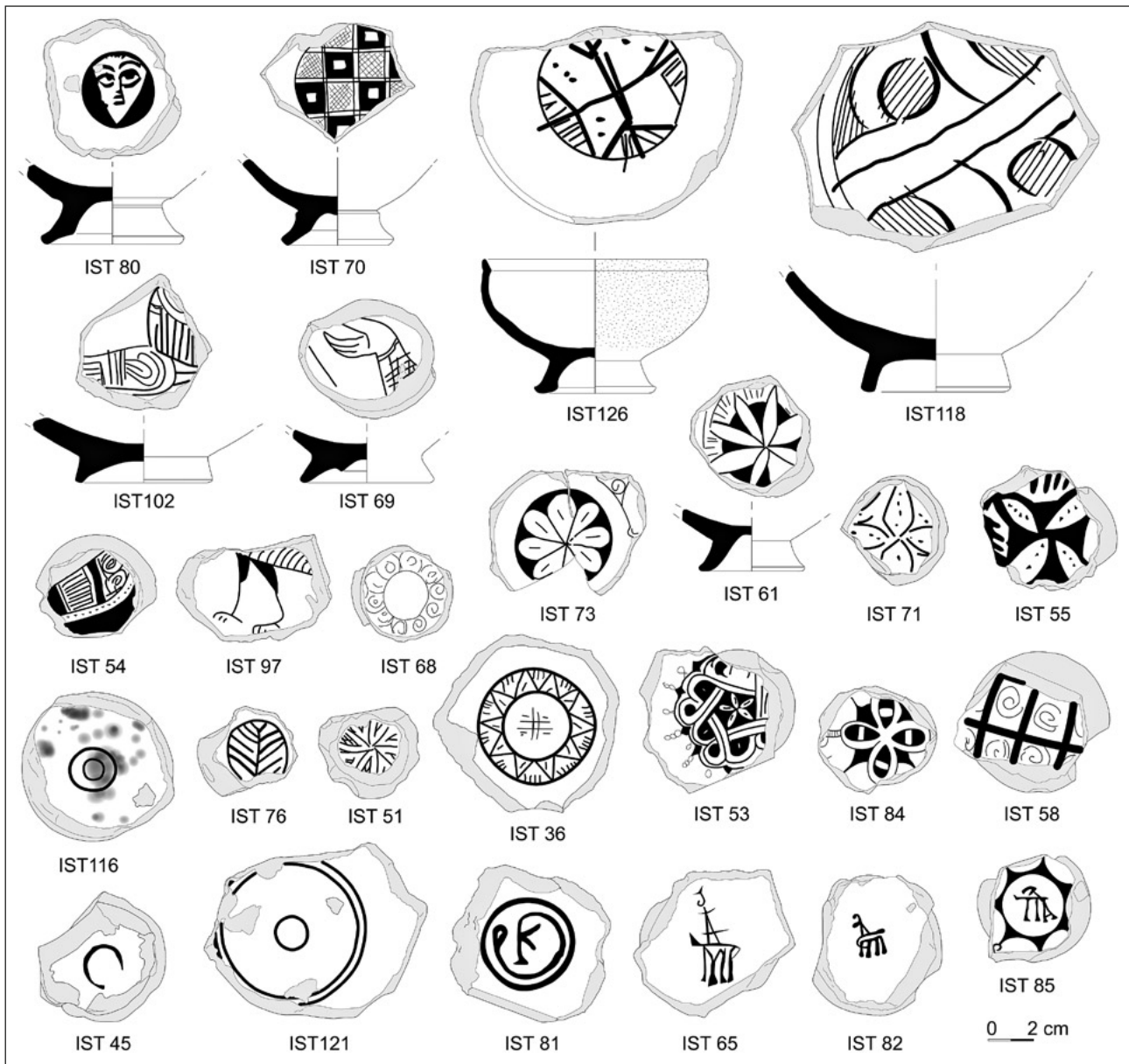


fig. 2 – Examples of forms and designs of the main production of Sirkeci (chemical group S2). Biscuit-fired sherds except for IST 80, 81, 82, 116, 121: glazed sherds; the external slip is indicated by dots on IST126 (B. Tuz, Y. Montmessin, Y. Waksman).

WAKSMAN, FRANÇOIS 2004-2005; WAKSMAN, TESLENKO 2010), while the latter production is also present – as import – in the workshop (WAKSMAN *et al.* 2009, 2010). Two feet profiles are particularly widespread in group S2, illustrated in fig. 2 by IST 69, 70 and 80 on the one hand, and by IST102 on the other hand. The latter form is widespread in late Byzantine productions (FRANÇOIS 1997; PAPANIKOLA-BAKIRTZI 1999; WAKSMAN, TESLENKO 2010). On rare examples where it is visible, the external slip and glaze stop before the foot (fig. 2: IST126), but glaze is sometimes present along the rim of the foot<sup>1</sup>. Glazes are monochrome pale yellow, yellow-brown, green or pale green with purple dots (fig. 2: IST116). As most of the ceramics considered were biscuit-fired, it is not possible to give a detailed description of the finished products<sup>2</sup>.

<sup>1</sup> Similar features are also commonly observed on «Novy Svet Ware».

<sup>2</sup> We were unfortunately not allowed to sample examples of «Elaborate Incised Ware» with bichrome glaze.

Another ware (chemical group S3, fig. 3), which presents the unusual association of the sgraffito technique with a kaolinitic paste (see *infra*), appears in much smaller quantities. It may be related to the “Westliche Sgraffitoware” (BÖHLENDORF ARSLAN 2004), and to a series of very similar ceramics found in Thasos (FRANÇOIS 1995). In the latter site they are attributed to a production of Lemnos and dated back to the 15<sup>th</sup> century. Examples from Thasos help identifying the motifs of the fragmentary Sirkeci samples, especially birds (fig. 3: IST 33, 135, 136). Feet profiles are fairly characteristic (fig. 3: IST 33, 104).

Finally, two unglazed and undecorated sherds, including a deformed piece interpreted as a waster (WAKSMAN, GIRGIN 2008, fig. 25b), constitute local group S1 (fig. 4). Their rim profile reminds of examples of “Glazed White Ware II” (HAYES 1992: 20, fig. 7.3), but their chemical composition is completely different (WAKSMAN, GIRGIN 2008; WAKSMAN forthcoming).

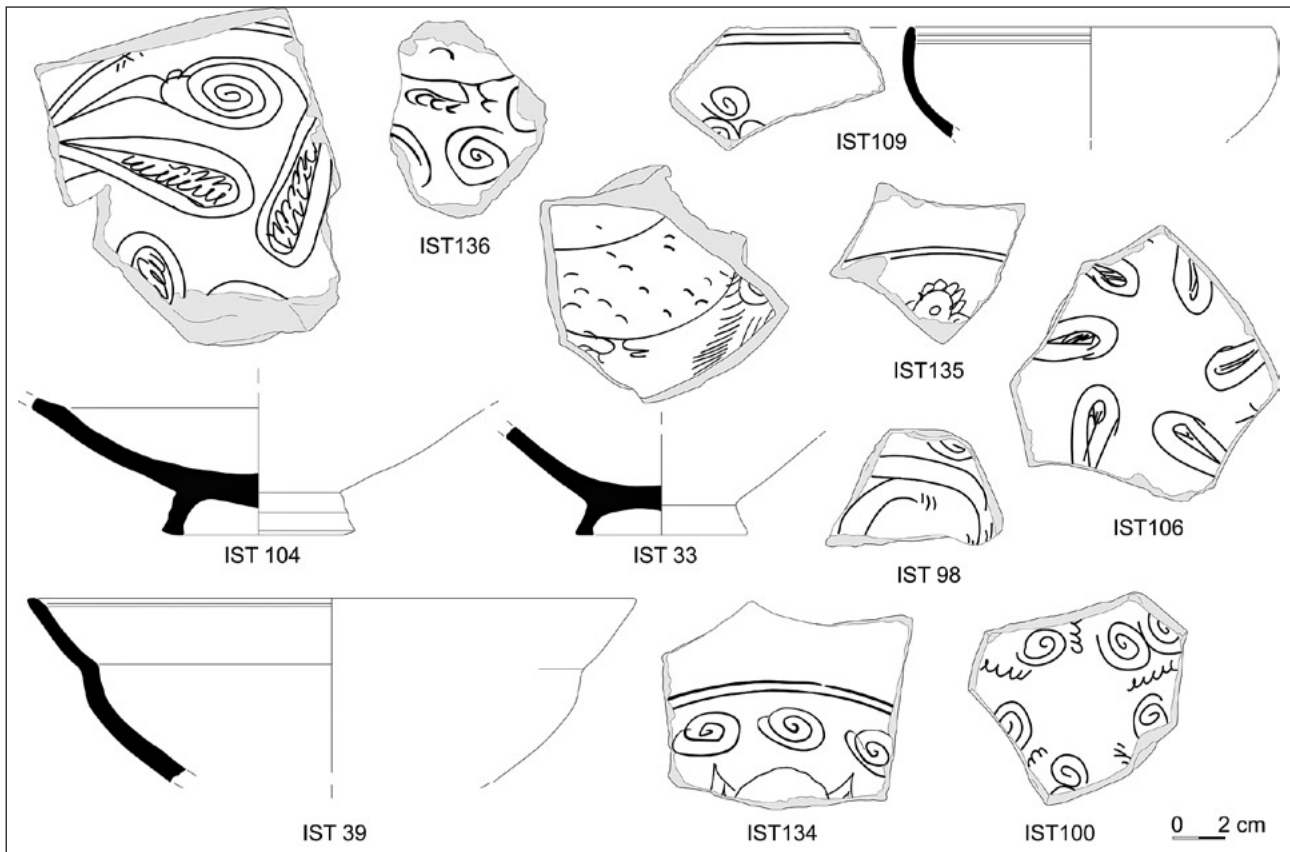


fig. 3 – Examples of forms and designs of another production of Sirkeci (chemical group S3), associating a kaolinitic paste with the sgraffito technique. Biscuit-fired sherds (B. Tuz, Y. Montmessin, Y. Waksman).

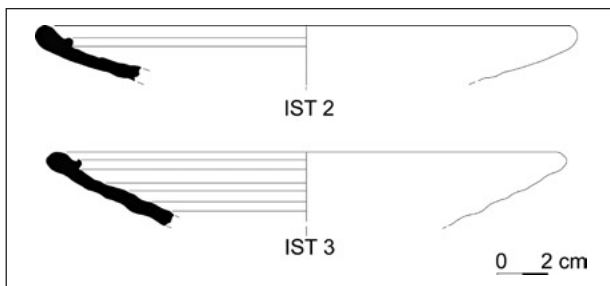


fig. 4 – Two samples, including a waster, constitute an isolated chemical group (S1) (B. Tuz, Y. Montmessin, Y. Waksman).

#### 4. REFERENCE CHEMICAL GROUPS AND FABRICS

Chemical analysis was carried out by wavelength-dispersive X-ray fluorescence at the “Laboratoire de Céramologie” in Lyon (CNRS UMR5138). Twenty-four major and trace elements are determined in ceramics samples, 17 of which are currently used in multivariate analysis that enable to classify samples according to their chemical composition.

The chemical characteristics of the three local groups, which constitute the first chemical references for pottery production in the Byzantine capital, are presented in fig. 5. They all correspond to non-calcareous clays. Group S2 has relatively higher iron, magnesium, manganese, and lower aluminium and titanium concentrations. Groups S1 and S3 include kaolinite as a main component, as shown by high

aluminium, silicium and low alkaline-earths, sodium and, to a lesser extent, manganese contents. Fairly high potassium concentration may explain the deformation of sample IST 2 (group S1), as it lowers the temperature of fusion, usually too high in kaolinitic pastes to make overfired deformed wasters possible. It is indeed one of the difficulties in identifying production sites of ceramics using such refractory clays (PICON 1995). Sirkeci is exceptional in this respect, not only because of sample IST 2 (fairly high-K kaolinites may be found elsewhere, resulting from the degradation of granites), but also because of the presence of biscuit-fired wasters of kaolinitic pastes (group S3). Such pastes were seldom used in combination with sgraffito, probably because they provide clear backgrounds which show little contrast with the colour of the slip.

The fabric of groups S1 and S3 (fig. 6, right) are typical of some coarse kaolinitic pastes, with off-white hues sometimes more pinkish at the core, large rounded red inclusions that may be of millimetric dimensions, in addition to smaller inclusions of various colour (red, white, grey, black), and occasional concentrations of free iron at the surface which result in a buff-orange layer (sometimes mistakenly taken for a slip). Group S2 fabric (fig. 6, left) is darker, red-buff to reddishbrown, usually with fewer large and better sorted inclusions of various colour (red, white, grey, black), the general appearance of the hand specimen remaining rather coarse. Some examples have a blackened surface. In most cases the distinction between the two main fabrics can easily be done, but it is not so clear cut for some samples, which also show a chemical composition intermediate between groups S2 and S3.

Nom	CaO	Fe <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>	K <sub>2</sub> O	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	MgO	MnO	(Na <sub>2</sub> O)	(P <sub>2</sub> O <sub>5</sub> )	Zr	Sr	Rb	Zn	Cr	Ni	Ba	V	Ce
local group S2 (n=71)																			
m	0.65	6.02	1.167	2.10	67.98	18.48	1.55	0.1258	1.50	0.20	251	87	93	85	118	70	435	134	81
σ	0.35	0.80	0.081	0.31	1.70	1.55	0.33	0.0263	0.24	0.17	14	13	11	9	8	6	42	14	6
local group S3 (n=18)																			
m	0.56	4.68	1.424	1.89	65.10	24.25	0.99	0.0438	0.68	0.20	274	71	114	101	120	76	431	168	97
σ	0.14	0.33	0.066	0.10	0.69	0.98	0.11	0.0071	0.20	0.14	10	9	5	7	4	4	55	10	5
local group S1 (n=2)																			
IST 2	0.25	3.17	1.081	3.01	71.44	19.87	0.84	0.0070	0.11	0.06	266	40	172	27	117	55	440	126	209
IST 3	0.25	3.01	1.072	3.11	71.57	19.88	0.84	0.0090	0.02	0.07	268	40	170	29	117	56	423	128	216

fig. 5 – Chemical compositions of the local productions of Sirkeci. Major elements in oxide percent, trace elements in ppm (part per million); m: mean, σ: standard deviation, n: number of samples.

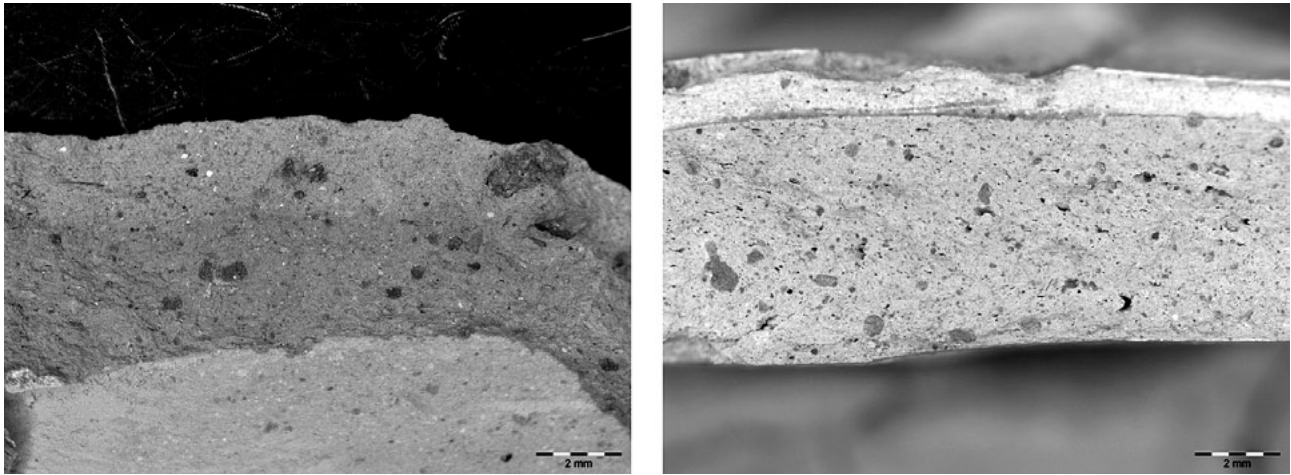


fig. 6 – Fabric of ceramics belonging to local groups S2 (left, sample IST118) and S3 (right, sample IST135) (A. Bernet, Y. Waksman).

## 5. FURTHER PERSPECTIVES

Further investigations made possible by the Sirkeci finds, concerning their diffusion on the one hand and the identification of other Constantinopolitan products on the other hand, are still in their preliminary stage.

As to the second point, comparisons between the new reference groups and a number of Byzantine productions previously defined in the laboratory, but whose workshops remained unlocated (see especially WAKSMAN, FRANÇOIS 2004-2005), are ongoing. They already confirmed, for instance, that neither “Zeuxippus Ware *stricto sensu*”, nor “Orange Brown Glazed Ware” (HAYES 1992) or “Novy Svet Ware” (WAKSMAN, FRANÇOIS 2004-2005) were produced in the Sirkeci workshops or with clays similar to those used there. The two wares correspond to more calcareous pastes, and also differ by finer fabrics, the latter red-buff and soft, the former hard and usually dark red. Closer in fabric to group S3 are some members of the “Byzantine White Ware” series (GWW I to V, UWW I to V, HAYES 1992). But neither of the groups studied so far in Lyon, including GWW I, II and late Byzantine series (GWW IV?), are related (WAKSMAN *et al.* 1997; WAKSMAN, GIRGIN 2008, WAKSMAN forthcoming).

We cannot exclude, however, that some of these wares may have been produced in Constantinople/Istanbul. Other ceramics workshops, using different raw materials, most probably existed in the Byzantine capital. Concerning more specifically “Byzantine White Ware”, recent explorations in the region of Istanbul showed abundant and diverse resources in kaolinitic clays, which could have provided pastes with different chemical signatures (WAKSMAN forthcoming).

A first approach of the diffusion of Sirkeci products showed unexpected results. After its discovery, it could have been thought that “the” workshop of ceramics with Paleologan monograms – especially those read as “Paleologos” (fig. 2: IST 85, cf. *infra*) – and of the “Elaborate Incised Ware”, the latter having known a fairly large diffusion (FRANÇOIS 2003, fig. 6), had been found. But this assumption has been questioned by ongoing chemical analyses of examples from the Crimea (WAKSMAN, GINKUT, TESLENKO forthcoming).

It was already known that ceramics with monograms, including some similar to the Sirkeci ones, had also been manufactured for instance in Varna (Bulgaria), as shown by chemical analyses carried out by Kuleff (e.g. KULEFF *et al.* 1986; KULEFF, DJINGOVA 1998; KULEFF, DJINGOVA 2001). But others, read as “Paleologos” and associated with the Paleologan Emperors (TALBOT RICE 1930; KUZEV 1975, cited in KULEFF, DJINGOVA 1998: 219), had been identified there as imports, supposedly from the Byzantine capital<sup>3</sup>.

Some of the “Elaborated Incised Ware” and ceramics with monograms we investigated from the Crimea were also expected to be imports from Constantinople, and especially from Sirkeci workshops due to similar forms, decorations, and general aspect of the paste. But the samples we examined so far have chemical compositions which differ from those of Sirkeci products. This means that there was at least another workshop manufacturing very similar wares. Whether this workshop could have been located in Istanbul as well cannot be speculated in the present state of research.

<sup>3</sup> This hypothesis could now be tested, at least theoretically since analyses come from laboratories using different analytical methods. It will be the subject of future research.

## 6. CONCLUDING REMARKS

This project enabled to study and characterize chemically the first production of Byzantine ceramics archaeologically attested in Istanbul. At least partly dated to the Paleologan period, its repertoire includes “Elaborated Incised Ware”, ceramics decorated with monograms or related to “Zeuxippus Ware” class I. It also includes bird motifs similar to those produced and previously attributed to Thessaloniki, which might have been manufactured in Iznik/Nicea as well (FRANÇOIS 1997: 429). The Sirkeci finds give a complex picture of Paleologan ceramics, with multiple typological and stylistical influences, especially with Thessaloniki, the second main city of the Byzantine Empire. Clearly, further work is necessary to differentiate the main productions of the late Byzantine period<sup>4</sup>.

Chemical analysis enabled to define the first reference groups corresponding to undoubtedly Constantinopolitan wares. They may help precisating the fluxes of exchanges and the respective economic role of the great late Byzantine cities, as may be seen through ceramics study. They may also be used to test the attribution to the Byzantine capital of other types of ceramics, which would not be present at Sirkeci but could have been manufactured with similar raw materials. These excavations give us an exceptional opportunity to study ceramics production in the Byzantine capital. But other, as yet unknown, workshops probably existed there, and our results only give some clues in a field still largely to be investigated.

*Acknowledgements*

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<sup>4</sup> Collaborative research has been undertaken together with D. Papanikola-Bakirtzi in this perspective.