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Style and Society in Ceramic Neolithic Cyprus

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The Ceramic Neolithic period in Cyprus is distinctive because of the multifaceted similarity observable in the surviving material culture. It is only in the ceramic repertoire that regional variation is clearly detected and this is most evident in the surface treatment on decorated pottery. Regional variation in material culture is known to have occurred in prehistoric societies where external influences acted upon internal social and economic structures, thereby contributing to diversity. In Ceramic Neolithic Cyprus there is little evidence for external influences and consequently the specific diversity in surface treatment on painted pottery would appear to have been caused by other factors. The aim of this study is to examine the archaeological evidence from Ceramic Neolithic Cyprus with a view to understanding why regional variation can be observed in the decoration on pottery while the society as a whole was essentially homogeneous in all other aspects of its material culture. It is argued that regional variation in the decoration on pottery is expressed as style and that it represented formally structured social behaviours that evolved as a way for individuals and groups to negotiate their economic and social space.

Introduction

Regional variation can be observed in the decorative schemes on painted pottery from Neolithic Cyprus. It is argued in this paper that design variation was one method by which the Ceramic Neolithic population expressed group cohesion and by which economic and social space was negotiated with other groups on the island.

Ultimately understanding regional variation as a behavioural phenomenon requires a holistic understanding of the archaeological evidence, including economic data, settlement patterns and chronology. Aside from the primary material culture data there is also a reasonable amount of information about the economy (Carter 1989; Croft 1989, 1991, 1998; Ducos 1965; Kyllö 1982; Le Brun 1996; Legge 1982; Murray 1998; Stewart 1974). There is only limited data on the use of space within settlements (Peltenburg 1985) but there is some good survey data available for the distribution and density of Neolithic sites across the island (Baird 1984, 1985; Clarke 1992; Clarke and Todd 1993; Held 1992a; Stanley Price 1979). The northern site of Ayios Epiktitos-Vrysi has seventeen good radiocarbon assays and most other excavated settlements have at least one assay. There are also useful comparative dates from the Early Chalcolithic period that can be used in conjunction with the ceramics to

establish a *terminus post quem* for the Ceramic Neolithic period.

As there has been no recent comprehensive review of the Ceramic Neolithic period in Cyprus, it was thought appropriate that the first section of this paper include a short, up-to-date summary with a review of the chronology.

Evidence for the economy is considered in the second section and it is argued that economic activities would have influenced patterns of social behaviour. The third section examines the variation in the ceramics and suggests that stylistic patterns reflected social behaviour and that this can be quantified using the definitions of style proposed by Wiessner (1983, 1985, 1990). The final section reviews all of the evidence presented and concludes that regional variation in the decorative schemes on Neolithic pottery is reflected as style. Stylistic variation, in turn, was one way in which the population of Ceramic Neolithic Cyprus negotiated their economic and social space with other closely located and distant groups on the island.

Ceramic Neolithic Cyprus in context

Ceramic Neolithic Cyprus is thought to have been an egalitarian agro-pastoralist society, although an alternative viewpoint supporting a greater reliance

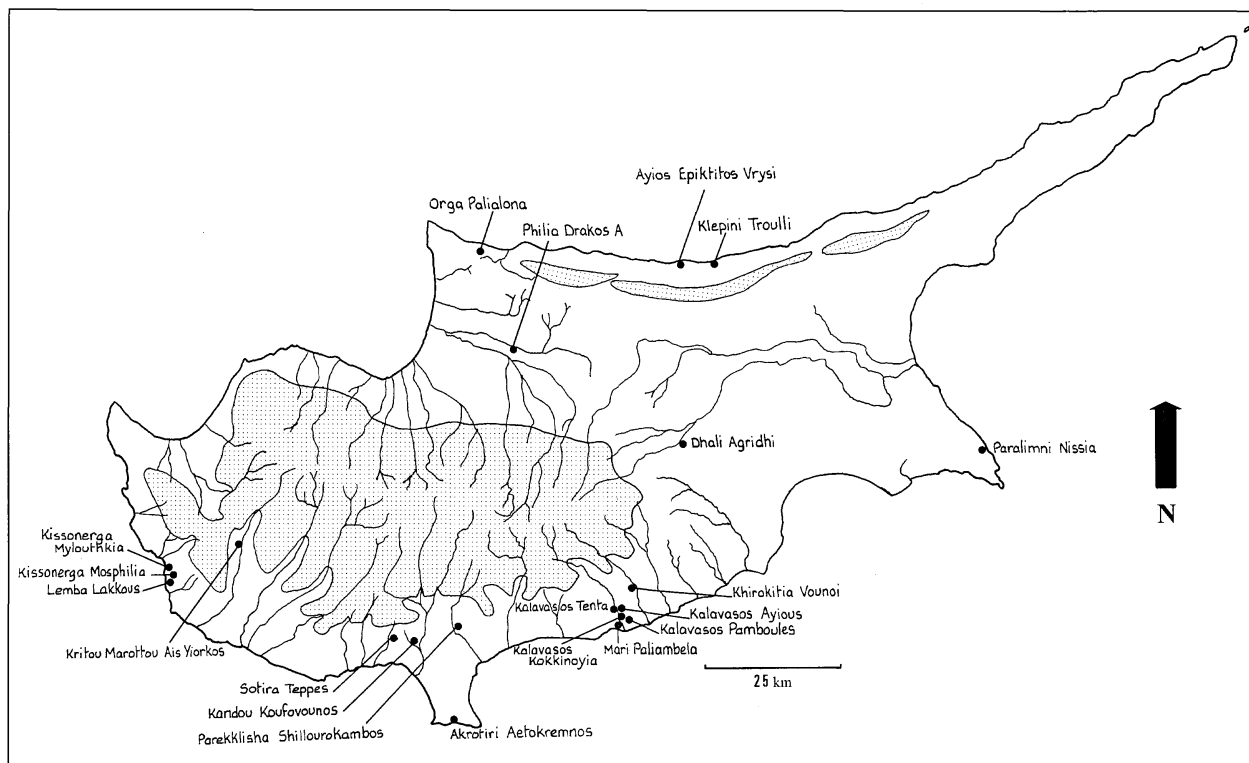


Figure 1. Map of Cyprus showing the settlements and smaller sites mentioned in the text.

on hunting and gathering has been expressed by Croft (1991, 69).

There are two broad types of site dating to Ceramic Neolithic period (Fig. 1).

1. Medium sized settlements characterised by relatively permanent structures (e.g. Ayios Epiktitos-Vrysi, Klepini-Troulli, Kandoou-Koufovounous, Paralimni-Nissia, Sotira-Teppes).

2. Smaller sites lacking structures, and sites dominated by pits (e.g. Kalavassos-Kokkinoyia, Mari-Paliambela and Dhali-Agridhi).

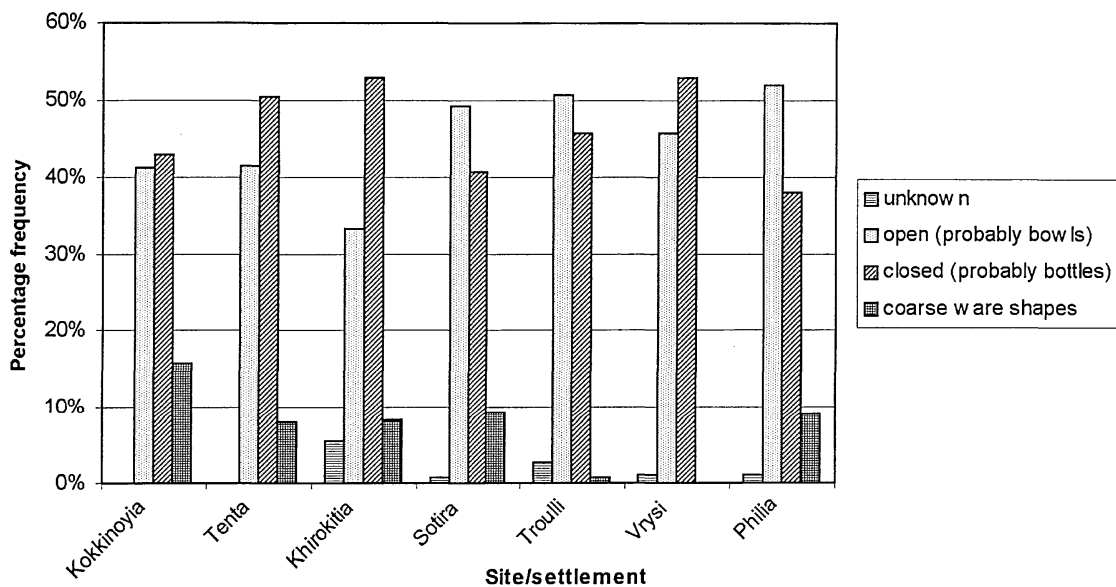
There are also a number of sites that have a Ceramic Neolithic component but due to poor preservation cannot be defined adequately (e.g. Kalavassos-Tenta, Khirokitia-Vounoi).

For convenience, and to clearly differentiate between the types, settlement sites will be referred to as settlements, while eroded sites, sites characterised by pits and other more enigmatic features will be referred to as sites.

Within these two types the Ceramic Neolithic culture was essentially homogeneous in most aspects of the material culture record. Peltenburg (1978) has reviewed the evidence from Ayios Epiktitos-Vrysi in the north of the island and Sotira-Teppes in the south and has shown clearly that in broad terms, the

artefactual and economic evidence from these two settlements is alike in most respects. Other settlements such as Philia-Drakos A (Watkins 1970, 1972, 1973), Klepini-Troulli (Dikaïos 1962), Paralimni-Nissia (Flourentzos 1997) and Kandoou-Koufovounos (Mantsourane 1996) shared similar architecture, artefact assemblages and economic data. Smaller sites without upstanding architecture, such as Kalavassos-Kokkinoyia and Mari-Paliambela also shared similar tool-kits and ceramic assemblages with the larger settlements. Moreover at Kalavassos-Kokkinoyia pits often contained permanent installations such as benches and hearths in the same tradition as sites with upstanding architecture (Dikaïos 1962, 106). Although variation exists in the types of raw materials used, this simply reflects local procurement practices. Moreover, differences in the economic data (e.g. the smaller numbers of deer at Ayios Epiktitos-Vrysi) are more likely to be due to variation in local environment rather than any real difference in economic strategies.

Ceramic analyses undertaken by Clarke (1998, 446–461) and Shiels (1993, 66–72) have shown that similar or identical fabric types only occur at sites that are very closely located (e.g. Kalavassos-Tenta and Kalavassos-Ayious) indicating that clay and tem-



	Kokkinoyia	Tenta	Khirokitia	Sotira	Troulli	Vrysi	Philia
Unknown			250	183	49	544	498
Open (probably bowls)	550	749	1480	14842	811	26249	26891
Closed (probably bottles)	626	933	2411	12779	801	30075	22409
Hemispherical bowl	46	3	40	543	30		
Shallow bowl	3	1	1	10	4		
Deep hemispherical bowl	3			2			
Deep straight bowl	3	16		27	1		
Concave sided bowl			13	82	45		
Platter bowl		6	5	4			
Simple holemouth	5		37	12	3		
Collared holemouth							
Necked holemouth				4	1		
Flared holemouth			2	6			
Straight sided holemouth			3				
Coarse ware shapes	230	149	382	2940	14		
Total no of sherds	1466	1857	4624	31434	1759	56868	49798

Figure 2. *Percentage frequencies of the most common vessel shapes found at seven major settlements and corresponding sherd counts.*

per were collected locally. This suggests that ceramic production probably occurred within or around individual settlements. There is no evidence for craft specialisation in the Ceramic Neolithic (but see Peltenburg 1993 for evidence of incipient social differentiation). Structures do not vary much in size and layout. The same variety of artefacts are found both inside and outside structures and these objects are of a type normally associated with daily subsistence tasks, for example, querns, grinders, hammer stones, flint tools (though not projectile points), pottery and fixed installations such as hearths and benches (Peltenburg 1978, 59–64). There are no

clearly defined storage areas such as pits or middens containing large numbers of one or more type of plant or animal remains, nor is there any evidence of structures used primarily for storage. There are no pottery vessels large enough to function as long-term storage containers, although these become common in the succeeding Chalcolithic period. In every respect the material evidence points to a non-stratified, non-specialised society that would have been susceptible to agricultural and economic risk.

The author (1998) has undertaken a comprehensive study of the ceramic assemblages from all excavated Ceramic Neolithic settlements, including

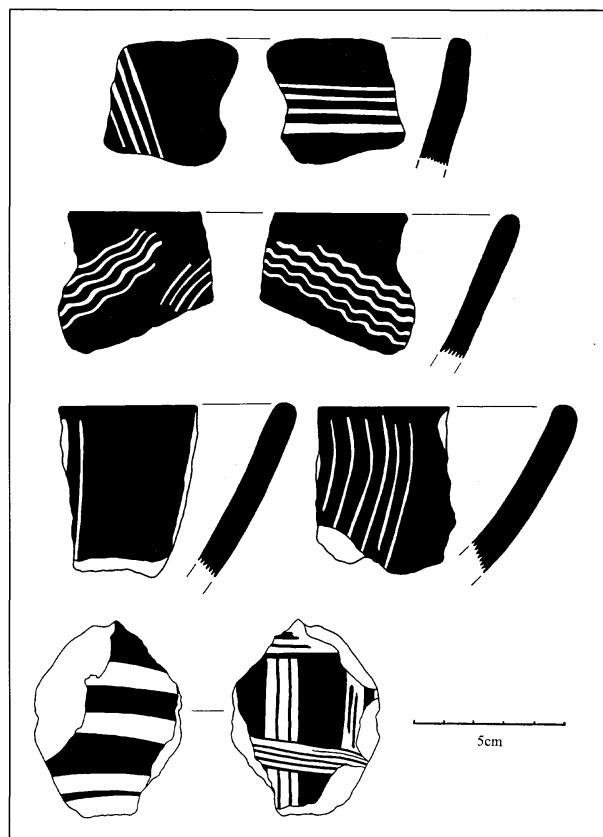


Figure 3. Examples of combed decoration.

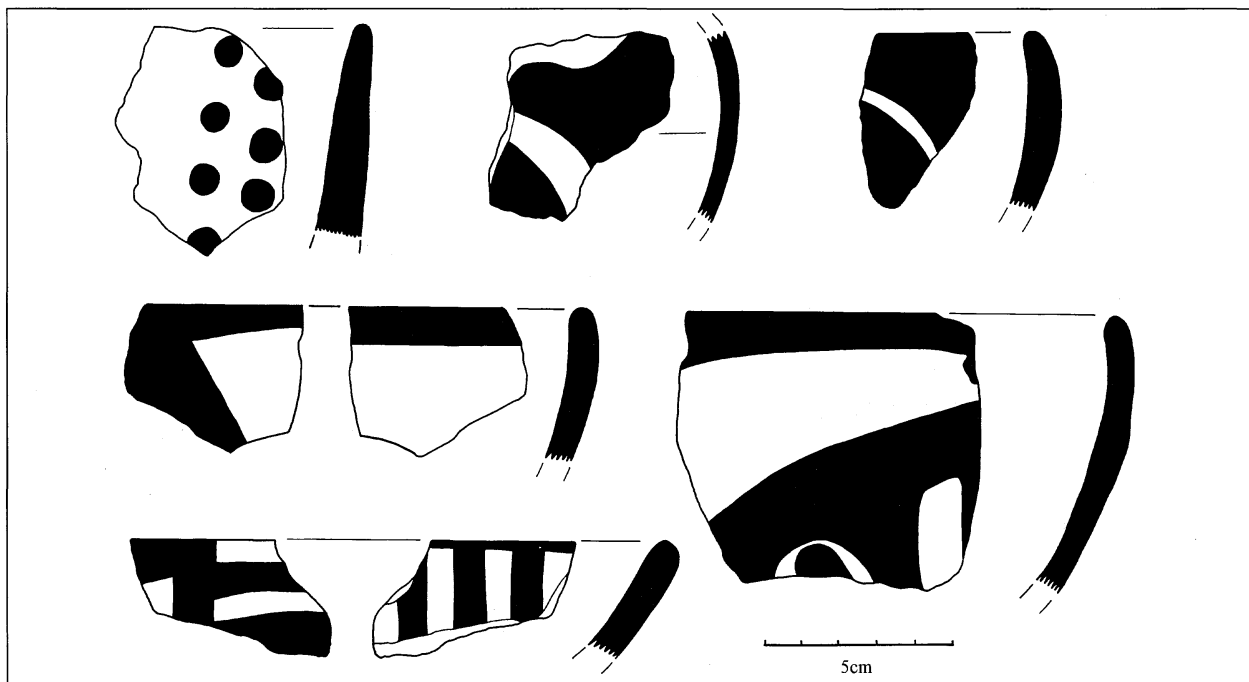


Figure 4. Examples of red-on-white decoration.

Epiktitos-Vrysi (Peltenburg 1982a), Sotira-Teppes (Dikaos 1961), Klepini-Troulli (Dikaos 1962, 63–72), Khirokitia-Vounoi (Dikaos 1953) and a number of survey collections. Results indicate that manufacturing techniques and morphology did not vary in any significant respect throughout the island. Pottery is handmade, coil-built, and often heavily tempered with both mineral and vegetable matter. Vessels come in a limited range of shapes, including large and small bowls, tall-necked bottles and hole-mouth jars (for a comprehensive typology of shapes see Peltenburg and Spanou 1999). Figure 2 summarises the data presented in Clarke (1998) showing the number and percentage of vessel forms found at each of the major published settlements used in this study. Although sample sizes vary, Figure 2 illustrates that there is no significant difference in the proportions of vessel forms represented.

The only significant difference seems to have been the way in which pottery was decorated. This variation took two broad forms, explicit differences in the techniques used for the application of designs (e.g. combed decoration versus painted red-on-white decoration) and more subtle variation in the combination of combed and red-on-white designs found on pottery at different sites. In the south-central part of the island there were two preferred decorative modes. The first was the application of a thick monochrome red paint, often burnished to a high sheen – red monochrome painted ware. The second

used a multiple tool to remove the red painted surface while still wet producing a variety of straight and wavy combed lines – combed ware (Fig. 3). In the north, west and east of the island the primary decorative technique was the application of red paint in a variety of geometric designs over a thick white slip – red-on-white ware (Fig. 4).

Chronology

The Ceramic Neolithic phase is dated radiometrically to between 5000 BC and 3900/3750 BC calibrated, however it is generally accepted that the

floruit lasted about 400 years between 4300 BC and 3900 BC (Knapp, Held and Manning 1994, 381). The chronological sequence derives from two sources, absolute determinations from radiocarbon sampling and a relative sequence established by seriation of the pottery between sites (Table 1).

The best determinations come from Ayios Epiktitos-Vrysi. Because the site was built into 6 m. deep hollows very little erosion occurred. The excavator was able to define three phases (early, middle and late) based upon the archaeological sequence and changes noted in the ceramic assemblage. A reliable relative pottery sequence was established which was then tied in to the radiocarbon dates. The

Site	Lab Ref	Age BP	Material	Deposit/Phasing	1 σ	2 σ
Vrysi 1	BM-847	5389 53	charcoal	House 7 floor4b (Early)	4330-4150BC	4350-4040BC
Vrysi 2	BM-846	5372 92	charcoal	House 4B floor 8 (Early)	4330-4050BC	4360-3980BC
Vrysi 3	BM-845	5360 57	charcoal	House 4A floor 5 (Ea/Mid)	4330-4080BC	4340-4040BC
Vrysi 4	Birm-182	5825 145	charcoal	(Middle)	4900-4510BC	5050-4350BC
Vrysi 5	Birm-337	5740 140	charcoal	(Middle)	4780-4460BC	4950-4300BC
Vrysi 6	GU-522	5420 80	charcoal	House 2A floor 3 (Middle)	4350-4150BC	4460-4040BC
Vrysi 7	BM-843	5355 67	charcoal	House 2A floor 4 (Middle)	4320-4040BC	4340-4000BC
Vrysi 8	GU-523	5340 95	charcoal	House 2A floor 4 (Middle)	4320-4040BC	4350-3970BC
Vrysi 9	BM-848	5330 57	charcoal	Passage B east 3.4 (Middle)	4240-4040BC	4330-3990BC
Vrysi 10	BM-844	5275 47	charcoal	House 2B floor 8 (Middle)	4220-4000BC	4230-3980BC
Vrysi 11	GU-524	5255 120	charcoal	House 1 floor 2 (Middle)	4230-3960BC	4350-3800BC
Vrysi 12	GU-1459	5210 85	charcoal	(Middle)	4220-3940BC	4240-3790BC
Vrysi 13	BM-1908	5360 110	charcoal	(Middle)	4330-4040BC	4450-3960BC
Vrysi 14	GU-521	3105 130	charcoal	Passage A floor 5 (Middle)	1520-1160BC	1700-950BC
Vrysi 15	BM-849	5224 78	charcoal	Area 5D (Mid/Late)	4220-3960BC	4250-3800BC
Vrysi 16	BM-1907	5290 100	charcoal	(Late)	4230-3990BC	4350-3800BC
Vrysi 17	BM-1906	5360 110	charcoal	(Late)	4330-4040BC	4450-3960BC
Dhali 1	GX-2847A6415	310	charred bone	Concentration A	5600-4950BC	6000-4600BC
Dhali 2	P-2769	5700 100	charred bone	Concentration A	4690-4400BC	4770-4350BC
Sotira	St-337	5460 110	charcoal	Hut 29 (Phase 1)	4460-4150BC	4550-4000BC
Sotira	St-350	5150 130	charcoal	Hut 12 (unknown)	4220-3780BC	4350-3650BC
Philia	Birm-72	5720 100	carbon	(unknown)	4690-4460BC	4780-4350BC
Tenta	P-2780	5460 110	carbon	not in situ	4460-4150BC	4550-4000BC
Pamboules St-419		5140 110	charcoal	HVIII fl. VI	4080-3780BC	4250-3700BC
Troulli		ph TL 09a 3860 480		Thermoluminescence date on survey pottery		
Troulli		ph TL 09b 3570 445		Thermoluminescence date on survey pottery		

Table 1. Ceramic Neolithic radiocarbon and thermoluminescence determinations and corresponding calibrations at two standard deviations (cf. Held 1992a).

Ayios Epiktitos-Vrysi sequence was later compared with the pottery sequences from Philia-Drakos A (Watkins 1970a) and Klepini-Troulli (Peltenburg 1979) and it was noted that similar development could be observed in the pottery at all three sites. A combination of the appearance of combed ware pottery at Ayios Epiktitos-Vrysi in the Middle Phase and the presence of small quantities of red-on-white pottery at southern sites allowed the primarily combed ware sites of Sotira-Teppes, Kalavassos-Kokkinoyia, and (to a lesser extent) Khirokitia-Vounoi to be broadly tied into the northern sequence (Clarke 1998).

The role of economy in shaping Ceramic Neolithic society

This paper takes the view that a fully sedentary population that inhabited small village-like settlements may not have characterised the Ceramic Neolithic period. It seems more likely that the population utilised a range of sites, some of which may have been seasonally occupied or occupied for only short episodes over a long time.

The monocellular units within most classic Ceramic Neolithic settlements (Ayios Epiktitos-Vrysi, Philia-Drakos A, Sotira-Teppes, Kandou-Koufovounos, Paralimni-Nissia, Klepini-Troulli etc.) while indicating some permanency may not have been occupied all year round or by the whole population. Other sites, characterised by partly sunken pits, often with evidence of light roofing structures (Kalavassos-Kokkinoyia, Kalavassos-Pamboules and Mari-Paliambela) are clearly less permanent.

Some of the smaller sites appear to have been utilised for long periods, often with periods of abandonment, re-use and concurrent occupation. For example, the site cluster of Kalavassos-Tenta, Kalavassos-Ayious, Kalavassos-Kokkinoyia and Kalavassos-Pamboules appears to have been characterised by a shifting population that utilised some of the four sites simultaneously while others were abandoned or later re-used (Baird n.d.a., n.d.b.; Clarke and Todd 1993).

Unfortunately there is very little reliable information for economic practices in the Ceramic Neolithic phase. The best evidence comes from Ayios Epiktitos-Vrysi, where the palaeobotanical data indicate that wheat, barley, lentils and pulses were cultivated (Kyllo 1982). The presence of wild grasses at most Ceramic Neolithic settlements may represent unintentional collection during the harvesting process of other crops but could equally represent purposeful collection. At Dhali-Agridhi

wild einkorn was present in the archaeobotanical sample, along with wild lentil and wild pistachio (Stewart 1972, 123–125). Therefore, although cultivation of cereals was probably part of the Cypriot Ceramic Neolithic economic strategy, it is also likely that collection of wild grasses, cereals, legumes and fruits played an important role.

The Ceramic Neolithic faunal record is also limited. Again, the only settlement for which we have a reasonable amount of data is Ayios Epiktitos-Vrysi where fallow deer comprised 45% of the sample, caprines 41% and pigs 10% (Legge 1982, 83). On the basis of differential patterns in the deposition of animal remains, Legge (1982, 81–82) has argued that deer were hunted and sheep and goats were herded. This interpretation, and to some extent earlier interpretations of Ceramic Neolithic society generally (Dikaio 1961, 1962; Karageorghis, 1982; Peltenburg 1982b) has contributed to the general view that the Ceramic Neolithic population was a fully sedentary, agro-pastoralist society that also hunted or managed deer.

There is no reason however, to assume that all sheep and goats were domesticated or that hunting of feral sheep and goats was not also part of the economic strategy. Croft (1991, 66–69) has argued that although it is assumed that caprines were domesticated, there are actually no appreciable differences in morphology from their western Asiatic wild ancestors and that therefore caprines may also have been hunted. This view has been recently supported by Vigne (2000, 92) who says of the preceding Pre-Pottery Neolithic at Parekklisha-Shillourokambos that the presence of domesticated caprines does not preclude that a few may have already been hunted feral animals, as suggested by Croft (1985) for the subsequent Neolithic periods in Cyprus.

Probably the most compelling factor in support of a theory for a more mobile way of life is that deer were hunted during the Ceramic Neolithic period and that they outnumber other species in the faunal record at Ceramic Neolithic settlements and other sites. Although samples are small the percentage of deer represented at Sotira-Teppes is 76% (Ducos 1965, 4), at Dhali-Agridhi it is nearly 80% (Croft 1989, 264) and at Philia-Drakos A, deer represent 71% (Croft 1991, 69). Given that deer are appreciably larger than caprines or pigs, fewer deer would have had to have been killed to provide the same quantity of meat, indicating that deer were almost certainly the primary source of meat during the Ceramic Neolithic period.

It is possible therefore that the Ceramic Neolithic phase was characterised by an opportunistic econ-

omy that combined herding, farming, hunting and gathering in varying degrees depending upon the amount of effort expended and the likelihood of success.

Peltenburg (1982, 13) has quoted a radius of 2–3 km. as the average catchment area per settlement for farming and herding, which suggests that settlement catchment areas overlapped bringing settlement populations into contact with each other (e.g. Ayios Epiktitos-Vrysi and Klepini-Troulli, or Sotira-Teppes and Kandou-Koufovounos). A greater reliance on hunting and gathering would presumably have meant that site catchment areas were larger, that environmental variation within the area was more important and therefore presumably more specialised. Areas of good hunting may have been favoured by more than one settlement. Under these conditions there is likely to have been considerable competition for resources and quite pronounced social stress between populations.

However, even assuming a reverse scenario – that competition for resources was not part of the economic structure of the Ceramic Neolithic society – there still would have been significant social and economic contact between groups. In this situation a variety of social relations may have existed, including familial ties such as marriage networks, work group relations, hunting groups, farming groups etc., and presumably social and economic space would have been quite clearly demarcated. Therefore, with either economic and social competition or social harmony, communities would have regularly engaged in structured social relationships that would have been influenced by environmental and behavioural factors.

Economic and social behaviour in early communities in Ceramic Neolithic Cyprus in some ways resembles the model proposed by Sherratt (1980, 318), whereby selective agricultural exploitation would have been spatially restricted. Initial settlement growth would lead to the rapid budding-off and export of population, followed by expansion to smaller and smaller patches of appropriate high-yielding soils within the occupied area. Examples of this type of settlement pattern in Cyprus are the sites that are functionally similar and closely located, such as Ayios Epiktitos-Vrysi and Klepini-Troulli, or Sotira-Teppes and Kandou-Koufovounos.

In other ways Ceramic Neolithic settlement patterns may reflect Levantine Late Neolithic settlement patterns where functionally differentiated sites congregate in clusters in areas of optimum water and soil resources (Levy 1992, 71–72). One example of this type of settlement pattern may be the Kalavassos cluster of sites, however, it cannot be confirmed that

there was specific functional variation between these sites.

The most conspicuous deviation from the Levantine Pottery Neolithic models described above is the Cypriot reliance on hunting. Gopher (1995, 220–221) notes that the primary difference between Levantine Pre-Pottery Neolithic and Pottery Neolithic economic strategies is the shift away from hunting towards a greater concentration on agriculture and animal husbandry. Unlike the Cypriot Ceramic Neolithic there is very little evidence for continued reliance on hunting in the faunal record of Levantine Pottery Neolithic sites.

In summary, it is likely that personal and group relations between Ceramic Neolithic populations would have been influenced by a variety of interacting economic and social factors. The key point is that settlement populations would have come into regular contact with each other over both short and long distances. Social networks were probably based on the family, the work group, the clan, the hunting party, the village, the village cluster and presumably even encounters between hunting parties. Given the relative instability of an economy based upon dry farming and hunting it is not inconceivable that social relations oscillated between periods of social harmony and periods of economic and social stress. Three broad social relationships between settlements can be illustrated on the basis of the evidence presented above.

1. Within clusters of sites (e.g. the Kalavassos cluster) there should have been no competition for resources as the site cluster probably would have been comprised of people from the same group.
2. Between functionally similar, closely located settlements (for example Ayios Epiktitos-Vrysi and Klepini-Troulli, or Sotira-Teppes and Kandou-Koufovounos) there may have been competition for resources and perhaps social stress between different groups. However, it is not inconceivable that the populations of closely located settlements originated from the same parent population and therefore familial or clan relations, work groups and other more mutually beneficial relationships may also have existed.
3. On a wider level, there would have been contact and interaction between distant groups that engaged in hunting forays. There should have been less competition for resources between distant groups, but social and economic boundaries may have been more pronounced because kin ties would have been weaker and periods of direct interaction less frequent.

Stylistic variation

The above review shows that the Ceramic Neolithic population engaged in considerably more complex social relationships than previously suspected. Therefore, it is not surprising that formal patterning can be observed in the material culture record. However, it is infinitely more difficult to link formal patterning – in this case regional variation in the decorative schemes on pottery – to social relationships. There are many factors that can contribute to regional variation in ceramics, from choice of raw materials, to differences in manufacturing techniques, to changes in individual or group needs, to diffusion of influences from other cultures. That said, as formal variation in the Ceramic Neolithic period is limited to decorative schemes on the pottery, it seems reasonable to assume that this variation represents something other than the normative factors listed above.

Style is a form of non-verbal communication through doing something in a certain way that communicates information about relative identity (Wiessner 1990, 107). Stylistic behaviour is an extension of this where it relates directly to ways of doing things. Although many definitions exist, style can be divided into three main categories.

1. Emblematic style is stylistic statements that conform to certain spoken ones containing clear, purposeful, conscious messages aimed at a specific target population (Wiessner 1985, 161).
2. Symbolic style is formal variation in material culture which is personally based and which carries information supporting individual identity (Wiessner 1983, 258).
3. Passive style is variation that exists because there is an infinite number of ways of doing things that will produce a different outcome every time.

Assuming that formally structured variation exists in the decorative schemes on Neolithic Cypriot ceramics it could be argued that this variation represented stylistic behaviour. This, in turn, may have reflected the different types of social relationships that existed between populations on the island. The simplest way to determine whether variation in the decorative schemes on pottery reflected different types of style is to test for non-random patterns of variation between ceramic assemblages.

Methodology

The data used in this report comes from the author's doctoral research. Detailed analyses of the pottery, with supporting data samples, are listed in Clarke

(1998). Selections of these analyses relevant to the present study are presented below. However for the sake of brevity the primary data on which they are based is reproduced here in a summarised format.

The pottery assemblages from four settlements (Ayios Epiktitos-Vrysi, Philia-Drakos A, Sotira-Teppes, Klepini-Troulli) and three smaller sites (Khirokitia-Vounoi, Kalavastos-Kokkinoyia, Kalavastos-Tenta) form the basis of the analyses below. Only samples that were classed as of good integrity (i.e. chronologically comparable and of sufficient size) were included. Samples are derived from three sources, primary excavation data (Ayios Epiktitos-Vrysi and Philia-Drakos A), museum samples analysed by the author (Klepini-Troulli, Sotira-Teppes and Khirokitia-Vounoi, Kalavastos-Kokkinoyia and Kalavastos-Tenta) and published data (Sotira-Teppes, Klepini-Troulli, Khirokitia-Vounoi, Kalavastos-Kokkinoyia and Kalavastos-Tenta). The data from Ayios Epiktitos-Vrysi and Philia-Drakos A comes from original excavation samples and is used in this study with the kind permission of the excavators. The same classification system was used at both sites and therefore the data is directly comparable. The author used an identical classification system for the museum samples in order to allow for data to be directly compared.

In order to avoid variation caused by chronological disparity, the relative sequence established for the Ayios Epiktitos-Vrysi sample was used to compare like samples from other sites and samples of similar date. For the northern sites analysis was undertaken on the complete samples from Philia-Drakos A (period 2), Ayios Epiktitos-Vrysi (early phase) and Klepini-Troulli (early phase). For the southern sites analysis was undertaken on the complete samples from Sotira-Teppes (phase 2), Kalavastos-Kokkinoyia (pit V) and Khirokitia-Vounoi (complete assemblage). Although samples from the southern sites are slightly later in the ceramic sequence than samples from the northern sites – allowing for the possibility of some temporal variation – the northern and southern traditions are sufficiently different that a slight discrepancy in the comparability of the samples should not significantly influence results.

Obviously, there are problems with using sherd-based assemblages in the analysis of design variation (Graves 1991; Longacre 1991) and it would be more desirable to use whole vessels. However, as all Cypriot Neolithic pottery comes from settlement contexts and is invariably in sherd form there was no other way of recording design variation. Analysis revealed that individual motifs were present in different proportions from site to site; therefore,

although individual motifs may not represent the whole design scheme, there is still enough variation between sites for design variation to be quantified.

Only whole, clearly identifiable motifs were used in the analysis. This confined the red-on-white motifs to ripple, wavy lines/bands, lattice, circles/targets and dots, parallel lines/bands, and ladder pattern. Combed motifs were confined to thin wavy combing, thick wavy combing, thin straight combing and thick straight combing (Table 2).

Design analyses

Two different spatial relationships were examined for evidence of non-random patterns of design variation.

1. Patterns of design variation between closely located and more distant sites with the same design tradition (i.e. only red-on-white ware sites or combed ware sites).

2. Patterns of variation between distant sites with different design traditions (i.e. red-on-white ware sites and combed ware sites).

If stylistic variation existed there should be clear differences in the type of variation evident for each of the two spatial relationships.

Using simple counts of the motifs illustrated in Table 2, quantitative comparisons were undertaken on sherd samples from sites with the same decorative tradition (e.g. either combed motifs or red-on-white motifs). Two relationships were observed.

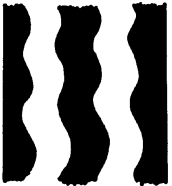
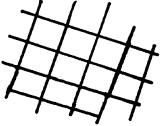
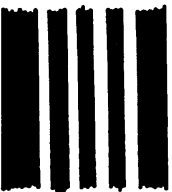
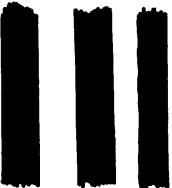
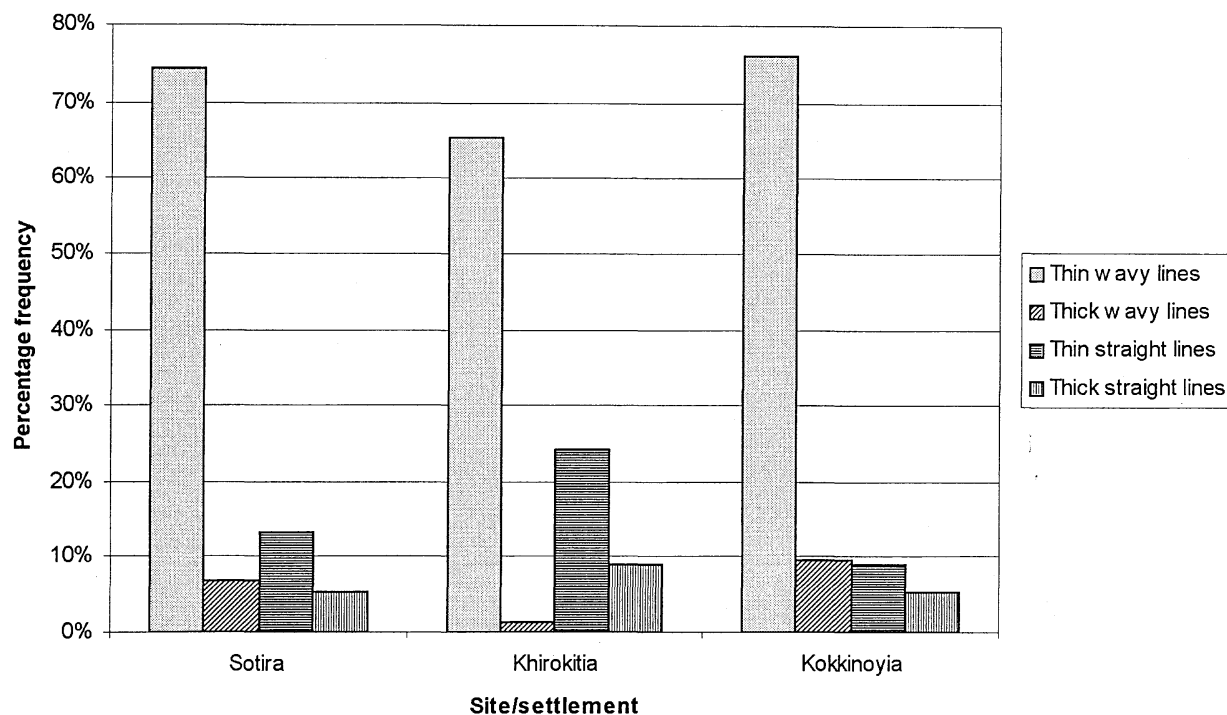
	1 – ripple		7 – thin wavy combing
	2 – wavy lines/bands		8 – thick wavy combing
	3 – lattice		9 – thin straight combing
	4 – circles/targets/dots		10 – thick straight combing
	5 – parallel lines/bands		
	6 – ladder pattern		

Table 2. Red-on-white motifs and combed motifs used in the analysis: 1 – ripple; 2 – wavy lines/bands; 3 – lattice; 4 – circles/targets/dots; 5 – parallel lines/bands; 6 – ladder pattern; 7 – thin wavy combing; 8 – thick wavy combing; 9 – thin straight combing; 10 – thick straight combing.



	Sotira	Khirokitia	Kokkinoyia
Thin wavy lines	2684	692	118
Thick wavy lines	252	14	15
Thin straight lines	480	257	14
Thick straight lines	186	96	8
Total	3602	1059	155

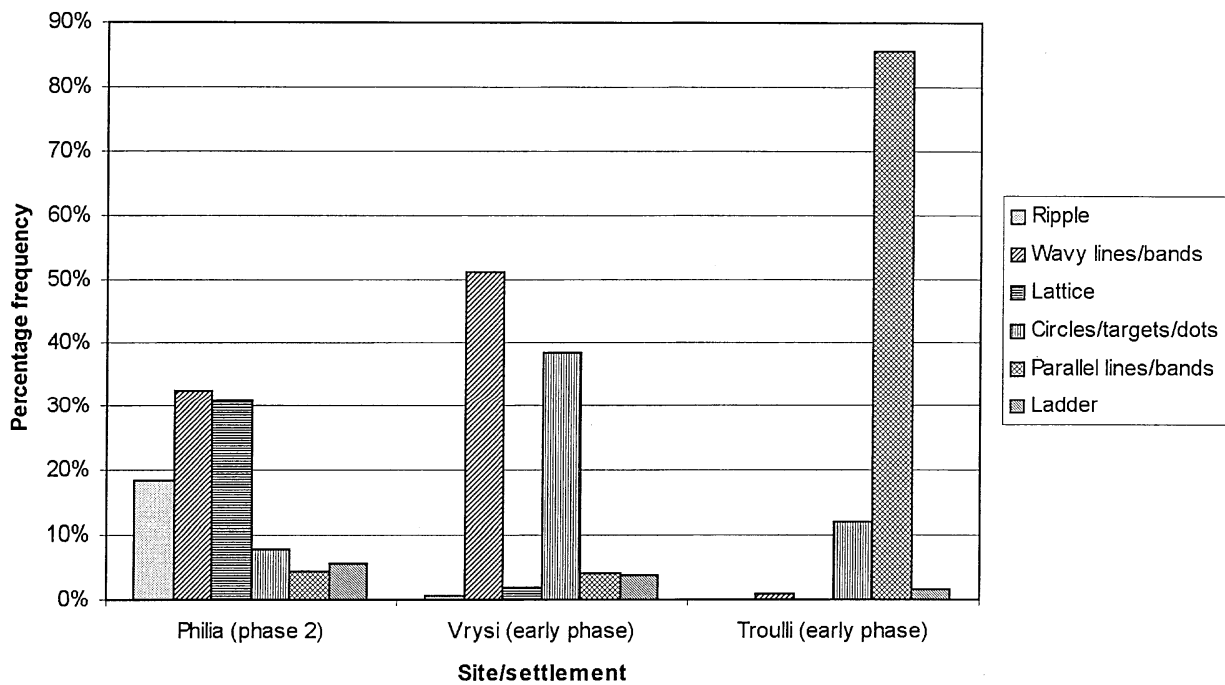
Figure 5. Combed motif distribution at the southern sites of Sotira-Teppes, Khirokitia-Vounoi, Kalavassos-Kokkinoyia and corresponding sherd counts.

1. The degree of similarity between sites in the same region.
2. The degree of similarity between sites in different regions.

The first test was undertaken on three predominantly combed ware sites located in the south of the island: Khirokitia-Vounoi (all phases), Kalavassos-Kokkinoyia (Pit V) and Sotira-Teppes (Phase 2). Khirokitia-Vounoi and Kalavassos-Kokkinoyia are located in the same potential site catchment area, whereas Sotira-Teppes is located 20 km. to the west. The percentage frequency graph in Figure 5 illustrates that thin wavy combed lines dominate combed ware sites, although thick wavy combed lines, thin straight combed lines and thick straight combed lines are relatively well represented.

There is surprising similarity between the frequency of all four motifs at each site. Only Khirokitia-Vounoi exhibits a slight variation in the frequency of thick wavy combed lines and thin straight combed lines. Sotira-Teppes and Kalavassos-Kokkinoyia, in contrast, are very similar in the frequency occurrence of each motif type. Therefore, in this instance two sites located 20 km. apart are slightly more similar in the frequency occurrence of motifs than two sites located approximately 5 km. apart and located in the same site catchment area.

Figure 6 gives the frequency of the most common red-on-white motifs at three northern sites, Ayios Epiktitos-Vrysi, Klepini-Troulli and Philia-Drakos A. Ayios Epiktitos-Vrysi and Klepini-Troulli are located approximately 4 km. apart while Philia-

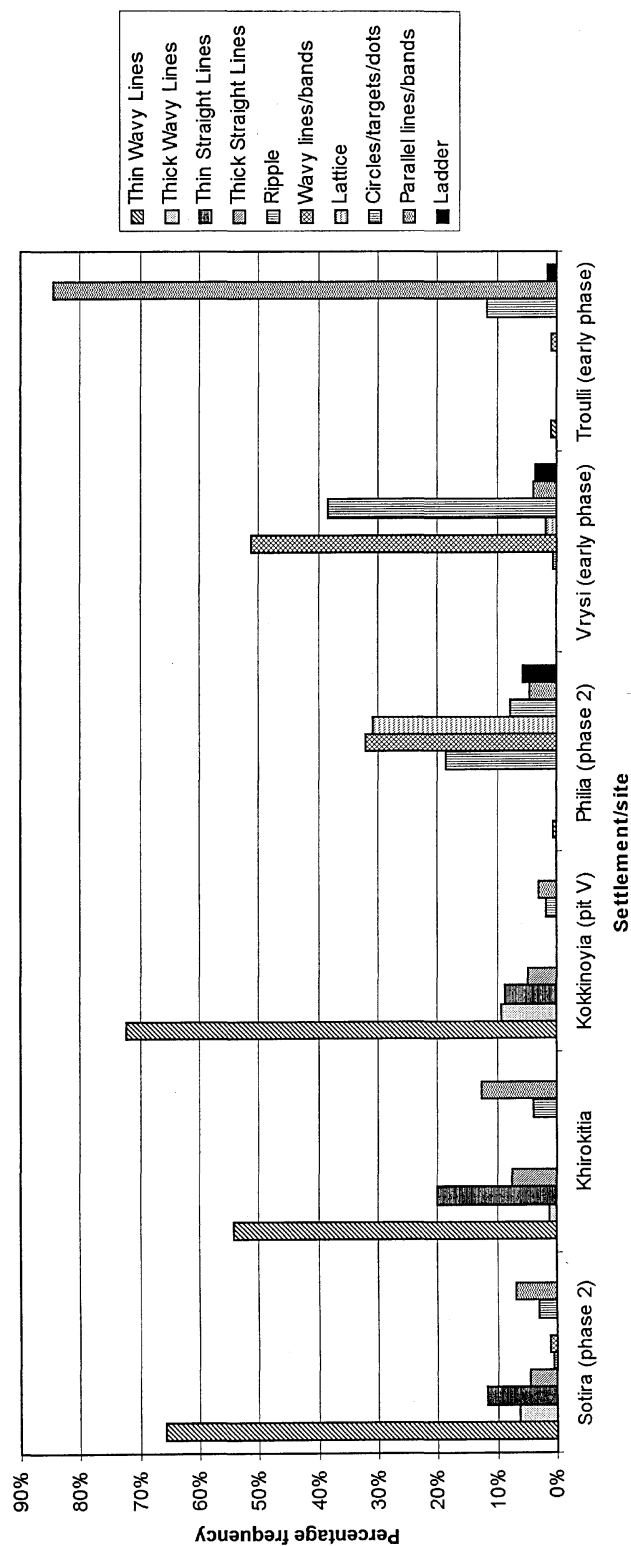


	Philia (phase 2)	Vrysi (early phase)	Troulli (early phase)
Ripple	285	10	0
Wavy lines/bands	496	698	3
Lattice	475	24	0
Circles/targets/dots	118	524	36
Parallel lines/bands	67	55	259
Ladder	87	51	5
Total	1528	1362	303

Figure 6. Red-on-white motif distribution at the northern sites of Philia-Drakos A, Ayios Epiktitos-Vrysi, Klepini-Troulli and corresponding sherd counts.

Drakos A is situated 40 km. to the west in the Morphou Bay region. The graph indicates that there is greater diversity in the types and proportions of motifs that occur on red-on-white ware than those that occur on combed ware. Philia-Drakos A has a relatively even distribution of motifs with a percentage range of only 27%. At Ayios Epiktitos-Vrysi two motifs dominate (wavy lines/bands and circles/targets/dots). The percentage range is also slightly greater at 50%. At Troulli one motif dominates all others (parallel lines/bands). The percentage range is also very large at 85%. Looking at the spread of motifs across all three sites there is more similarity between Ayios Epiktitos-Vrysi and Philia-Drakos A than between Ayios Epiktitos-Vrysi and Klepini-Troulli.

The results demonstrate that like the southern combed ware sites, two sites that are located 40 km. apart (Ayios Epiktitos-Vrysi and Philia-Drakos A) are more similar in the frequency and types of motifs represented on the pottery than two sites located only 4 km. apart (Ayios Epiktitos-Vrysi and Klepini-Troulli). These results contrast with early theories on design variation and social interaction put forward by north American archaeologists (Deetz 1965; Longacre 1970) who argued that design similarity co-varies with distance between sites. Instead it is rather more in keeping with the results from ethnographic studies undertaken by Hodder (1978) and Plog (1978; 1980), which showed that distance between sites was not always the primary factor determining degrees of similarity in design variation.



	Sotira (phase 2)	Khirokitia	Kokkinoyia (pit V)	Philia (phase 2)	Vrysi (early phase)	Troulli (early phase)
Thin wavy lines	2684	692	118	10	0	3
Thick wavy lines	252	14	15	0	0	0
Thin straight lines	480	257	14	0	0	0
Thick straight lines	186	96	8	0	0	0
Ripple	22	1	0	285	10	0
Wavy lines/bands	51	2	0	496	698	3
Lattice	0	0	0	475	24	0
Circles/targets/dots	126	49	3	118	524	36
Parallel lines/bands	283	160	5	67	55	259
Ladder	0	0	0	87	51	5
Total	4084	1271	163	1538	1362	306

Figure 7. Frequency distribution of design motifs at both the northern and southern sites and corresponding sherds counts.

Distantly located sites

The third and final test was aimed at determining whether specific patterns of design variation could be noted between very distant sites. Using simple frequency counts for the major motif groups that appear in the pottery repertoire of sites located in the north of the island and sites located in the south of the island (i.e. between regions) patterns of variation were compared for the degree of similarity between the two regions.

The results of the analyses indicate a significant degree of variation in design patterning within the ceramic repertoire. Figure 7 illustrates that sites located in the north of the island and sites located in the south of the island share almost no motifs in common. This pattern is to be expected given the complete divergence in decorative techniques between the two regions. Essentially Sotira-Teppes, Khirokitia-Vounoi, and Kalavassos-Kokkinoyia are dominated by combed motifs whereas Philia-Drakos A, Ayios Epiktitos-Vrysi and Klepini-Troulli are dominated by red-on-white motifs.

Therefore it seems fair to say that style, as defined by Wiessner, exists in the designs on Cypriot Neolithic pottery because the extent to which designs differ between sites is non-random. Plog has assessed each of the three types of style described by Wiessner and has devised a method by which archaeologists might recognise the types of style present in an artefact assemblage. Plog (1995, 373) states that "we should be able to define clear-cut artefact types only when stylistic variation is largely a component of passive or emblematic behaviour. When, however, aspects of style are assertive behaviour such types should not be expected, particularly when variation over a period of time is considered."

When applied to the Cypriot ceramics this method of identifying stylistic types allows for the following observations:

Design variation between closely located sites appears to be attributable to symbolic style because there are no clear-cut artefact types. Sites located at 40 km. from each other and 5 km. from each other share the same repertoire of motifs but the motif frequency changes. Moreover, at Ayios Epiktitos-Vrysi, Philia-Drakos A and Klepini-Troulli there are no consistent patterns of attribute association, and variation is random.

Design variation across regions indicates a predominance of one particular design technique over another and this is characteristic of emblematic style. By definition combed ware and red-on-white ware are clear-cut artefact types and therefore, by Plog's definition, contain emblematic style.

It should not be forgotten that all Cypriot Neolithic ceramic design contains passive variation by the very fact that it is hand-made and hand-painted. Individual potters will choose from a range of available motifs and motif variations and will use a variety of brushes or tools to achieve a desired affect. In doing so, passive stylistic variation naturally occurs in the design repertoire.

Conclusions

Individual settlement populations in Neolithic Cyprus probably never exceeded 500 individuals (Stanley Price 1977). Wobst (1976) has calculated that the minimum size for a mating network is 475 people, therefore inter-marriage networks would have been wider than simply within the settlement or site cluster. This would have been important, not only for the acquisition of personnel, but also for the acquisition of goods and information.

Settlements that shared the same site catchment areas may have competed for land and resources but strong kin ties could have tempered the degree of competition. Even if communities interacted in a way that was beneficial to the group or settlement, interaction would have been economically and socially structured.

In contrast, distant groups would have lacked the strong kin ties that presumably existed between closely located groups, but would not have had the same degree of competition for resources either. The only chance of competition would have been between hunting parties intensively utilising the same areas.

Although extended kin relationships would have been the optimum social unit for population maintenance (i.e. like those that probably existed between closely located sites), there were probably a range of less structured social interaction networks based upon exchange of information. Hunting would have brought individuals into contact with each other and it might have been through this contact that other exchange systems evolved. Evidence from the Urfirnis regions of the southern Peloponnese (Jacobsen 1984), indicates that utilitarian objects such as pottery moved about via seasonal pastoralist activity. Although there is no evidence for transhumance in Ceramic Neolithic Cyprus there is no reason to assume that pottery items were not transferred through wider exchange systems and hunting.

Although there is no ceramic data at present for patterns of variation between site clusters, effectively there should have been little or no competition for resources and therefore no significant variation between sites. Certainly the pottery repertoires from

Kalavassos-Tenta and Kalavassos-Ayios are closely comparable (Baird n.d.a., n.d.b.) and the same could be said for Kalavassos-Kokkinoyia and Kalavassos-Pamboules (Clarke and Todd 1993). However, the author has noted some variation in the motifs and fabrics used between the two pairs of sites. Whether this variation is attributable to temporal factors rather than stylistic factors is uncertain.

Decorative schemes on pottery show non-random patterns of variation between sites. Settlements located in the same region are characterised by symbolic style. Settlements show greater variation in the frequency of motifs between sites in the same catchment area than settlements at some distance from each other. This may be interpreted as one way in which groups differentiated themselves from other closely located groups or negotiated their economic and social space. Settlements located in different regions are characterised by emblematic style. Emblematic style communicates differences between groups. This is to be expected between settlements that probably shared no kin ties and that may only have come into contact with each other on a sporadic basis.

In conclusion, stylistic variation in Cypriot Neolithic ceramics reflected the interactive processes that took place between individuals and groups involved in the day-to-day social and economic activities. Interaction, based upon kinship and inter-marriage, work-groups, hunting parties etc. would have created intricate social relations that would have been negotiated on both an individual and group level. Competition for resources within site catchment areas may also have contributed to the creation of social and economic boundaries.

Stylistically, these relationships may have been represented in the ceramic assemblage as different forms of stylistic expression, with symbolic style being most common in areas where strong familial relationships existed and emblematic style most common between distant groups that did not come into contact with each other very frequently.

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