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Escaping the Labyrinth

The Cretan Neolithic in Context

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15

The Neolithic-Early Bronze Age transition in Crete: New Evidence from the Settlement at Petras Kephala, Siteia

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Although widely regarded as a dynamic and significant phase in Minoan prehistory (Vagnetti and Belli 1978; Hood 1990a; Vagnetti 1996; Nowicki 2002; Hayden 2003), the Neolithic-Early Bronze Age (EBA) transition in Crete poses problems of two sorts. First, there are problems of definition and relative chronology. This is not surprising since no published site has produced a complete stratigraphic sequence from FN to EM I (see Figure 15.1 for sites mentioned in the text). At the long-lived, multi-period sites of Knossos and Phaistos, material of this date has long been known to exist, but often in mixed, secondary deposits that lack clear stratigraphic evidence of succession and it is only now that that the first stratified FN–EM I deposits are beginning to be located (Tomkins 2007; this volume; Todaro and Di Tonto this volume). This has led to serious misunderstandings and problems of definition. The existing literature is also unclear on the chronological relationship between the Neolithic sequences at Knossos and Phaistos (Manteli and Evely 1995: 11; Vagnetti 1996: 37–38), although resolution of this issue seems to be imminent (Todaro and Di

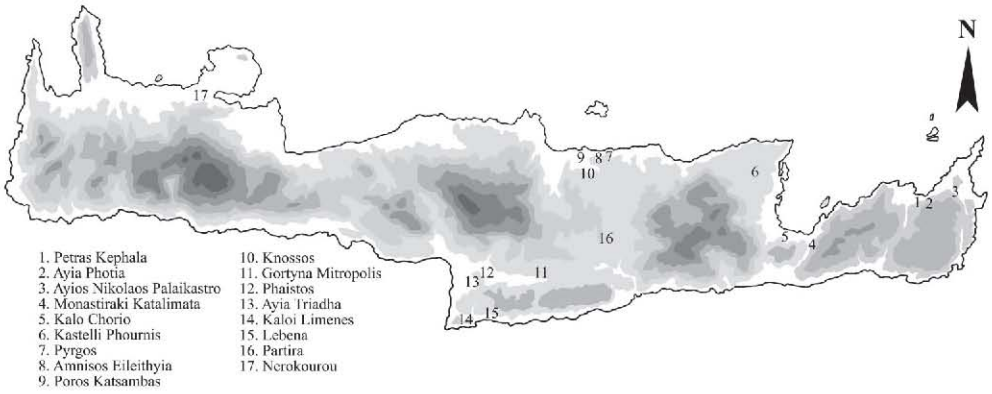

Figure 15.1. Map of Crete with sites mentioned in the text.

Tonto this volume; Tomkins 2007; this volume). Furthermore it has recently been shown that the EM I assemblage hitherto considered to be earliest at Knossos, the Palace Well deposit, should actually be dated towards the end of this period and cannot represent the beginning of EBA in Crete (Wilson and Day 2000: 51–56). Although reconsideration of old assemblages at both Knossos (Tomkins 2007) and Phaistos (Todaro 2005) has brought us closer to a solution, the problem cannot be fully resolved until either a new, complete and undisturbed FN–EM I sequence is found at these sites or an external point of reference, that is a new stratigraphic sequence from another site, is located. In the rest of Crete, however, the available evidence is based either on single-phased domestic assemblages, such as Monastiraki Katalimata (Nowicki 2002: 16–20), Gortyna Mitropolis (Vagnetti 1973), Kaloi Limenes (Vasilakis 1987), Nerokourou (Vagnetti *et al.* 1989), Kastelli Phournis (Manteli 1992), or on unstratified – and often disturbed – funerary and cave assemblages, such as Partira (Mortzos 1972), Ayios Nikolaos-Palaikastro (Tod 1903), Amnisos-Eileithyia (Betancourt and Marinatos 2001), Trapeza (Pendlebury *et al.* 1935–6) and Lebena (Alexiou and Warren 2004: 118). Although the above sites could be placed in the Neolithic-EBA transition, none of them has stratified material from *both* the FN and EM I periods that might allow the character and features of the transition to be clarified. The confusion is increased when the same assemblages are often considered FN, sub-Neolithic or early EM I (for a detailed discussion see Nowicki 2002: 11–15; Tomkins 2007). Moreover, in several cases, especially in surface surveys, when typology cannot provide a precise date, the general and obscure term 'FN/EM I' is often used (Haggis 2005: 47). Therefore, consensus has been lacking not only regarding the definition of the FN and EM I periods, but also concerning the precise dating of the assemblages that represent these transitional phases. These are fundamental problems that go beyond simple terminology and have had significant implications for the way we define, understand and interpret the Neolithic-EBA transition.

Beyond relative chronology, the second major issue concerns the historical conditions that caused the emergence of the cultural features that characterize the EBA and differentiate it from what was happening during the Neolithic. Late FN and EM I are characterized by new settlement patterns, population mobility and expansion (Watrous 1994: 701; Branigan 1998: 80–84; Vokotopoulos 2000; Nowicki 2002; Hayden 2003), changes in pottery styles (Hood 1990b; Betancourt 1999; Nowicki 2002), the development of metallurgy (Muhly 2004; Papadatos in press) and the emergence of formal burial customs (Vagnetti and Belli 1978: 150–51; Betancourt 1999: 36–37). The interpretation of these changes, however, is a matter of ongoing debate. Several scholars have explained them as the result of population movements from other areas into Crete (Warren 1974: 41–43; Hood 1990a; 1990b; Nowicki 1999; 2002; Hayden 2003: 395). There is disagreement, however, as to the precise chronology of these movements, variously dated to FN or EM I, and as to the place of origin of the newcomers, which is also

variously located in the Dodecanese and southwest Anatolia, the Troad and northeast Aegean, Cilicia or the coast of Syro-Palestine. At the same time, other scholars have argued that the emergence of the EBA in Crete was a long and gradual process, often with external influences, but without any significant migration (Branigan 1970: 201; Evans 1974: 19–21; Vagnetti 1996: 39).

The excavation of an FN–EM I settlement at the site of Petras Kephala in east Crete thus provides a rare opportunity to study the Neolithic-EBA transition in greater detail. The aim of this paper is to summarize the evidence from the site and outline its implications for the issues discussed above. Study of the Petras Kephala material is at a preliminary stage, and the following discussion should be treated as a re-examination of the old problems in the light of the new evidence rather than as a definitive resolution of the issues involved.

The Site

Test excavations carried out during 2002–2004 at Petras, near Siteia, by the 24th Ephorate of Prehistoric and Classical Antiquities, have revealed remains of habitation dated to FN IV and EM I. The site lies on the north slope of the Kephala hill (Figure 15.2), 200 m northeast of the lower hill, where the Minoan town and the palace of Petras have been unearthed (Tsipopoulou 1999; 2002). The excavation covered an area of about 360 m^2 but surface survey has shown wide distribution of FN and EM I pottery on the north and east slopes (Tsipopoulou 1990: 321; Nowicki 2002: 28), suggesting a relatively large area of habitation. Although this distribution seems partly to reflect erosion and bulldozing activities (especially on the east slopes), there is evidence for *in situ* material as well, especially on the south slopes of the hill. It is impossible to give a precise estimate of the size of the settlement, but it seems clear that the excavation revealed a relatively small proportion of the total area of FN–EM I habitation on the Kephala hill.

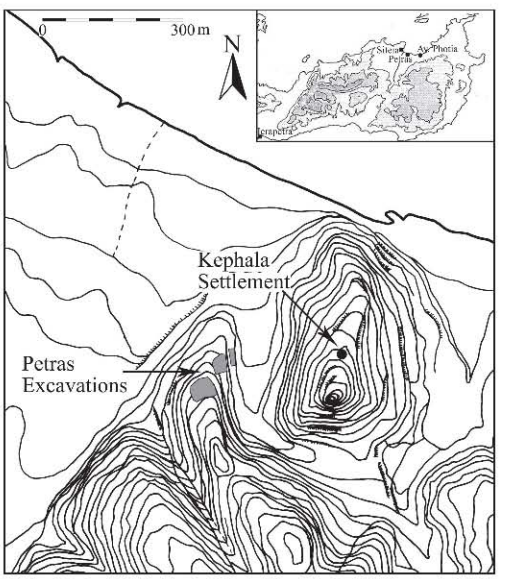

Figure 15.2. Map of the Petras Kephala area.

The architectural evidence is rather complex and suggests several successive phases of occupation, during which some older walls went out of use and were covered by new structures, whilst others were reused as part of new building complexes (Figure 15.3). The earliest

architectural remains, dated to the very end of the Neolithic (FN IV), consist of several straight walls on the northwest edge of the excavated area, defining two rectilinear rooms parallel to each other. The latest architectural remains are dated to EM I and consist of several straight walls forming a large building complex with at least eight rooms. Several curvilinear walls belong, on the basis of orientation and structure, to an earlier architectural phase of this building complex. Some of these were reused in the EM I building complex, whilst the rest went out of use. The precise dating of these curvilinear walls remains unclear, but they certainly belong to an intermediate architectural phase between the FN IV rooms and the EM I building complex. There is no evidence for any dramatic event separating the various phases and the reuse of some of the older curvilinear walls indicates that the gap between the intermediate and EM I phases was not long. The end of the settlement, at some time during EM I, was also not marked by any major event. The site was probably simply abandoned – there are no indications for fire destruction. The earliest remains found underneath the Petras palace are dated to EM IIA (pottery) and EM IIB (architecture and pottery) (Tsipopoulou 2002: 136), suggesting a shift of habitation from the steep Kephala hill to the lower and more accessible palace hill. It is difficult at present, however, to determine whether or not there was a hiatus between the abandonment of the Kephala hill and the occupation of the palace hill.

The pottery of the site (currently under study by the author and P. Tomkins) clearly indicates two main phases of occupation (FN IV and EM I). Most of the FN pottery comes from the northwest edge of the site, where deep, undisturbed deposits were found inside and around the two rooms. This pottery belongs to a single stylistic phase, dated by parallels to FN IV, and in its majority is coarse to semi-coarse with dark grey to black core. The surface is burnished with a dull red to brown colour. The same is also true for the finer vases, though their

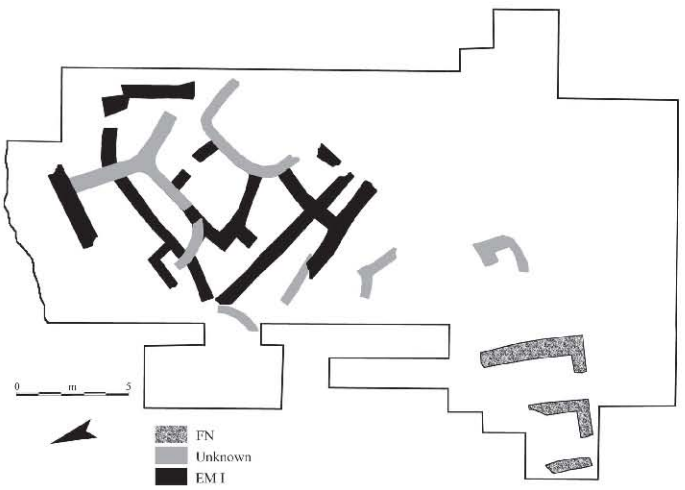

Figure 15.3. Petras Kephala: Plan of the excavated architectural remains.

surface is occasionally highly polished. Shapes are restricted to open and semi-closed vases, mainly cups (Figure 15.4a–b), open bowls (Figure 15.4c) and collared jars (Figure 15.4d). The bases are usually rounded, although some large jars have a pointed base. The rims are simple, often slightly everted. Strap handles prevail and vertical handles of circular section are rare. There is also a large number of 'cheese-pots' (Figure 15.4f). Close parallels for the assemblage can be found both within and outside Crete. There are many forms, such as the round-based curved or carinated bowls with everted or flared rim (Figure 15.4e), that are typical of Cretan FN IV assemblages at Phaistos and Knossos (Vagnetti 1972–3: 55 fig. 57(14); 64, fig. 63(17–23); 66, fig. 64; Tomkins 2007: fig. 15(11)). On the other hand, the frequency with which 'cheese-pots' occur contrasts sharply with the FN IV deposits at Knossos and Phaistos, and brings Kephala closer to Nerokourou in west Crete (Vagnetti *et al.* 1989) as well as to sites beyond Crete, such as Partheni on Leros, Alimnia on Rhodes and Gyali near Nissyros (Sampson 1984; 1987; 1988). A high frequency of 'cheese-pots' has also been noted in surface material from Kasos, Karpathos and sites in east, south and west Crete (Nowicki 2002: 28; this volume).

In addition to FN IV pottery, the site has also produced limited quantities of earlier material, dated to FN I–III. This ceramic material is fragmentary and was found not *in situ*, but mixed with FN IV and EM I pottery in open areas and beneath the floors of the EM I building complex. Nevertheless, it is very important as it indicates some sort of activity in the area prior to FN IV.

The pottery of the later phase probably dates to the earlier part of EM I. It

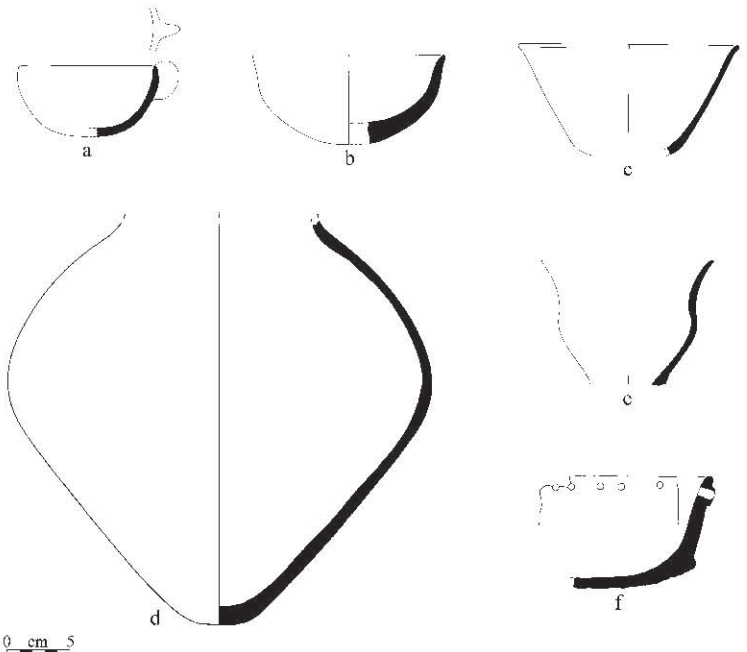

Figure 15.4. Petras Kephala: Final Neolithic pottery.

was found inside and outside the rooms of the EM I building complex, on the floors and in the layers of building collapse. The EM I ceramic assemblage consists of two major components. The first comprises the burnished wares, mainly Dark Grey Burnished and smaller quantities of Red/Brown Burnished and Orange/Buff Burnished. The vessels in these wares are primarily serving vessels. Most common is the high-pedestalled bowl (Figure 15.5a), with holes or fenestrations on the foot, vertical handles of circular or elliptical section and occasionally small 'rivets' or knobs on the rim. Less frequent is the carinated convex cup (Figure 15.5b) with curved base, and with a vertical tubular or elliptical handle or a vertically pierced triangular lug. Other shapes in burnished wares are the miniature suspension pyxis (Figure 15.5c), the collared jar and the shallow bowl or deep plate (Figure 15.5d). Jugs are extremely rare, with only two small specimens with pinched-out spout from 20 crates of pottery. It should be also noted that pattern burnished decoration is quite rare, restricted to pedestalled bowls and cups, and consists of reserved panels with simple, thin, vertical or diagonal lines.

The second major component of the EM I assemblage is the Washed and Wiped Ware, with red to brown surface. In general, the fabric is coarser and more friable than that of the burnished pottery, and the vases produced were used mainly for food preparation and storage. The most common shape is the hole-mouthed spherical jar (Figure 15.6a), with curved, heavily wiped or even scored base, square incurving rim and two handles below the rim. These handles are something between a strap handle and a tubular handle in section. The jars are made in various sizes and were used for both cooking and storage. Another very common vessel is the baking plate (Figure 15.6c), the base of which is rough due to its probable manufacture in a hollowed-out cavity in the earth.

An interesting feature of the EM I assemblage is the limited quantity of Dark-on-Light painted ware, represented by a few sherds and a single example of a two-handled collared jar. More common (but still no more than 5% of the total) is Red Slipped ware, in which the entire vase is covered with a red to brown slip, always different from the colour of the clay. It is represented by various medium-sized shapes, the commonest being the two handled collared jar or tankard (Figure 15.6b). Finally, there are several thick-walled sherds from

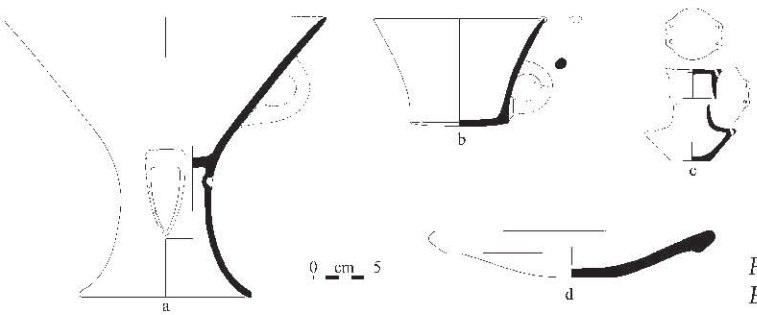

Figure 15.5. Petras Kephala: Early Minoan I pottery.

very large open vessels or pithoi. These are occasionally painted inside and/or outside with red slip, which in one case creates a dripping pattern (Figure 15.6d). These vases also have complex relief decoration on the exterior, consisting of highly pronounced ribs and knobs that form linear or curvilinear motifs. Unfortunately, it was impossible to restore a full profile, but these sherds may be derived from no more than five to seven pithoid vases.

In contrast to the FN ceramic assemblage, the EM I pottery does not indicate any significant influence or affinity with areas outside Crete. Instead, its parallels lie entirely with EM I assemblages from across the island. Numerous features favouring an early EM I date include the fenestrations on the pedestalled bowls, the limited presence of pattern burnished decoration, the absence of high biconical chalices of Pyrgos type, the projections or horns on the rims of the burnished bowls and cups, the miniature suspension pyxides, the curved bases of the carinated convex cups, the strap-like handles on the hole-mouthed jars, the limited presence of painted decoration, and the virtual absence of jugs. Close parallels can be found at Partira (Mortzos 1972) and Ayios Nikolaos-Palaikastro (Tod 1903), and amongst the earliest EM I material from Lebena (Alexiou and Warren 2004: 118) and Phaistos (Todaro 2005). The dating is reinforced by the fact that the pottery shows little affinity with EM I assemblages contemporary with the 'Kampos group' horizon. This is true not only for assemblages with Cycladic affinities, such as Ayia Photia (Davaras and Betancourt 2004), Pyrgos (Xanthoud-

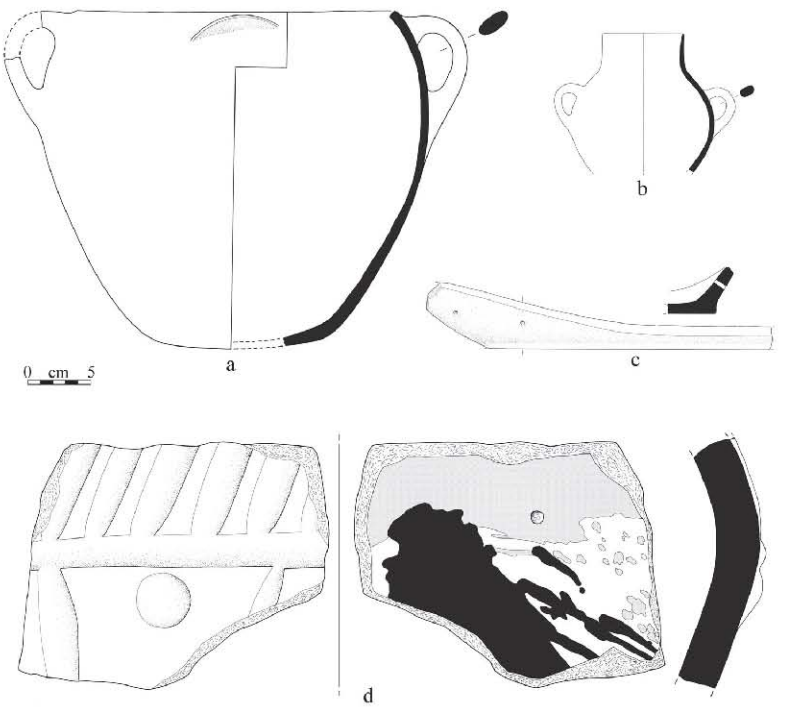

Figure 15.6. Petras Kephala: Early Minoan I pottery.

ides 1918) and Poros Katsambas (Wilson *et al.* 2004), but also with other non Cycladic-related assemblages, such as Kalo Chorio (Haggis 1996) and Ayia Triadha (Todaro 2003). Considering that all these sites should be dated towards the end of the EM I period (Warren 1984; Wilson and Day 2000), it seems safe to conclude that Petras Kephala is earlier.

Chronology

Petras Kephala, with its clear and undisturbed stratified sequence running from the end of FN into EM I, brings much needed clarification to the chronological problems of the Neolithic-EBA transition. Regarding the end of the Neolithic, the Petras Kephala material sheds new light on the sub-phasing of this period and its relationship with EM I. It has been suggested that the old 'FN' period could be divided into two sub-phases (Vagnetti 1996: 38; Nowicki 2002: 15): 'FN I', an earlier phase represented by Phaistos and Katalimata; and 'FN II', a later phase represented by Nerokourou and other sites with 'cheese-pots'. Indeed, it seems that sites of the 'cheese-pot' horizon (such as Petras Kephala and Nerokourou) belong to a later stage, that is FN IV, while assemblages like Katalimata find parallels in the preceding FN III period, as represented at Knossos and Phaistos (Tomkins 2007; Todaro and Di Tonto this volume). On the other hand, it should be noted that Petras Kephala has parallels not only with sites of the 'cheese-pot' horizon, but also with latest Neolithic (FN IV) assemblages at Knossos and Phaistos. This would seem to indicate that the difference between these sites is cultural rather than chronological, a possibility not excluded by Nowicki (2002: 65) or Vagnetti (1996: 38; Vagnetti and Belli 1978: 161). Since 'cheese-pots' are traditionally considered an off-island feature, their presence may indicate outside influence. The evidence from Petras Kephala thus suggests that 'cheese-pot' sites are contemporary with other latest FN assemblages, in which 'cheese-pots' are rare or absent. The presence of 'cheese-pots' at some sites may indeed signal a *late* date within FN, but their absence does not necessarily indicate an *early* one.

A second significant conclusion is that all assemblages that have been considered as 'sub-neolithic' or Final Neolithic in the literature, such as Partira and Ayios Nikolaos (Vagnetti and Belli 1978: 161), are contemporary with the EM I material from Petras Kephala, and therefore should be placed early in EM I, a view reinforced by the similar dating of the earliest material at Lebena (Alexiou and Warren 2004: 118). These assemblages are quite distinct from the FN IV material from Petras Kephala and instead exhibit features that characterize the EM I pottery from the site, such as dark grey burnished surfaces, pattern burnished decoration, miniature suspension pyxides, one-handled cups with convex base, and the virtual absence of dark-on-light painted pottery and jugs.

Finally, the Petras Kephala assemblage demonstrates clearly that it is indeed possible to divide EM I into two sub-phases. Stylistically, the latest pottery from

the site bears little similarity to the ceramic assemblages from sites of the 'Kampos group', such as Ayia Photia, Poros Katsambas and Pyrgos. This difference is particularly striking between the Petras Kephala and Ayia Photia assemblages. Despite their proximity, there are no parallels between the two sites. Although we cannot exclude some chronological overlap, it seems clear that the EM I material from Petras Kephala represents a cultural horizon that is earlier than the 'Kampos group' horizon, which in this area is represented by Ayia Photia. Given that the 'Kampos group' is dated towards the end of EM I (Renfrew 1984; Warren 1984: 59–60; Wilson and Day 2000: 50–56), we should return to the old division of EM I into two sub-phases (EM IA and EM IB), a suggestion reinforced by recent work on the stratigraphic sequence at Phaistos (Todaro 2005).

The Advent of the Early Bronze Age

Petras Kephala also provides valuable new evidence for the broader context of the FN–EBA transition and the processes that lead to the emergence of features characteristic of the EBA on Crete. The two copper ores and six pieces of copper slag found at Petras Kephala constitute the earliest evidence to-date for metallurgical activities in Crete (Papadatos in press). These were found beneath the EM I floors, in mixed deposits containing FN and EM I pottery and are thus certainly earlier than the EM I building complex. It is unclear whether they can be dated as early as FN IV, but there is indirect evidence to support this hypothesis. Several pieces of burnt clay found in undisturbed FN IV deposits seem to have been subjected to temperatures higher than normally occur in a pottery kiln (there is no evidence of a burnt destruction), and so may plausibly be associated with metallurgical activity (Papadatos in press). Hitherto, metallurgy on Crete has been considered a later development (Day *et al.* 1998: 145; Betancourt 2003), associated with later EM I (*i.e.*, 'Kampos Group' horizon) sites, such as Ayia Photia and Poros Katsambas, which have strong Cycladic affinities (Dimopoulou 1997; Davaras and Betancourt 2004). The Kephala evidence alters this picture, as it shows that metallurgy in Crete probably developed earlier, in a different cultural and chronological horizon, before the Cycladic expansion of the 'Kampos group' phase (Papadatos in press). Moreover, with this evidence in mind, Crete no longer appears a world apart, isolated from the metallurgical developments of the rest of the Aegean. Instead, it can be added to a growing number of FN Aegean sites that have produced similar evidence for early metallurgical activity, such as Sitagroi, Kephala on Keos and Gyali (Nakou 1995: 3–8; Muhly 2002: 77).

The introduction of metallurgy probably at the very end of the Neolithic marks a significant step towards the material culture characteristic of the EBA. In the case of pottery technology and typology, however, the evidence suggests that major changes occurred in the following period, at the beginning of EM I. The

pottery from Petras Kephala, which during FN IV is relatively unvaried in terms of form, decoration and surface treatment, in EM I changes dramatically. For the first time wares are characterized by greater variation in surface treatment and functional specialisation (*e.g.*, burnished wares for serving/drinking purposes, washed and wiped ware for cooking and storing). Moreover, the wares that appear in this phase continue (though not without changes and additions) until at least EM IIB. Therefore, from the point of view of style (and relative chronology), it is the introduction of these wares that signals the advent of the EBA. The same can be suggested for the obsidian technology of Petras Kephala, which in EM I shows evidence for change and innovation, with the appearance of the first fine prismatic blades. These are very different from their earlier, FN, counterparts and similar to the standard form that predominates in the rest of the EBA all over the Aegean (D'Annibale this volume).

Population Movements and Cultural Change

The last issue to be addressed concerns the historical conditions that brought about the changes signalling the advent of the EBA in Crete. The evidence from Petras Kephala suggests that, if an external element is to be identified, it is in the FN IV period. The stylistic affinities with the Dodecanese, provided by the 'cheese-pots' could, on their own, be taken to indicate not just cultural influence, but also population movements from this area into Crete (see also Nowicki this volume). Similar observations concerning affinities with pottery from outside Crete have been made for the contemporary site of Nerokourou (Vagnetti 1996) and for other sites identified by surveys all over Crete (Nowicki 2002). On the other hand, the preliminary results of petrographic analysis show that the bulk of the FN IV pottery was made locally (Nodarou pers. comm.). Moreover, the presence of FN I–III material, albeit fragmentary and in secondary deposits, indicates that the site had a long history of habitation before FN IV.

The differences between the FN IV pottery of Petras Kephala and the typical Cretan material of Knossos and Phaistos, seen especially in the frequency of the 'cheese-pots', reinforces the idea that at the end of the Neolithic there existed in Crete two different cultural traditions, one continuing the long Neolithic tradition, and a new one also bearing affinities with areas outside Crete (Vagnetti 1996; Nowicki 2002). As suggested above, this difference is cultural rather than chronological. The distribution of these sites does not seem to be coincidental. In terms of excavated sites, the new tradition is best represented by Nerokourou in the far west and Petras Kephala in the far east of Crete. Surface surveys reinforce this picture, since sites of this 'new' tradition tend to concentrate at the two extremities of Crete, and are almost absent from the central part of the island (Nowicki 2002). It seems that, during this period, Crete communicated with the wider Aegean world mainly through these areas. Historically, the western and

eastern parts of the island had frequent, bi-directional contacts with their adjacent areas. For this reason, it would be a mistake to assume the same origin for either the cultural links or any potential newcomers. In the case of Petras Kephala the affinities are with the Dodecanese, while for Nerokourou perhaps we should look towards the Peloponnese (Vagnetti 1996: 34).

Because of the preliminary stage of this study, it is not yet possible to give a definite answer to whether Kephala Petras and Nerokourou represent simple cultural influence or population movements. Whatever the case, it seems clear that through these sites the wider Aegean world 'intrudes' into Crete, creating new cultural and perhaps social/demographic conditions, and introducing an entirely new technology, that of metallurgy, which for the moment is only certainly attested at Petras Kephala and possibly at Chrysokamino (Betancourt *et al.* 1999; Muhly 2004).

If we associate this 'new' FN IV tradition with an external cultural or ethnic element, however, how should we interpret the changes observed at Petras Kephala in EM I, in domains such as architecture, pottery and obsidian technology? How important were these changes and to what degree do they represent a real break in the cultural sequence? Should they be interpreted in terms of external factors, internal processes, or maybe a combination of both? The changes that signal the advent of the EBA in Crete were first recognized at Knossos and interpreted in terms of population movements at the beginning of EM I (Warren 1974; Hood 1990a; 1990b). At first glance, Petras Kephala shows similar (if not sharper) changes and breaks in material culture at the beginning of the EM I period, but a more detailed study of the available evidence suggests that the picture is not that simple.

In the architecture, the change to a single, multi-roomed agglomerative building perhaps indicates transformations in the organisation of activities within the local society, or social structure, but transition from one period to the next was not a traumatic one, nor marked by any catastrophic event. In the pottery, the introduction of the first wares with functional specialization and diverse surface treatment contrasts sharply with the monotonous dark red burnished surface of FN IV, and indicates changes in aesthetic preferences, firing technology and the social meaning of pottery. The preliminary results of the archaeometric study, however, show the use of *similar local* clay pastes in both periods (Nodarou pers. comm.). In the chipped stone, the introduction of the first *fine* prismatic blades and the increased level of uniformity and standardization suggest transformations in knapping technology (D'Annibale this volume), but these can be interpreted not as groundbreaking innovations introduced from off-island, but the result of increased experience and gradual advancement.

It seems certain that, in contrast to FN, the changes at the beginning of EM I had little to do with the Dodecanese or with any other area outside Crete. Moreover, although the evidence from Petras Kephala may indeed indicate marked changes in material culture from FN IV to EM I, this is not necessarily

the case for the entire island. At Knossos and Phaistos ceramic and other evidence now suggests continuity and gradual transformation rather than a sharp break (Todaro 2001; 2005; Tomkins 2007). Whatever happens at each site during the Neolithic-EBA transition, there is one clear similarity of great significance, namely that all the cultural features that appear in EM I, whether they represent a break (Petras Kephala) or continuity (Phaistos, Knossos) from FN, characterize almost the entire EBA all over Crete. Despite local variations and changes through time, agglomerative architecture, diversity in ceramic wares and fine prismatic blades continue throughout the EBA and across the island. For this reason, it is surely an oversimplification, at least, to attribute these changes to short-lived external influences on just parts of the island of Crete.

The significance of Petras Kephala is that it allows us to restate the problem and rephrase the question. Considering that the site provides evidence for a 'new' cultural tradition in FN, it is important to examine to what degree this tradition (a) survives into EM I, and (b) plays a role in the formation of the cultural elements that characterize the EBA of Crete. It is impossible to give definite answers at the moment, but full study and analysis of the Petras Kephala assemblages will provide valuable insights into these problems and possibilities.

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