

DESIGN EXECUTION SEQUENCES IN WHITE PAINTED, PROTO WHITE SLIP AND WHITE SLIP POTTERY¹

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Regionalism in White Painted wares is determined by distinctiveness: often by motifs that are prolific or more common at one site than at others more distant. So broadly speaking, in early studies of White Painted wares by Åström, for example, we had initially evidence of geometric versus linear across the island² which translated into east and west. This was followed by Frankel who worked under an umbrella of attribute analysis of ceramic design and suggested, based on the proportional occurrence of motifs, that “several regions can be placed in a general system of greater and lesser similarity to one another”.³ From this similarity and dissimilarity position, inferences on the relationships between these distinct communities have revolved around their proximity to the copper bearing regions.⁴ Especially at the end of the Middle Bronze Age distinctiveness seems to be diluted suggesting greater inter regional contact and more experimentation. In this paper the study of behavioural units of decorative styles at the level of individual brushstrokes and their design execution sequence can forward our knowledge of this regional interaction but the interacting regions are perhaps not the ones we expected. The study of ceramic design structure and execution⁵ has proved crucial in understanding the ceramic tradition to which White Painted wares of the Middle Bronze Age belong. It also helps us transcend tradi-

tional etic typologies to explore the context of interaction and diffusion amongst potters at a regional scale at the end of the Middle Bronze Age.

Van Keuren, in his study of 13th century Cibola White ware from Pueblo sites in Arizona maintains that “past research on ceramic design has had limited success inferring the social context of pottery production and distribution,”⁶ and that it is “low-level or passive design variation that is most useful to inferring patterns of social interaction and enculturation.”⁷ These low-level variations or low visibility attributes⁸ can be detected at the scale of individual brush strokes.⁹ Other stylistic attributes such as motifs might be consciously copied or manipulated but potters within interacting communities will undoubtedly share templates of subconscious behaviour in an environment of learning and the design execution sequence amongst potters living together is likely to remain the same.¹⁰

This paper questions previous interpretations and assumptions about the production and distribution of Proto White Slip (PWS) and White Slip (WS) wares based on the design execution sequence of White Painted wares in the North which have long been thought to be the inspiration and precursors of these wares¹¹ and seek alternative theories for the origin of White Slip potters within Cyprus.

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² ÅSTRÖM 1972a.

³ FRANKEL 1974, 49.

⁴ FRANKEL 1974, 51.

⁵ VAN KEUREN 1999, 2001.

⁶ VAN KEUREN 1999, v.

⁷ *Ibid.*

⁸ SCHLEHER and RUTH 2005, 4.

⁹ The term brush has been used generically to describe the tool used to apply the paint but it may be composed of hair, textile or wood.

¹⁰ HARDIN 1983.

¹¹ MERRILLEES 1971, BERGOFFEN 2001, 154, ERIKSSON 2007, 64, 77–79.

The wares and styles that have been analysed in this research are White Painted II–IV, White Painted Pendent Line Style (PLS), White Painted Cross Line Style (CLS), WP V Broad Band Styles and White Painted V Fine Line Style (FLS). All of these wares show a common sequence of brush stroke application, which will be examined below. This similarity belies the obvious differences which have been accentuated between all of these styles. These differences in motif usage show preponderance in the north and north west of Cyprus for lattice motifs, chequers, parallel zig zag lines and hatched triangles; chequered motifs and hatched diamonds in the centre; and linear cross line, pendent line style and broad band styles in the south and south east.¹² While the design execution sequence used by potters in these regional areas is predominantly the same, it is in stark contrast to the White Painted ware of the Karpas peninsula and the Proto White Slip wares of the north west.

BRUSH STROKE DIRECTIONALITY

The bulk of the material analysed for this study has come from the cemetery site of Lapithos *Vrysi tou Barba*, excavated by the Swedish Cyprus Expedition. Additional material has been used from Dhenia *Kafkalla*, sites in the centre (Ayia Paraskevi, Politiko, Kythrea, Alambra); and sites in the south, Klavdhia *Tremithos* and Livadhia *Kokotes*, as well as Kalopsidha, Ayios Iakovos, Nitovikla

and Palaeoskoutella.¹³ It has been possible to study a substantial number of examples spanning the 200 year period of the White Painted tradition at Lapithos. The design execution sequence on each pot was recorded by observing the ordering of individual brush strokes and in particular the directionality of encircling body bands as well as the brush stroke direction in motif elements, and technical drawings and 1:1 photographs were executed.

It became clear that in almost all cases the directionality of the brush stroke of the White Painted styles mentioned above executed a sequence left to right (L–R). It is possible to detect the beginning and end of a brush stroke line based on the blob of paint at the start of the line and tapering away from this blob (Fig. 1 and Fig. 2). In the case of WP V FLS, for example, the design structure, the overall staging of



Fig. 1 Stroke direction, morphology and measurement (from CHAPMAN 1953; and VAN KEUREN 2001, 111)



Fig. 2 Stroke direction, L–R on encircling band of Lapithos Tb. 316.114

¹² See FRANKEL 1974.

¹³ CREWE and MAGUIRE in preparation.

the design execution, and the brush stroke direction within elements remained constant. The execution of parallel lines (Fig. 3.1–2)¹⁴ encircling bands and wavy lines (Fig. 3.3–5) had very distinctive and consistent brush stroke sequencing which obviously allowed the vessel to be painted with fluidity. However, where imitation of the design structure and elements of WP V

FLS could be seen there was a significant difference in terms of the brush stroke morphology, brush stroke width and brush stroke direction (top to bottom, and bottom to top) within the elements (Fig. 3.4, 5, 6), but in terms of the overall direction, the potters appeared to have started to the right of the handle and worked from L–R (Fig. 3.1–8).

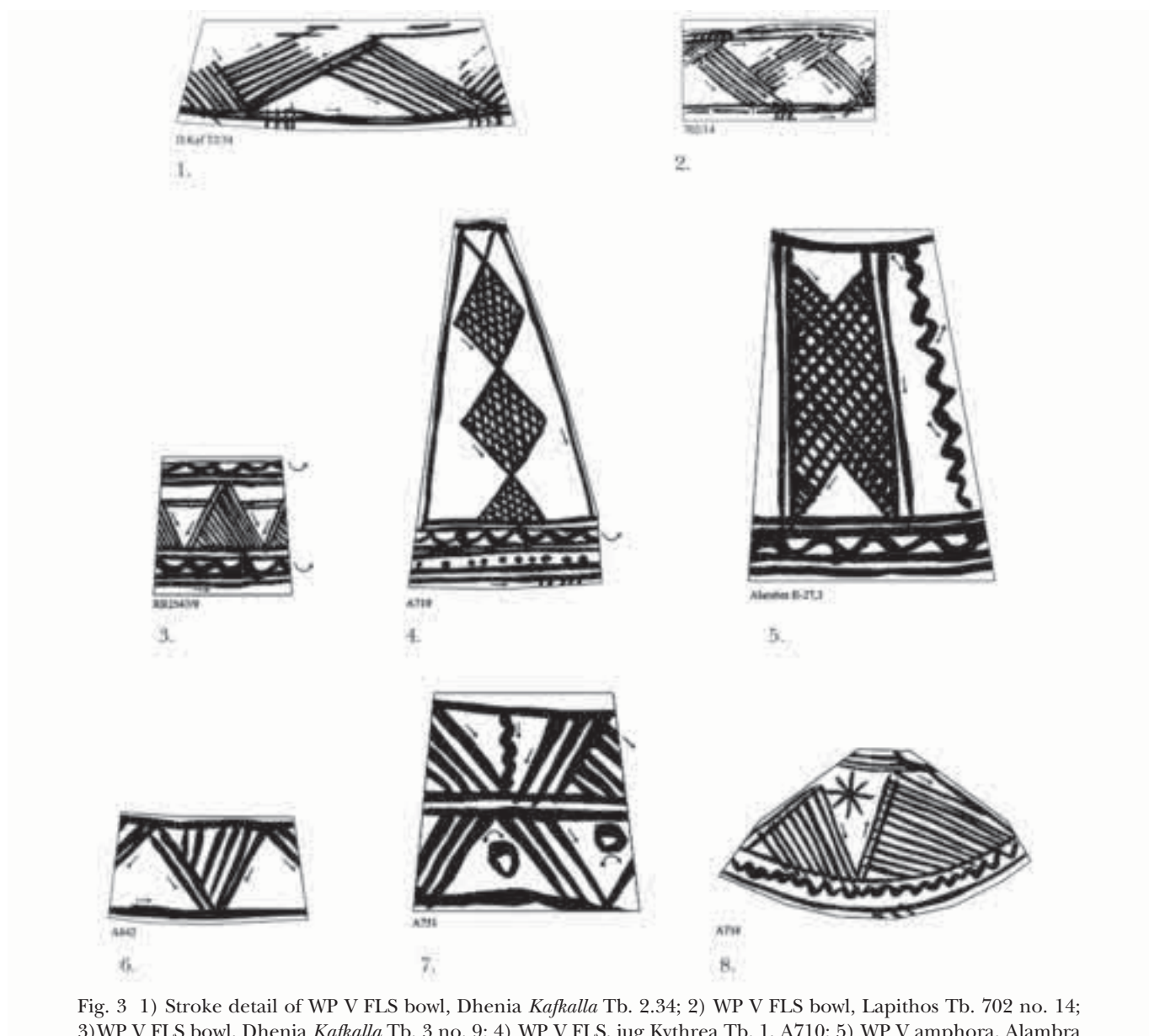


Fig. 3 1) Stroke detail of WP V FLS bowl, Dhenia *Kafkalla* Tb. 2.34; 2) WP V FLS bowl, Lapithos Tb. 702 no. 14; 3) WP V FLS bowl, Dhenia *Kafkalla* Tb. 3 no. 9; 4) WP V FLS, jug Kythrea Tb. 1, A710; 5) WP V amphora, Alambra *Asporge*, 6) WP IV jar, Laxia tou riou Tb. 2; 7) WP V jug, Klavdhia *Tremithos*, 8) WP V juglet, Klavdhia *Tremithos*

¹⁴ Figure 3: 1. Dhenia *Kafkalla* Tb. 2.34 (ÅSTRÖM and WRIGHT 1963, 230 1952/III-13/3); 2. Lapithos Tb. 702 no. 14 (GJERSTAD *et al.* 1934, pl. XL, row 7.4, ÅSTRÖM 1972a, 67); 3. WP V FLS bowl, Dhenia *Kafkalla* Tb. 3 no. 9 (FRANKEL 1974, 69); 4. Kythrea Tb. 1, (ÅSTRÖM 1972a, 70, fig. XVII.3, Cyprus Muse-

um A710); 5. WP V amphora, Alambra *Asporge* (1937–1939 RDAC, pl. XLI.7); 6. WP IV jar, *Laxia tou Riou* Tb. 2 (FRANKEL 1974, 72); 7. WP III–IV String hole style jug, Klavdhia *Tremithos* (MALMGREN 2003, 27 pl. 3b–c); 8. WP V juglet, Klavdhia *Tremithos* (MALMGREN 2003, 29, pl. 5c).

It has long been thought that the origins of Proto White Slip and White Slip wares lie in the White Painted V tradition.¹⁵ Parallels have been sought in the *Toumba tou Skourou* assemblage for certain common motif elements;¹⁶ Akhera and Dhenia for motif usage and design structure.¹⁷ Frankel alludes to the centre and west of the island for the inspiration for PWS¹⁸ while others suggest the north west of the island.¹⁹ Morris suggests that a White Slip vessel from Magounda *Polis tis Chrysochou* displays motifs of the earlier White Painted but in a classic White Slip finish.²⁰ Frankel also advocates that this piece is an example of “the refinement and closer attention to neat and exact design as seen in the vessels from Politico which forms the source for the Proto-White Slip vessels.”²¹

If, however, we follow Van Keuren’s method of design execution analysis which we applied to the White Painted wares, and use it on the Proto White Slip and White Slip wares, we find that there are two fundamental differences between White Painted and White Slip wares; namely brush stroke directionality and the predominant use of the multiple brush.

PROTO WHITE SLIP

We can observe these two important differences in Proto White Slip examples from all over the island; and indeed in exported pieces. In the majority of cases the Proto White Slip bowls have been painted with the opposite directionality to White Painted wares from the north, centre and south east of the island. Figure 4.1 is an example from the former collection of Desmond Morris²² and it is very representative of the rope lattice²³ which Popham suggested was “clumsily executed, the main outer strokes thick and the cross strokes very oblique.”²⁴ The potter has started to the left of the handle and continued around the vessel until finishing to the right of the handle. The potter has either worked in an a direction of R–L while holding the pot upright, presuming the potter is right handed, or the potter turned the vessel upside down and worked in a L–R direc-

tion. Given the running of the paint downwards on some vessels, it seems likely that the pot was held upright. The directionality could have been R–L, which will seem awkward for a person of L–R orthographic directionality, but R–L is equally prevalent.²⁵ In one or two places on the PWS vessels the direction of one or two encircling bands on the upper body of tankards has been R–L and L–R.²⁶

The second main difference in design execution is that PWS utilises the multiple brush. In the Morris example we can see that the rope lattice design below the rim band is created using a brush with two parallel elements (hereafter 2 brush) quite widely spaced and worked in relatively short strokes in a R–L direction. We can see this quite clearly from the start and stop positions of the brushes. The lattice within these parallel bands is then created by using a brush with two elements in a R–L direction for the horizontal part and an eight element brush (8 brush) at slight oblique angle for the vertical part. The circles in the pending motif have been started at the bottom of the circle. The cross hatched diamonds are created using a four element brush (4 brush) (top left down followed by top right down). The groups of short vertical lines on the internal rim and handle are created using a 4 brush. Using these 1, 2, 4 and 8 element brushes, the pot would have been completed at a much faster rate than the White Painted counterparts, perhaps leaving more time for slip application and polishing.

It would appear that the design execution sequence on most PWS vessels follows this substructure although sometimes with a different number of brush elements,²⁷ 2 × 2 brush (broad and narrow) for the horizontal parallel line unit of the rope lattice, the ladder and the diamond motifs and a 6 brush for the rope lattice oblique element. A PWS tankard from Akhera (Fig. 4.2) has a very thick slip which is more like White Painted than WS in colour, hardness and thickness although the fabric is typical of PWS and the surface is highly burnished which is untypical

¹⁵ POPHAM 1963, 1972, MERRILLEES 1971, ERIKSSON, 2001, 2007.

¹⁶ VERMEULE and WOLSKY, 1990, pl. 159 A right, 373–374.

¹⁷ ERIKSSON 2001 fig. 1; 2007, fig. 3 53.

¹⁸ FRANKEL 1974, 51.

¹⁹ BERGOFFEN 2001, 154, POPHAM 2001, 45, ERIKSSON 2007, 61ff.

²⁰ BROWN and CATLING 1980, 105, no. 31, fig. 26; MORRIS 1985, 314, fig. 532.

²¹ FRANKEL 1974, 51.

²² MORRIS 1985, pl. 29b.

²³ POPHAM 1972, 433, fig. LXXX.

²⁴ *Ibid.*, 433.

²⁵ ALTMAN *et al.* 2006.

²⁶ E.g. KARAGEORGHIS 1965, 94, fig. 28.70, fig. 4.2.

²⁷ E.g. 2, 4 and 3 brush *Toumba tou Skourou* TIV.33 P709, VERMEULE and WOLSKY 1990, pl. 159 B; 4 and 8 brush T III.8 P947 *ibid.* pl. 159 C; 2, 4 and 7 TIV.2 P 677 *ibid.* pl. 159 D; Akhera Tb. 1 no. 22; KARAGEORGHIS 1965, pl. 8.5, 86.

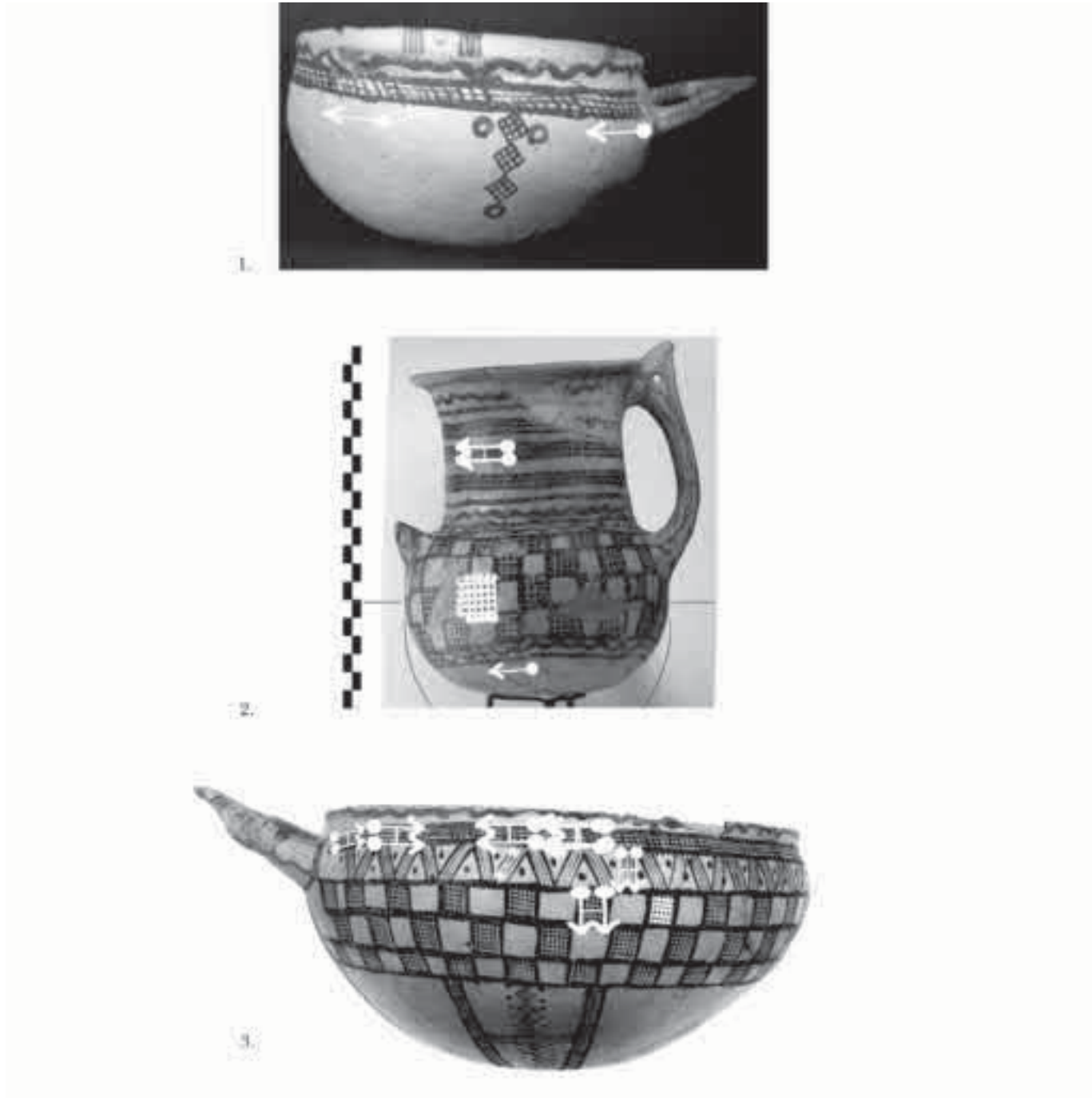


Fig. 4 1) PWS (after MORRIS 1985); 2) PWS, Akhera Tomb 1.70;
3) *Toumba tou Skourou*, White Slip I Bichrome (after PAPADOPOULOU 1997)

of WP wares within this same timeframe. The rope lattice is worked R–L as are the wavy lines and most of the encircling bands. The lattice chequer comprises 2 brush vertical and horizontal with the cross hatching within the chequer board squares completed with a 5

brush tool. A PWS bowl from Tell el-Dab^ca has the exact same design sequence and brushstroke morphology as this tankard from Akhera²⁸ allowing us not only to suggest parallels stylistically²⁹ but also behaviourally.

²⁸ MAGUIRE 2009, 36.

²⁹ ERIKSSON 2007, 72.

There are also different ways a PWS potter might create the lattice diamonds; the method mentioned above e.g. 4×4 brush or in the case of Akhera Tb. 1 no. 22³⁰ where a 2×2 forms the outside square and a 2×2 narrower set form the interior intersecting cross.³¹ Similarly the vertical ladder pattern on these vessels has been created using a broad 2 brush and a narrow 2 brush. These elements may be idiosyncratic but may also form the basis of embedded behavioural elements formed by the time WS I is in production and may provide invaluable links between the two wares and suggest patterns of production behaviour of groups of potters.

WHITE SLIP

The design execution sequence for White Slip wares is in principle the same as PWS; R–L directionality and multiple brushes but differs slightly in that terminals are worked L–R in places. This can be seen clearly in the fine WS I Bichrome example from *Toumba tou Skourou* (Fig. 4.3)³² and a WS I rope lattice vessel.³³ In WS I ‘FLMet’ and WS I ‘FWL’ styles the parallel lines have been worked half in a R–L direction and half in a L–R direction.³⁴ The multiple brush is also absent from these examples. Further in depth analysis of substructure on WS wares could potentially map patterns of ceramic behaviour which could give us an insight into an otherwise standardised production scheme. The majority of WS II and IIA is R–L.³⁵ There is one example of note, however, which is predominantly L–R (or at least on one face visible from the publication), namely, a WS II spindle bottle from Kalavassos Ayios Dhimitrios Tomb 1.³⁶ At the terminals the parallel lines have been reworked R–L. The wavy line has also been worked L–R. This formula of predominantly R–L directionality and extensive use of multiple brushes is used on the limited variety of shapes throughout the production of PWS, WS I and WS II, a period of several hundred years.

THE ORIGINS OF PWS/WS DESIGN EXECUTION SEQUENCE

We have seen that for 200 years the potters who made White Painted ware across Cyprus were operating a standardised design execution sequence of L–R directionality and excluding Red on Black wares and Wavy Line style which was rarely found in the north and west of the island³⁷ were using single brushes. Although, there was a preference in certain regions for distinctive design elements, which we often classify hierarchically, the underlying sub-structure of design execution, which is most likely adopted through close interaction amongst potters,³⁸ is the same. If elements of shape and design elements between White Painted and PWS/WS share some common history, how do we explain the difference in directionality and the widespread adoption of the multiple brush in executing these common design elements.

The answer would appear to lie in the distinctive White Painted V wares of the Karpas Peninsula and the eastern Mesaoria as well as Red on Black ware. The following examples illustrate that the design execution of these White Painted wares is directly connected to Proto White Slip/White Slip wares. Jenny Webb has already noted a WP V amphora as an important piece in determining the origins of PWS (Fig. 5.1). She has classed it as PWS³⁹ and it was found near Boghaz, on the southern edge of the Karpas peninsula. She considers this piece “to have been transitional between the MC White Painted tradition which is closely related in shape and decoration, and the characteristic WS wares of the LBA”.⁴⁰ Webb points out that this piece is of interest since “it is generally believed that the concentration of PWS in the centre of the island suggests that the initial development from WP took place there.”⁴¹ Åström⁴² acknowledges that this piece classified by Webb as PWS which he thought was a variant of White Painted V⁴³ is noteworthy in that it originates in the Karpas peninsula although without specific archaeological context.

³⁰ KARAGEORGHIS 1965, pl. 8.5, 86.

³¹ Or Dhenia Tomb 6.11, ÅSTRÖM and WRIGHT 1963, 270, fig. 13.111.

³² VERMEULE and WOLSKY 1990, pl. 160A T I.479 P 369.

³³ *Ibid.* T.IV.32 P 708 pl. 162 bottom right.

³⁴ E.g. MORRIS 1985, pl. 30; *Toumba tou Skourou* T II.67 P858; VERMEULE and WOLSKY 1990, 257; Dhenia, T787, P104; T787, P99, FRANKEL and WEBB 2007, 87, fig. 4.53.

³⁵ Dhenia, FRANKEL and WEBB 2007, 88; WS II T787, P103 text fig. 4.113; WSIIA, T789, P125 text fig. 4.109; Maroni *Vournes*, CADOGAN *et al.* 2001, 84, fig. 14.

³⁶ SOUTH and STEEL 2001, 71, fig. 7.

³⁷ ÅSTRÖM 1964.

³⁸ VAN KEUREN 1991, 8–9.

³⁹ WEBB 1997, 90, no. 408.

⁴⁰ *Ibid.*, 90.

⁴¹ *Ibid.*, 90.

⁴² ÅSTRÖM 2001, 50.

⁴³ ÅSTRÖM 1972a, fig. XVIII.8, 75.



Fig. 5 1) PWS, Boghaz (Photograph courtesy of the University of New England); 2) Boghaz WP V (Photograph courtesy of the University of New England); 3) WP V, Nitovikla Tb. 2.47 (Photograph courtesy of Medelhavsmuseet, Stockholm); 4) WP V, Ayios Iakovos Tb. 9 no. 8 (Photograph courtesy of Medelhavsmuseet, Stockholm)

However, if we examine the design execution of this piece and WP V counterparts from the same area, which Webb uses to assert her hypotheses that the PWS evolves from the WP of the area⁴⁴ we can begin to suggest that the Karpas and eastern Mesao-ria should be considered to be the home of the pot-ters who worked PWS/WS. This amphora has been worked in a R-L direction. This can be seen clearly from the encircling parallel lines which provide the framework for the lattice squares where the blob at the start of the brush stroke is visible. Although the cross hatched chequers are uniform and regular

they do not appear to have been carried out using a multiple brush. The chequered cross hatched squares have been found on WP V pieces from Ayios Iakovos but these as we will see have been executed using a multiple brush, a motif which is common on Red on Black wares but is known from WP Wavy Line Style.

The multiple brush is the signature of the Red on Black/Red on Red wares of the Karpas peninsula but is of course also known on WP III-IV Wavy Line Style, which has been found at only a few sites in significant number, for example, Ayios Iakovos, Nitovikla and

⁴⁴ WEBB 2001, 52.

Galinoporni.⁴⁵ Single pieces from Vounous, Ayia Paraskevi⁴⁶ and more recently Deneia⁴⁷ are probably exports from the Karpas/Eastern Mesaoria area.

A second amphora from Boghaz⁴⁸ is worked in a R–L direction and the potter has used a 4 brush to execute the wavy lines that appear on the base and on the interior of the vessel (Fig. 5.2). The R–L direction is visible on the encircling parallel lines but also quite clearly on the framed wavy line. The multiple brush does not appear to have been used on the encircling lines or the latticed lozenges. The latticed lozenges are filled from the top right to bottom left and also top left to bottom right. The majority of pieces similar to this amphora in design content from sites in and around the Karpas peninsula show similar directionality in R–L but also the use of the multiple brush.⁴⁹

A sherd from Ayios Iakovos from Tb. 9⁵⁰ is a fragment of a closed vessel classed as WP IV. Although

this piece is also R–L, it differs slightly from the White Painted above in that it has a rope lattice pending from the girth across the base as well as rows of framed lozenges. This piece is incomplete and so it is not known if a multiple tool has been used. The rope lattice is a motif element associated with the P/WS wares. The cross hatch ladder is also quite common e.g. Ayios Iakovos Tb. 6.84.⁵¹

An unusual spouted vessel with wishbone handle from Nitovikla Tb. 2.47⁵² is also worked from right to left as is clear from the brush strokes on the wavy lines but also on the framing lines (Fig. 5.3). The multiple wavy lines are reminiscent of the Wavy Line Style on vessels from Ayios Iakovos⁵³ or the wavy lines on many of the Red on Black vessels from Paleoskoutella Tomb 6 and Nitovikla Tb. 2.⁵⁴ These Red on Black or Red on Red vessels are painted using multiple brushes with between 3 and 16 elements, as has been attested at Phlamoudhi *Vounari*⁵⁵ or Deneia.⁵⁶ This vessel has



Fig. 6 1) WP V, Ayios Iakovos Tb. 9 no. 8; 2) Stephania Tomb 13.5 (HENNESSEY 1963, 34, pl. LIII.5)

⁴⁵ ÅSTRÖM 1972a, fig. X.1–7, 30–32.

⁴⁶ *Ibid.*, 30–32.

⁴⁷ FRANKEL and WEBB 2007, fig. 4.39 Tb. 34, P110.

⁴⁸ WEBB 1997, 90 no. 407.

⁴⁹ E.g. Galinoporni *Trachonas* FRANKEL 1983, 88 789; Galinoporni Tb. 1 and 2 CM unpublished; MORRIS 1985, unprovenanced pl. 50c, pl. 51b, pl. 74b. The eye motif and vertical hatched panel pending to base closely resemble motifs used on Proto White Slip pieces (ERIKSSON 2007, fig. 5e Pendaria Tb. 1; after KARAGEORGHIS 1965, 31, pl. 3:6 no. 52)

and White Painted V Eye pitchers (ÅSTRÖM 1972, 69, fig. XVI.15; WEBB 1997, 406, Trikomo).

⁵⁰ NYS and ÅSTRÖM 2005, 30, 238 pl. 13.

⁵¹ GJERSTAD *et al.* 1934, 319, pl. CIX.4, WP V bowl.

⁵² GJERSTAD *et al.* 1934, pl. CVIII.11.

⁵³ E.g. Tb. 4 B.6, (dated MCIII) GJERSTAD *et al.* 1934, pl. CIX. no. 2.

⁵⁴ GJERSTAD *et al.* 1934, pl. CX.1–7.

⁵⁵ AL-RADI 1983, 40.

⁵⁶ WEBB 2007, 106.

used a 2 brush twice to make 4 lines rather than a 4 brush. And finally, the circles are worked from the bottom right in a clock wise direction.

The final piece in this group is a White Painted V jug from Ayios Iakovos Tb. 9 (no. 8)⁵⁷ (MCIII period) (Fig. 5.4). It also highlights the connections between the WP of Ayios Iakovos and P/WS. It is quite clear from the use of a 5 brush on the neck of the vessel that this decoration would be better placed on a Red on Black pot. The cross hatched squares are done with the same 5 brush and are unframed, as well as the fill of the ladders both on the body and the base. The open diamonds have been created using a 2 brush, top left down and then top right. The directionality on the neck is L–R which is normal for Red on Black ware vessels but it is difficult to tell the directionality of the framework of the chequers. The lines seem to have been worked in both directions and in some cases the brush stroke terminals have been obscured by the lines of the cross hatched squares. If we refer back to the PWS and WS I pieces that we selected for brush stroke analysis it is quite clear that the R–L directionality, the execution of the parallel line framework for the chequers, the ladders, the multiple brushes all signal behaviour observed in the White Painted wares of the Karpas and Red on Black ware. It is clear that this substructure of similar behaviour in design execution is in total contrast to the long tradition of White Painted ware in the north, centre and south east of the island.

We can begin to study the relationship between the Karpas and the north west in future research to

understand how the potters came to be in the north west. As a start, at Stephania Tb. 13.5,⁵⁸ a very distinctive Red on Black vessel which is almost identical in shape to Ayios Iakovos Tb. 9 no. 8 already discussed (Fig. 5.4), bears a remarkable resemblance to the chequer motifs and ladders of the White Painted piece. They are both exactly 23.2 cm in height and their respective rim diameters are 5 cm (Fig. 6).

CONCLUSIONS

For 200 years the directionality of White Painted pottery across most of the island was L–R; distinctive groups such as WP V FLS, adhering to standardised formulas of design execution. Subsequently, for 400 years the directionality of the White Slip tradition, including PWS, was predominantly R–L with extensive use of multiple brushes. There are undoubtedly many production centres of WS across the island but just as pottery shapes were confined to a select few, there was a confinement in the way the design structure was executed for hundreds of years, while exposure to potters with other design behaviour is to be presumed. This suggests very close interaction with generations of PWS and WS potters in several disparate communities to maintain this design behaviour suggesting group solidarity and social identity.⁵⁹ It may suggest episodes of movements of potters to the west, as we believe the fabric of the PWS and WS in the west to have been made there. It implies that we should look at other evidence from the Karpas to elucidate any enculturation from this part of the island to any other.

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⁵⁷ GJERSTAD *et al.* 1934, 336, pl. CIX.1.

⁵⁸ HENNESSEY 1963, 34.

⁵⁹ WIESSNER 1997, 160.

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