Pottery Analysis Fabric of The New Kingdom from Ramsuem, Tell Basta and Dier el Medina

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Abstract

This paper attempts to introduce a research tool essential for the study of production and trade and the way they were organized in ancient Egypt by examining pottery fabrics from the New kingdom. Marl clay was the preferred raw material for the containers used in the transport of food within the Nile valley and beyond. Sample sherds from Ramsuem, Tell Basta and Dier el Medina are described and illustrated macroscopically (20x magnification) and microscopically (from thin sections).

The results are used to create a concordance between the fabric classification used at these sites, and with that used with the Vienna System. The data given will allow other archaeologists to link their Owen material to that described and so have access to the evidence this pottery provides on chronology and commodity exchange.

The purpose of this paper is not simply to provide a description of the raw materials from which pottery was made, but to introduce a research tool essential for the study of production and trade and the way they were organize in ancient Egypt.

Introduction

Ceramics have been included in recent scientific studies of fabrics, usually based on thin-section analysis, which aim to establish equivalences between site-based classifications. Material from the site has also contributed significantly to the definition of fabrics used in the manufacture pottery.

Readers are referred to the detailed descriptions resulting from these analyses and, more importantly, to the clouded photographs therein of the fabrics, which convey a far better impression of the characteristics of each one than verbal description can achieve. The descriptions in the text below give the simple, visual criteria employed in the field for classification.

At sites, fabric classification is carried out in the field by means of examination of a fresh break with a 10x hand lens, with the purpose of rapid categorization of a large numbers of sherds. Each one is compared (usually from memory because of the number of sherds to be processed), most of which have been subject to thin-section analysis. The classification is visual, and takes into account types of inclusions and quantities thereof, fabric colour and zoning, and thus includes distinctions made on the basis of features which result from differential firing rather than any significant differences between the pastes themselves. The distinctions may or may not have significance in terms of correlating with specific vessels types, and certainly do not necessarily reflect any intention on the part of the potter (see Bourriau et al. 2000).

The fabrics are arranged in groups, each group comprising those fabrics which seem from a visual analysis and knowledge of the types of vessels found in a given fabrics, to be distinctly related to one another. The fabric groups have been arranged to correspond as to those listed in the so called "Vienna System"[1]. In addition the terminology has been deliberately used to be consistent with Vienna system, include Nile silt fabrics are prefixed by Roman number "I", Marl clay by "II".

Nile alluvial clays usually contain large amount of silica and finely disseminated hydroxides of iron hence the alternative term," ferrugineous siliceous clays" to describe these deposits, In an oxidising atmosphere Nile clays will always fire to a reddish or brownish colour.

Classification of Fabrics, the "Vienna System"[2]

Since every fabric description ought to include information which relates to each of the previous sections, it is but a short step to producing a classification system in which defined parameters are grouped together.

Such a system would sure an author the bother describing the porosity, the hardness, the colour, the firing temperature, the inclusions and the type of clay every time one wants to describe a vessel, and such a system would allow others to know immediately, form the fabrics classification number, what kind of pottery is being discussed. With these views in mind, the founder members of the international group for the study of Egyptian ceramics held a meeting in order to draft a visual classification which could define the main fabric groups found in Egyptian ceramics.

This meeting took place in Vienna, hence the term "Vienna System", in 1980 and was based on a collection of sherds which were then available to the scholars concerned. It should be understood at the outset that the available sherds did not represent all periods of Egyptian history and the "Vienna System", as it currently stands, has only been consistently tested on material up to and including the New kingdom. Additionally it has been conceived only as a starting point which will provide a framework for future work and is not meant to be arigid unchangeable system in capable of refinement. Nevertheless, it is to the lasting credit of those who created the system. Dorothea Arnold, Manfred Bietak, Janine Bourriau, Helen and Jean Jacquet

and Hans Ake.Nordstrom, that in the years since its invention the application of the "Vienna System" to pottery elsewhere has tended to confirm the original divisions. These original divisions were intentionally wide enough to avoid creating divisions based solely on minor change in the potter's paste or firing conditions and were grouped as follows.

Group I: Nile Clay

1.1 fabric I.B1 (Nile B1)

Nile B1 consist of a relatively silty clay, not as fine as Nile A, with abundant inclusions of fine sand, mica and scattered fine chaff. Surfaces and section are generally uniform reddish brown, and the fired clay is relatively soft with moderate porosity, the match material with material 1.B.02 at Aston classification of Ramesside pottery at Qantir[3], and with material G2 at Bourriau classification of pottery Memphis[4].

1.2 fabric I.B2 (Nile B2)

Nile B2 differs from Nile B1 in that it is coarser and contains more and larger mineral and organic inclusions. There are conspicuous amounts of chaff and sometimes a few rounded sand grains and limestone particles. The fracture is usually brown with red or black cores, whilst the porosity varies from loose to moderate and the transverse strength varies from medium to hard.

1.3 fabric I.C(Nile C)

Nile C is somewhat similar to Nile B2, but tends to be coarser and is characterized by the predominance of straw inclusions visible in the section and on the surface. The straw tends to service as carbonized particle or more often as voids in the surface where the straw has burnt out. The paste is usually poorly mixed with a loose porous texture. The fabric is most often used for thick walled

vessels in which the break varies between light grey and reddish brown, often with a wide black core[5]. It tends to be soft to medium hard and a firing temperature in the range 500-800 C is estimated for this fabric. the match material with material 1.c at Aston classification of Ramesside pottery at Qantir[6], and with material G4 at Bourriau classification of pottery Memphis[7].

1.4 fabric I.D(Nile D)

Nile D is characterized by the presence of conspicuous limestone inclusions, and may very from a fine clay similar, or Nile B1 to a much coarser version similar to Nile C. The porosity can very from loose to moderate, but is characteristically hard and firm as the result of a high firing temperature. The break also varies from brown in under fired soft varieties to red, sometimes with a black core in better fired pieces. similar this fabric with material G5 at Bourriau classification of pottery Memphis[8].

Group II: Marl Clay

1.5 fabric II.A2 (Marl A2)

In Marl A2 the limestone inclusions are much finer and scattered thinly through the past. The surface tends of fire from pale red to grey. White though the section is generally a uniform pale red the fabric, fired at around 1000 C, is very dense without conspicuous pores and is extremely hard. similar this fabric with material H9-H10 at Bourriau classification of pottery Memphis[9].

1.6 fabric II.A4 (Marl A4)

Marl A4 probably encompasses wide range of different fabrics but as originally defined it is described as the coarsest version of Marl A showing wide variations in colour, porosity and hardness. The colour of the section and surface is usually either pale red or greenish grey, through zoned examples are often found.

The strength of this fabric can vary from relatively soft to very firm, and the porosity likewise varies. Examples of this fabric are fired at between 850 and 1000 C. the match material with material 11.A.0.4 at Aston classification of Ramesside pottery at Qantir[10], and with material H2-H4 at Bourriau classification of pottery Memphis[11].

1.7 fabric II.C(Marl C)

Marl C is characterized by abundant medium to course size decomposed limestone partials which give the paste a distinctive speckled appearance. The ground moss itself is fine and dense through particles of unmixed marl are common. Vessels in this fabric are fired at temperatures of between 750 and 1000C, the lower fired examples being pale red to brown in the break, whilst higher fired pieces show a pale red core with outer zones of greyish-white[12]. All variants are very hard and very is porosity from dense in low fired examples to fairly porous in higher fired pieces (The higher the temperature the more limestone is exploded out leaving characteristic voids behind).

1.8 fabric II.D (Marl D)

Marl D fabrics are hard and dense. The surface fires light grey to green, but is almost always covered with a thick cream slip. The break tends to be most often a pale brown, through some examples (more highly fired?) have outer zones of, or are completely red. These red zones are full of, or are completely particles which are the characteristic hallmark of these fabrics. All marl D fabrics are extremely hard, and would appear to originate in the Memphis-Gurob region, and this fabric used in the manufacture of close shape and amphorae[13].

Concluding remarks

The present study in an evolution of the validity of different analytical techniques in the geological analysis of ancient ceramic petrographic examination of ceramics is useful in identifying the different types of temper material and in providing a descriptive classification of the different types of ceramics based on the temper composition, rounding and sorting of the classic grains present in the fired ceramic. However, the petrographic analysis of ceramic is not capable of either determining the mineralogical composition of fired clay size material of the pottery, which is by far the most important consistent of the pottery, x-ray diffraction analysis of ceramics, on the other hand, is useful in determining the mineralogical composition and the crystalline stricture of the fired clay size material of the pottery as well as all its possible raw material, Therefore, this technique can be utilized in estimating the firing temperature of the baking posts of the pottery.

Finally, there is not easy solution to the fundamental problem of the identification of the geological origins of ancient ceramics except by means of co-ordinated, large and small scale, long term collaborative programs which could permit chemical and geological characterization of all the different clay resources, At all times, therefore, effective coordination between archaeological, geological and chemical input is importance.

Analysis Sample Fabric, Dier el Medina, Nile Clay

Notes	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna System	No
			Car	Plai	Dar	Rou	Shel	Red-	Gro	Sili	Mi	Whi te		Stra	San d		
Light brown 7.5YR6\4 with black core	Medium	Open		C 1 [14]										F 1	F 2 C 2	Nile B2	2
Light brown + red with black core	Medium	Open		C 1 dung	C 1								C 1	F 2	M 2 C 1	Nile C[15]	9
Red with black core	Medium	open		C [16]									C 1	F 2	F 2 C 1	Nile C	10
Reddish brown 5YR 5\4	hard	Medium							C 1		F 2		C 3	F 1	C 1	Nile D	3
Light	hard	Mediu			C 1				C 1				M 2	F 1	M 1	Nile	4

Notes	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna System	No
			Car	Plai	Dar	Rou	Shell	Red-	Gro	silic	Mi	Whi	stra		San d		
reddish brown 2.5YR6/4 with light gray core		m											C 2		C 1	D	
Red to out, light gray to in	hard	course			M 2 C 1							M 3 C 2	M 3			Iw [17]	5
Light brown7.5YR6\4	hard	Medium to course							C 1			M 3 C [18]				I w	12

Analysis Sample Fabric, Dier el Medina, Marl Clay

Notes	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna system	No
			Ca	Pla	De	Ro	Sh	Re	Cr	Cit	Mi	Wh	me	sto	san		
Pink, 5YR7\4 with pale brown core	hard	course			M 1			M 1			F 2		M 1 C 1		F 3	Marl A2	1
Bale yellow 5Y7\3	hard	course			C 1			F 3					C 1		?	Marl A3	8

Analysis Sample Fabric, Ramsuem, Nile Clay

Notes	thickness	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna system	No
				Car	Plai	Dar	Re	Shal	Red	Cro	Silic	Mic	Whi	stra	san			
Light brown 7.5YR6\4	7 mm	Medium to soft	medium							M 1		F 1		M 1	F 2	F 1 C 2	Nile B 2	4
Light brown 7.5YR6\4	10 mm	medium	open		C 1 [19]					C 1		F 2			F 2	F 2 C 1	Nile B 2	5
Light brown	9 mm	medium	medium											C 1	F 1	F 3	Nile B 2	18

Notes	thickness	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna system	No
				Car	Plai	Dar	Rou	Shel	Red	Cry	Silic	Mic	Whi	stra	san			
7.5YR6\4																		
Red 2.5YR5\6 with gray core	7mm	medium	medium		F2 20							F1		C1	F1	F3M1C1	NileB2	19
Red 2.5YR5\6	17mm	medium	open		C1dung							F1		C1	F3M1	M2C2	NileC	14

Analysis Sample Fabric, Ramsuem, Marl Clay

Notes	thickness	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna system	No
				Car	Plai	Dar	Rou	Shel	Red	Cry	Silic	Mic	Whi	stra	san			
light red 2.5YR7\6	7mm	hard	course						M2			F2		F3			Marl A2	3
Pink 5Y	5m	hard	course						M1					F3	F1	F2	Marl A2	12

Notes	thickness	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna system	No
				Co	Plai	Dar	Rou	Shal	Red	Coa	Silic	Mic	Whi	Stra		Sand		
R7\4	m																	
Pink 5YR7\4	7mm	hard	course							C1		F2		F2		F3	MarlA4	7

Analysis Sample Fabric, Tell Basta, Nile Clay

Notes	thickness	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna system	No
				C	Pl	D	R	Sh	R	C	Sil	M	W	et	ra	Sa		
Red, 2.5 YR5\6 with gray core	5mm	Medium	medium									F1		M1	F3 21	F2 C1	Nile C, V1	1
Red, 2.5 YR5\6 with gray core	8mm	Medium	Medium		C1 dung					C1					F3 M1	M1	Nile C ,V2	7
Red2.5 YR5\6	8mm	Medium to so	open	C1		M1						F2			F2 M1	F2 M2 C1	Nile C ,V2	9

Notes	thickness	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna system	No
				C	Pl	D	R	Sh	D	C	Sil	M	W	st	ra	Sa		
		ft																
Black boarded by red	8 mm	Medium	open												F2	F2 C1	Nile C , V2	10
Reddish brown 2.5YR 5\4	13 mm	Medium	open	M1						C1		F2			F2	M3 C3	Nile C[22]	12

Analysis Sample Fabric, Tell Basta, Marl Clay

Notes	thickness	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna system	No
				Car	Plai	Dar	Rou	Shel	Red	Gro	Silic	Mic	Whi	Stra	San			
Pink, 5YR7\4 with pale brown core	9 mm	hard	Medium			C2			C1			F1 M1		M1		F3 M2 C2	Marl A2	2
Reddish Yellow 5YR7+6/6	9 mm	hard	course			M2 C1			M2 C1			F1				M2	Marl A2	5

Notes	thickness	Hard-Ness	Porosity	Other inclusions										Non-Plastic inclusions			Vienna system	No
				Car	Plai	Dar	Por	Sh	Red	Cry	Silic	Mic	Wh	Stra		San		
gray	5 mm	hard	Medium			C1			C1	C1		F1		M1C2		M1C1	Marl D	6
Gray	8 mm	hard	Medium			C1						F2		M3C1			Marl D	8

Apendex:

[1] Aston, Die Keramik des Grabungspplatzes Q1, 36.
[2] Arnold and Bourriau, Ancient Egyption Pottery, 168-169., Aston, SAGA13, 1-10.
[3] Aston, Die Keramik des Grabungspplatzes Q1, 61.
[4] Bourriau, et al, New Kingdom Pottery Fabric, 5.
[5] Aston, SAGA13, 6.
[6] Aston, Die Keramik des Grabungspplatzes Q1, 62.
[7] Bourriau, et al., New Kingdom Pottery Fabric,13.
[8] Bourriau, et al., New Kingdom Pottery Fabric,15.
[9] Bourriau and Nicholson, JEA 78,45.
[10] Aston, Die Keramik des Grabungspplatzes Q1, 65.
[11] Bourriau, et al., New Kingdom Pottery Fabric,16.
[12] Aston, Elephantine XIX, 4.
[13] Shaw, JEA 98, 37.
[14] Charcoal
[15]Bread mould fabric
[16] Charcoal
[17] Canaan Pottery
[18] Quartz
[19] Charcoal
[20] Charcoal
[21] Most of straw particles White colour
[22] Bread mould fabric

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