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Investigating site diversity in the Early Bronze Age Aegean

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Despite the central location of the Cyclades in the southern Aegean Sea, there has been little intensive investigation of the islands' prehistoric settlement pattern. Here it is shown how close comparison of mainly surface evidence from two sites on the islands of Amorgos and Keros can contribute to our understanding of the diversity of sites in the Early Bronze Age and of the dynamics of interaction between them.

In the Cyclades, prehistoric remains have tended to be recovered as occasional finds during the excavation of later Classical sites, or, in recent decades, during rescue excavations following the illicit looting of sites to supply marble and ceramic artefacts to feed the antiquities trade. In particular, few Cycladic sites of the Early Bronze Age (3500–1900 BC) have been investigated either intensively or extensively. In 1987 a collaborative project was begun by the universities of Athens, Ioannina and Cambridge, to investigate the sites of Markiani and Dhaskaleio Kavos on the adjacent islands of Amorgos and Keros in the southeastern Cyclades (Fig. 1).[1] As part of that project, I directed surface investigations at both sites, which allowed explicit comparisons to be made between them that contribute to our understanding of Early Cycladic (Early Bronze Age) demography and society.

Most Early Cycladic settlements are known through surface investigations or only limited soundings, and are very small. Many Early Cycladic cemeteries have been investigated, and these demonstrate that small communities were the norm, probably often farmsteads or hamlets of only one or two families; it has also been show that the cemeteries were rarely in use for any substantial period of time.[2] Since the late 1970s, intensive systematic regional surveys have begun to document a low-density distribution of small sites across most islands that have been investigated. Recently, research by Cyprian Broodbank of the Institute of Archaeology has expanded our analytical perspective beyond the individual island, to highlight a few Cycladic sites that are exceptional in terms of either their size and material culture or the scope of their trade relationships with other communities.[3] This raises interesting questions about how island communities were integrated and became differentiated at a larger regional scale, but their investigation has had to rely on limited data, collected haphazardly from many different sites for more than a century. Our work on Amorgos and Keros, at the sites of Markiani and Dhaskaleio Kavos, makes a unique contribution to understanding these questions, not just because investigation at both was intensive, but because similar strategies of data recovery were used that allow direct comparisons to be made between the sites.

The site of Markiani on Amorgos

Markiani is one among many small Early Cycladic sites on Amorgos that have been found during the past century through extensive fieldwork, most recently by Lila Marangou of Ioannina University and the local representatives of the Greek Archaeological Service.[4] It is situated in southwestern Amorgos, on a low hill, perched above the precipitous southern cliffs of the island. The hilltop has very little soil cover, distributed in patches between outcrops of natural rock. Archaeological materials of Early Cycladic date spill down the southern slope, reaching about halfway to the sea (Fig. 2).

The aim of the excavations was to recover a pottery sequence for this part of the Cyclades from a settlement site, to complement earlier investigations of cemeteries on Amorgos. The aim of the surface investigations, which extended over some 20 ha (Fig. 3), was to define the extent and character of the occupation during different phases of use. The density distribution of Early Cycladic pot-sherds indicates that occupation was essentially restricted to about 2500 m^2 on the summit and upper southern slope of the hill. Analysis of the size and abrasion of sherds suggests that their wider distribution is the result of downslope erosion during episodes of use of the site and slope.[5]

Following the surface collection carried out in 1987, a series of trenches were opened that recovered deposits spanning the Early Bronze Age and in several areas provided a stratified sequence (Fig. 4). Occupation probably began between 3000 and 2800 BC when the site may have been fortified along its northern limit. For subsequent periods, material is more widespread, representing occupation across the summit and, in the final two phases (2700–2200 BC), onto the upper southern slope of the hill. This evidence of expansion through time in the scale of occupation is also supported by the relative quantities of material of the different phases in the overall surface assemblage. On the other hand, the shallowness of the deposits suggests that occupation may have been episodic, rather than continuous, representing periodic reoccupation of the site over the course of a millennium.

Throughout the Early Bronze Age in the Aegean, communities are generally densely packed, which has led to them being described, with some exaggeration, as proto-urban. At sites where individual houses can be defined, they cover 20–120 m^2, with those in the Cyclades lying at the lower end of this range. If one takes as a guide to Cycladic norms the most extensively excavated site of Kastri on the island of Syros (Fig. 5: c), a maximum of some 15 households (70–80 individuals) seems possible at Markiani. This is comparable to Kastri itself, although, with its rocky outcrops, Markiani is unlikely to have been as densely occupied. No intensive regional survey has been carried out on Amorgos, but, based on a population of 70–80 people, an agricultural catchment around Markiani large enough to support them does not seem unreasonable, given what we presently know of the location of neighbouring sites.

The site of Dhaskaleio on Keros

The second site investigated, Dhaskaleio, is located at the western end of the small, now-unoccupied island of Keros (Fig. 1).

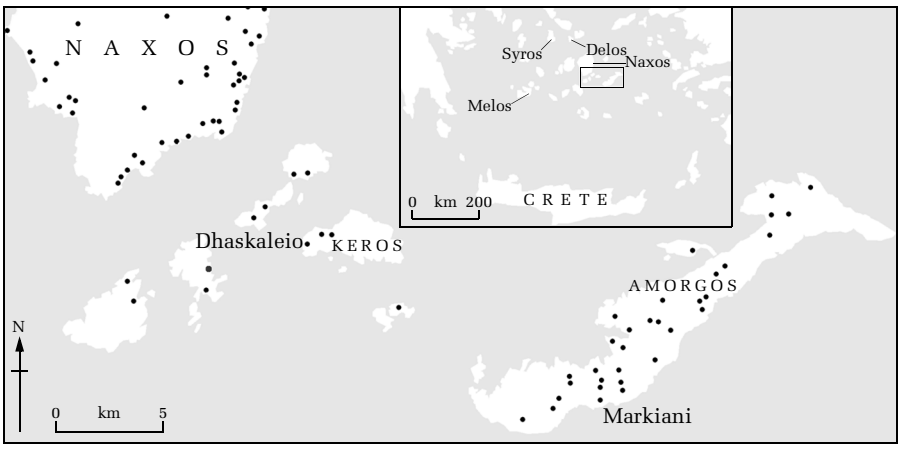

Figure 1 *The southern Aegean, showing the location of the islands of Amorgos and Keros in the Cyclades and the distribution of known Early Bronze Age sites.*

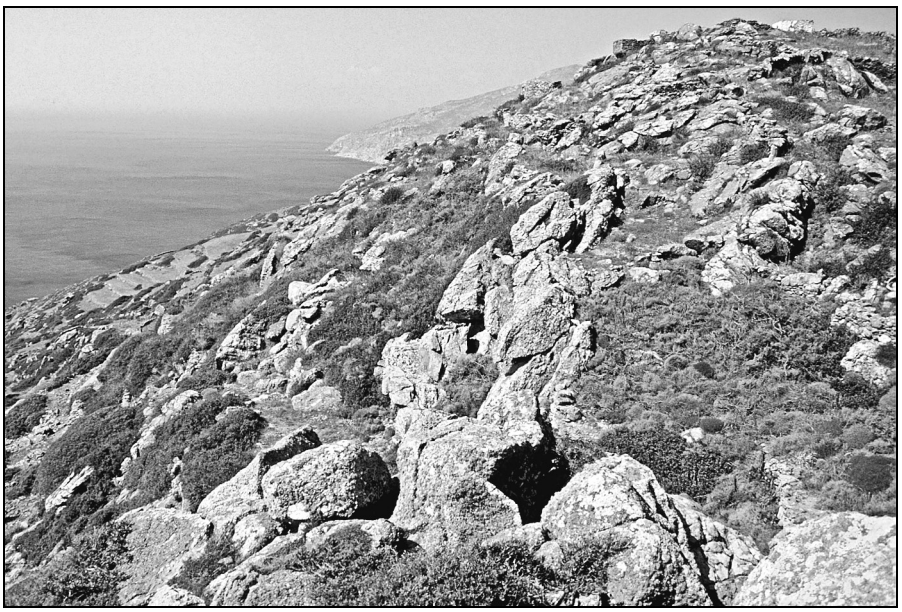

Figure 2 *A view of the southern slope at Markiani, Amorgos, with (upper right) the site on the summit.*

The site complex encompasses a tiny islet, Dhaskaleio, and a site on the shore facing it, Dhaskaleio Kavos (Fig. 5a). The latter is the purported source of a huge number of illicitly excavated figurines and other artefacts that have found their way onto the art market,[6] and it has been subjected to long-term and intensive looting, resulting in the barren, cratered terrain seen in Figure 6. Our project was designed to supplement earlier rescue excavations and to contribute to an understanding of the context of this material, given the range of interpretations that had been suggested for the site.[7]

Recent geological investigations suggest that, in antiquity, the Kavos site and the islet were connected by a low isthmus, and material on both sites suggests contemporaneous occupation in *c.* 2700–2200 BC. Surface investigations and excavation in 1987 were confined to the Kavos site. Surface collection was extended over the whole of the area covered by archaeological materials, but excavation trenches were limited to the disturbed area in the north. Previous rescue excavations on behalf of the Greek Archaeological Service by Christos Doumas and Photeini Zapheiropoulou had concentrated in the north of the site, but Doumas had also excavated part of a house in the south, and another structure near the summit of the islet, where there are also indications of a fortification wall.[8]

The distribution of the surface material defines two distinct areas of activity: one, the badly looted area in the north, and the other in the south, which, lacking the marble artefacts of particular value to the art market, remains largely undisturbed. The different character of the two areas is clearly indicated by a concentration of finer ceramics in the north, together with residual fragments of marble artefacts and human bone. These distributions suggest that a small cemetery area was devoted to burial in the north, and a considerably larger area was used for domestic activities in the south and probably also, although not yet investigated in detail, on Dhaskaleio islet. Using the same approach to estimating populations as at Markiani, the combined occupation areas at Dhaskaleio may represent a settlement of up to 100 households (400–500 individuals), although, without a comparably systematic study on the islet, such an estimate remains tentative.

The cemetery area is more difficult to interpret because Early Cycladic cemeteries vary greatly in the spatial density of graves. Compared to a similarly extensive cemetery at Aplomata on the island of Naxos, we may be dealing with only 30–50 tombs, although at the density observed at some cemeteries there is space for up to 200. Furthermore, given that the deposit is 2 m deep, and the area available for burial is constrained by rock outcrops to the north and east, a cliff to the west and the settlement to the south, there may have been a greater density of burials than has yet been found at any other Early Cycladic cemetery. Even if we disregard the material reputed to have been looted from the site, that recovered by legitimate excavation, together with approximately 250 fragments of marble vessels surviving on the surface despite 40 years of intensive looting, supports the inference that there was a substantial cemetery here, despite its restricted spatial extent.

Overall, Dhaskaleio presents us with a significantly different picture of an Early Cycladic community, compared with Markiani and with what previous research in

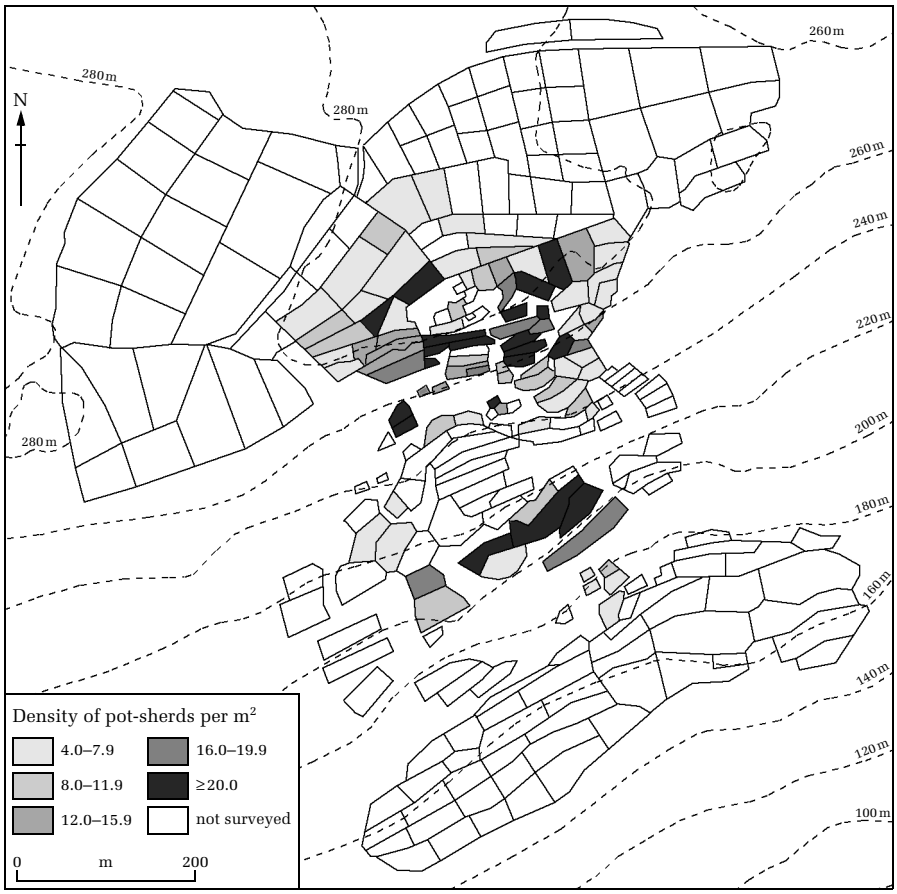

Figure 3 *The site at Markiani, Amorgos, showing its situation on the summit and upper southern slope of the hill, and the variation in the surface density of pot-sherds.*

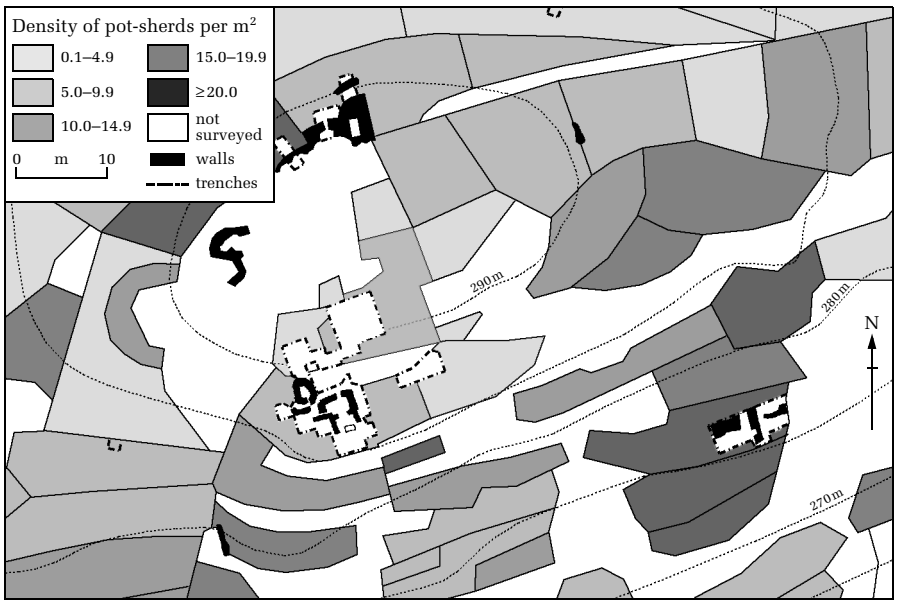

Figure 4 *Plan of the site at Markiani, Amorgos, showing excavation trenches, Early Bronze Age walls, and the surface density of pot-sherds.*

the Cyclades had led us to regard as typical. To appreciate these differences and their potential implications, it is necessary to consider how each site related to its local environment.

Contrasts and connections between the two sites

Markiani, situated on the edge of an upland plateau and near springs feeding northward-draining valleys well suited to cultivation, seems ideally situated for a self-sufficient community. However, given the steep slopes and rocky terrain, at most only a quarter of the surface area of the island would have been suitable for Early Cycladic agricultural exploitation. Estimates of settlement density from the intensively surveyed island of Melos, and the fact that most sites were occupied for short periods, suggest that only four or five communities lived on Amorgos at any one time during the Early Bronze Age, with a total island population of fewer than 200.

For Keros, similar calculations have very different implications, because the community at Dhaskaleio was probably much larger than the entire population of Amorgos, and Keros itself is almost entirely barren. The only sizeable areas suitable for arable cultivation are on the north coast, which Dhaskaleio is poorly situated to exploit. In addition, it is unlikely that there was enough cultivable land on the whole island to feed the estimated population of 400–500 at Dhaskaleio, let alone to provide a buffer against progressive landscape degradation.

Both site location and probable subsistence demands suggest that Dhaskaleio was reliant on external support, whether through dependent agricultural communities on the neighbouring islands or by way of extensive participation in inter-island trade. Although small-scale site hierarchies and redistributive systems have been hypothesized for various areas of the Aegean in the Early Bronze Age, this is the only case where the evidence appears to allow no other interpretation.

To put these contrasts between the two sites into context, it is worth stepping back further. Markiani and Dhaskaleio are only about a day's travel apart, using the small paddled boats of the time, yet their situations in relation to other islands, and the distribution of local populations, are very different. Amorgos is relatively isolated and provides only a weak stepping stone from the central Cyclades towards islands farther to the east and southeast. However, with an estimated Early Cycladic population of fewer than 200, it would not have been demographically viable without being integrated into wider networks. Keros, although not viable as a self-sufficient island, is much more closely articulated with southeastern Naxos and neighbouring small islands (Fig. 1). Linked to daily subsistence, communication and integration across this micro-region must have been frequent and intimate.

For the relatively isolated population of Amorgos, Keros would have been an essential gateway to a wider pool of population and resources, although such links would have been exploited relatively infrequently, at least compared with more local interactions among the islands around Keros and the communities on southeastern Naxos. The wider links are likely to have been formalized, and potentially unequal, because the people of Keros effectively controlled access to key reproductive resources, as well as other

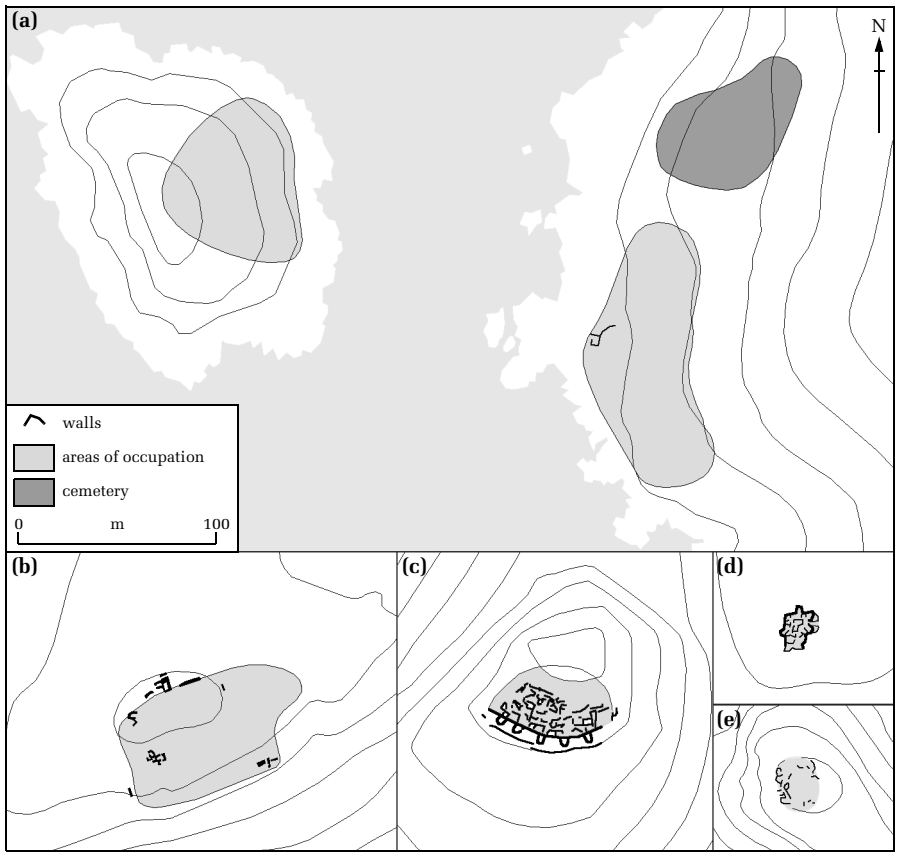

Figure 5 *A comparison of the areal extent of the Early Bronze Age Cycladic sites of* ***(a)*** *Dhaskaleio on Keros,* ***(b)*** *Markiani on Amorgos, (****c****) Kastri on Syros,* ***(d)*** *Panormos on Naxos, and* ***(e)*** *Mount Kynthos on Delos (contour intervals 5 m).*

Figure 6 *A view of the northern part of the site of Dhaskaleio Kavos on Keros, showing the devastation of the site brought about by looting for the antiquities market.*

resources, for the occupants of Amorgos.

Based on his detailed analysis of the pottery from Dhaskaleio, Cyprian Broodbank has hypothesized that the community owed its prominence to its role as a trading site, situated at a key node in Cycladic communication systems.[9] By looking also at the community at Markiani in its Amorgean and wider regional context, we can suggest that Dhaskaleio's importance may also have developed as a consequence of its focal social role as a demographic lifeline, as well as an economic filter, for what appears to have been a substantial but relatively isolated population on Amorgos.

The non-reciprocal nature of the relationship between the two populations can be inferred from comparisons between material evidence from the two sites. Amorgean blue-schist tempered pottery is a significant component of the mainly imported ceramic assemblage at Dhaskaleio, but relatively few ceramics at Markiani appear to have been imported from outside the island. Markiani's relative isolation is also clear when the role of both sites in wider trading systems is considered. For example, one distinctive type of pottery (known as talc ware and probably produced in the western Cyclades) is 30 times more frequent at Dhaskaleio, and, although obsidian from Melos was used at both sites, at Dhaskaleio the ratio of obsidian to ceramics is about 1 to 6, whereas at Markiani it is only about 1 to 12.

Conclusion

Although at an earlier stage of research on the southern Aegean it was useful to emphasize broad parallels across the region, examination of differences between islands and individual sites can lead to a more subtle exploration of varying patterns of development. Indeed, it is through comparisons of the patterns of similarity and diversity between different areas, in different ecological contexts, with differing settlement histories, that we are likely to learn about the processes involved. A comparison of settlement throughout the Aegean in the third millennium indicates that it is only on the Greek and Turkish mainlands and the larger islands (mainly those near the mainlands) that we have evidence of settlements that can realistically be called proto-urban. Recognizing that large nucleated settlements did not develop so readily in the Cyclades can help us to appreciate why different regions diverged in their patterns of development.

By focusing on surface investigations at two sites in the southeastern Cyclades, I have stressed the need for demographic information at different scales of resolution, which also require investigation at different spatial scales. To date, the integration of these different scales – detailed on-site excavation, whole-site surface survey and intensive regional survey – has been undertaken in very few contexts, anywhere in the Aegean. To understand processes of cultural change, we need to work outwards from trenches to sites to regions, and from static pictures to dynamic trajectories.

Notes

1. The project on Amorgos was jointly directed by Lila Marangou of Ioannina University, Christos Doumas of Athens University, Colin Renfrew of Cambridge University, and on Keros, by the aforementioned and Photeini Zapheiropoulou of the Greek Archaeological Service. I am grateful for having been invited by the project directors to conduct surface investigations at both sites, and for their assistance in the field and in subsequent museum studies. I also wish to thank for their assistance the Archaeological Service Representatives on Amorgos, Simos Giannakos, Manolis Despotides and Yorgos Gavalas, and the staff of the Archaeological Museum on Naxos. Financial support for this work was provided by the British Academy, the Macdonald Institute for Archaeological Research of the University of Cambridge, and St John's College, Cambridge.
2. See T. Whitelaw, "Settlement instability and landscape degradation in the southern Aegean in the third millennium BC", in *Landscape and land use in postglacial Greece*, P. Halstead & C. Frederick (eds), 136–8 (Sheffield: Sheffield Academic Press, 2000), and pp. 86–9 in C. Broodbank, *An island archaeology of the Early Cyclades* (Cambridge: Cambridge University Press, 2000).
3. C. Broodbank, "The longboat and society in the Cyclades in the Keros–Syros culture", *American Journal of Archaeology* **93**, 319–37, 1989, and pp. 211–319 in C. Broodbank (2000: *n.* 2 above).
4. L. Marangou, "Evidence for the Early Cycladic period on Amorgos", in *Cycladica: studies in memory of N. P. Goulandris*, L. Fitton (ed.), 99–115 (London: British Museum, 1984); L. Marangou, "Kykladiko Eidolio apo tin Minoa Amorgou", *Archaiologiki Ephemeris*, 159–76, 1990; L. Marangou, "Nees martyries gia ton Kykladiko politismo stin Amorgo", in *Phygos: Timitikos Tomos gia ton Kathigiti Sotiri Dakari*, X. Tzouvara-Souli, A. Vlachopoulou-Oikonomou, K. Gravani-Katsiki (eds), 467–88 (Ioannina: University of Ioannina, 1994).
5. C. A. I. French & T. M. Whitelaw, "Soil erosion, agricultural terracing and site formation processes at Markiani, Amorgos, Greece: the micromorphological perspective", *Geoarchaeology* **14**, 151–89, 1999; and pp. 146–50 in Whitelaw (2000: *n.* 2 above).
6. P. Getz-Preziosi, "'The Keros Hoard'": introduction to an Early Cycladic enigma", in *Antidoron: festschrift für Jürgen Thimme*, D. Metzler & B. Otto (eds), 37–44 (Karlsruhe: C. F. Miller, 1982).
7. See C. Renfrew, "The development and chronology of the Cycladic figurines", *American Journal of Archaeology* **73**, 13, 1969, "Speculations on the use of Early Cycladic sculpture", in *Cycladica: studies in memory of N. P. Goulandris*, L. Fitton (ed.), 27–8, 33–4 (London: British Museum, 1985) and pp. 99, 101 in *The Cycladic spirit* (London: Thames & Hudson, 1991); C. Broodbank, "Perspectives on an Early Bronze Age island centre: an analysis of pottery from Dhaskaleio–Kavos (Keros) in the Cyclades", *Oxford Journal of Archaeology* **19**, 323–42, 2000; and pp. 223–36 in Broodbank (2000: *n.* 2 above).
8. C. Doumas, "Archaiotites kai mnimeia Kykladon", *Archaiologikon Deltion (Chronika)* **19**, 409–412, 1964; P. Zapheiropoulou, "Cycladic finds from Keros", *Athens Annals of Archaeology* **1**, 97–100, 1968.
9. See Broodbank (2000: *n.* 7 above) and pp. 223–36 in Broodbank (2000: *n.* 2 above).