The sanctuary at Keros in the Aegean Early Bronze Age: from centre of congregation to centre of power

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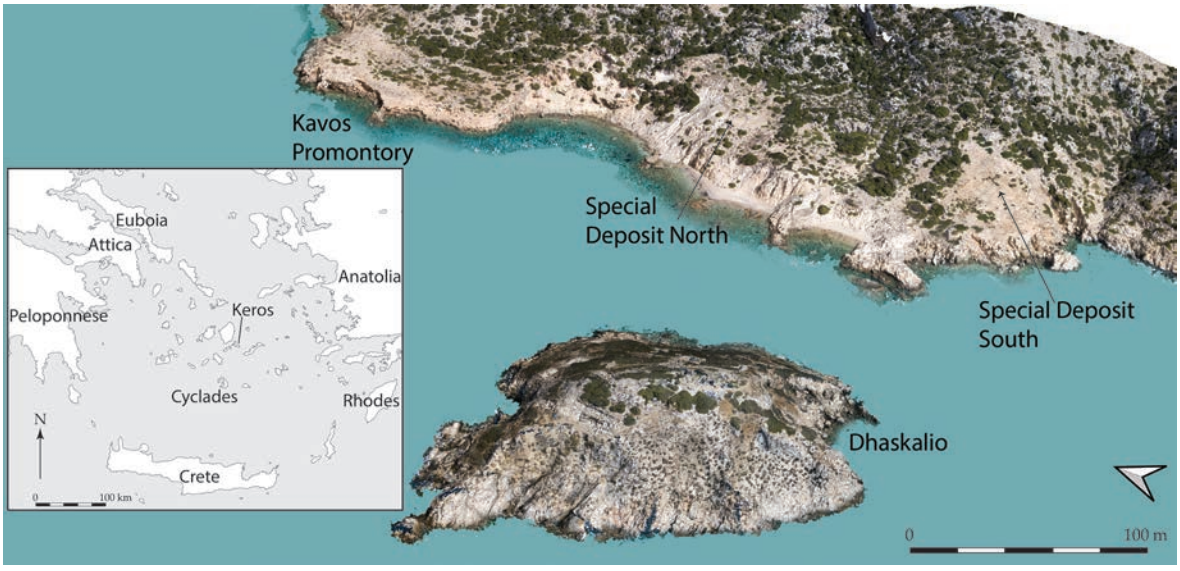

Figure 1. The western tip of Keros with the islet of Dhaskalio, showing archaeological zones mentioned in the text. Inset, position of Keros in the Aegean.

Introduction

The island of Keros is set in the middle of the Cyclades (Figure 1), lying within the mini-archipelago of the Small Cyclades, south of the larger island of Naxos, and between Ios and Amorgos (the so-called 'Keros triangle').[1] The largest of the Small Cyclades, it is mountainous, rugged, and today uninhabited, although there was a small settlement in the nineteenth and twentieth centuries, and a recent archaeological survey of the island has demonstrated a long history of use and habitation[2] (see further below).

The earliest archaeological finds from Keros were recovered in the nineteenth century. All are marble figures: the well-known pipe-player and harpist, published by Köhler[3] in 1884 and now in the National Museum in Athens, and the large head, now in the Louvre, donated in 1873. The circumstances of their recovery are unclear but they indicate definite Early Cycladic activity on the island.

After escaping academic notice for some 80 years, Keros once again came to the attention of the archaeological world in 1963, when Christos Doumas, then working with the Greek Archaeological Service, was informed that an episode of looting had taken place on the island.[4] He arranged to visit the western end of the island on 13 June 1963, and noted 'devastation'. He also informed Colin Renfrew, then a research student conducting a site survey of the Cyclades, that the location might be worth visiting. Renfrew visited the site on 24 July that year, and observed the devastation for himself (Figure 2). He collected (under permit) a small representative sample of the broken pottery and marble fragments present on the surface, among which were three marble figurine fragments[5] (this material is now stored in the Naxos Museum). Renfrew initially felt that the material must be the remnant of a severely looted cemetery.[6]

Christos Doumas undertook small-scale rescue excavations within the looted area in September 1963.[7] There he recovered some 59 fragments of marble figurines,[8] mainly of the well-known folded-arm type, along with larger quantities of broken marble vessels and pottery, dominated by fragments of sauceboats and conical necked jars.[9] He also undertook a few days' excavation on the islet of Dhaskalio,[10] recovering evidence for settlement there. Photeini Zapheiropoulou and Konstantinos Tsakos undertook a larger rescue excavation in the looted area in 1967.[11] They recovered some 174 further figurine fragments[12] along with a very large quantity of broken marble vessels (and vessels of other stone), as well as pottery.[13] It became clear through these interventions that Keros was indeed an unusual and important Early Cycladic centre, but interpretations varied. The original concept of a looted cemetery was prevalent until Renfrew made the suggestion that the site might be some sort of sanctuary.[14] This suggestion was made at the colloquium in memory of N.P. Goulandris at the British Museum in 1983, and the discussion at that meeting[15] led indirectly to the 1987 Inter-University Research Project on Amorgos and Keros, which conducted

[1] Broodbank 2007: 131.
[2] Renfrew *et al.* forthcoming a.
[3] Köhler 1884.
[4] Doumas 2013.
[5] Renfrew 2007a.
[6] Renfrew 2013a: 13.
[7] Doumas 1964; 2007.
[8] Sotirakopoulou *et al.* 2017; Renfrew *et al.* forthcoming c.
[9] Sotirakopoulou 2004.
[10] Doumas 2013.
[11] Zapheiropoulou 1968a; 1968b; 2007a; 2007b; 2017.
[12] Sotirakopoulou *et al.* 2017; Renfrew *et al.* forthcoming c.
[13] Sotirakopoulou 2004.
[14] Renfrew 1984.
[15] Fitton 1984: 31–5.

Figure 2. The islet of Dhaskalio from the looted area of Kavos, taken in July 1963.

further small-scale excavation in the looted area,[16] and surveyed the entire Kavos area.[17] In the wake of this project, views about the nature of the site began to crystallise. Todd Whitelaw and Cyprian Broodbank felt that the survey results indicated a large settlement including the islet of Dhaskalio and at least part of the southern part of the Kavos area, and that the looted area, notwithstanding the few clear indications of graves, must be the location of the large cemetery that such a settlement would require.[18] Christos Doumas suggested that the site might have been a place for the reburial of bones and grave goods which had originally been buried in cemeteries on other islands, but were then exhumed and brought to Keros as a central ritual site for the Cyclades.[19] Renfrew, drawing upon the observation arising from the 1987 project that the figurine fragments had all been broken in antiquity, and not by the looters, came to the conclusion that the site was a non-funerary sanctuary for the Cycladic region.

It was clear that the limited fieldwork undertaken during the 1987 project had not settled the question of how Keros should be interpreted; indeed, the different interpretations were manifest in the contributions to its publication. It took some time for the 1987 project to be published,[20] during which time Broodbank published his thoughts in detail in his magisterial survey of the Early Bronze Age Cyclades,[21] and Sotirakopoulou produced a detailed study of material held in museums and private collections under the rubric of the 'Keros hoard'.[22] Her conclusion, that perhaps most of this material really did originate on Keros, simply increased the already apparent abundance

[16] Renfrew *et al.* 2007.
[17] Whitelaw 2007.
[18] Broodbank 2000a; 2000b; Whitelaw 2007.
[19] Doumas 1990; Bassiakos and Doumas 1998.
[20] Renfrew *et al.* 2007.
[21] Broodbank 2000a.
[22] Sotirakopoulou 2005.

of symbolic[23] material recovered from this unique site. There was a clear requirement for further work on Keros, both to investigate the Kavos area in more detail, and to understand Dhaskalio, which had seen no significant work since Doumas' few days of excavation in 1963.

This article aims to summarise the results of the three periods of fieldwork carried out since 2006. These are the Cambridge Keros Project of 2006–2008,[24] the Keros Island Survey of 2012–2013,[25] and the Keros-Naxos Seaways Project of 2015–2018.[26] Taken together, these form a coherent, large-scale project that aimed to study a maritime landscape in some depth, putting the Kavos and Dhaskalio sites in a broader context, while through excavation understanding in great detail the formation, use and abandonment of the sanctuary site on Kavos and the large built-up area on Dhaskalio.[27]

The excavations of 2006 to 2008

The Special Deposit South

The excavations of 2006 to 2008 began with a focus on the southern part of Kavos. From the moment excavation began, abundant fragments of marble figurines, marble vessels, obsidian and pottery began to be found[28] (Figure 3). As the excavation progressed, it became clear that the area formed a well-defined and structured (unlooted) deposit of such materials, with very few artefacts of other kinds, and almost no architectural features. This area is now referred to as the Special Deposit South, and the original looted area is now referred to as the Special Deposit North. The two deposits lie about 110m apart. The excavation matrix consisted mainly of local stones with soil, and it became clear that a cairn of stones had been formed over the deposit in its final phase of use. In its initial phase the area was defined by a shelf of aeolianite running laterally along the slope (Figure 3), forming a prominent landscape feature about 1m high. Here it seems that the original depositions took place. At first, these were probably open air, allowing the fragments deposited first to weather.[29] In time, lines of stones were created to augment the space and perhaps structure activities. Eventually the level of the deposit rose and depositions were made by digging holes and burying the artefacts.

With no architectural features and no surrounding infrastructure, the main interest of the Special Deposit South lies in the material deposited and the nature of the repeated human actions thereby indicated. Selected elements of the material excavated from the deposit are summarised in Figure 4. In sum, the deposit contained some 53,639 pottery sherds (along with 10 fragments of animal

[23] Renfrew 1984.

[24] The Cambridge Keros Project was directed by Colin Renfrew for the British School at Athens, with associate director Olga Philaniotou and assistant directors Neil Brodie and Giorgos Gavalas. Excavations on Keros were conducted with the permission of the Hellenic Ministry of Culture and thanks are due to the then director of the KA' Ephorate, Marisa Marthari, and her colleagues. Special thanks are due to the Stavros Niarchos Foundation for funding the work of Michael Boyd as co-editor of the publication series (in memory of Mary A. Dracopoulos).

[25] The Keros Island Survey was a 'synergasia' (joint project) between the then KA' Ephorate of Antiquities and the British School at Athens. It was directed by Colin Renfrew, Marisa Marthari and Katerina Dellaporta, with assistant directors Michael Boyd, Neil Brodie, Giorgos Gavalas, Jill Hilditch and Joshua Wright. The survey area was the island of Keros with its surrounding islets, with the exceptions of Dhaskalio itself, and the Antikeria.

[26] The Keros-Naxos Seaways Project was directed by Colin Renfrew and Michael Boyd for the British School at Athens, with associate director Irini Legaki. Assistant directors for the excavations on Dhaskalio and on Keros were Evi Margaritis and Giorgos Gavalas. The latter acted as field director on Keros while field director on Dhaskalio was Ioanna Moutafi. The surveys of Kato Kouphonisi and Southeast Naxos were co-directed with Demetris Athanasoulis. Assistant directors for the surveys were Neil Brodie, Giorgos Gavalas, Jill Hilditch and Joshua Wright. The fieldwork was conducted with the permission of the Hellenic Ministry of Culture and thanks are due to Ephorate of Antiquities of Cyclades director, Demetris Athanasoulis, and his many colleagues, in particular Stefanos Keramidas, who acted as the Ephorate representative in 2018 and oversaw the conservation works in 2019.

[27] We are grateful to the following funders, who have enabled these projects to operate at a large scale and with efficient publication over the past 18 years: the Stavros Niarchos Foundation, the A. G. Leventis Foundation, the Institute for Aegean Prehistory, the Balzan Foundation, the Packard Humanities Institute, the McDonald Institute for Archaeological Research, the Research and Innovation Foundation of Cyprus (EXCELLENCE/1216/0463), the Cyprus Institute, the British Academy, the Leverhulme Trust, the National Geographic Society, the Society of Antiquaries of London, the Gerda Henkel Stiftung, Cosmote, EZ-dot, Blue Star Ferries, Creta Farms, and private donors.

[28] Renfrew 2015a.

[29] Maniatis and Tambakopoulos 2015.

protomes, 3 of theriomorphic vases and 17 of worked sherds), 549 figurine fragments, 2236 stone vessel fragments, 66 spools, 3452 obsidian fragments (and 4 of chert), 14 ground stone pieces, 47 stone discs and disc fragments, 2 stone beads and a *Spondylus* plaquette, 4 metal artefacts (three fragmentary) and 6 metallurgical remains. All of this was deposited within a matrix predominantly made up of stone, including a large number of pebbles brought from the beach a few metres below. The paucity of ground stone, metal elements and obsidian knapping debris in the assemblage indicates a composition entirely unlike a settlement assemblage, and the antithesis of what was later to be found on Dhaskalio opposite (see below). The composition of the pottery further confirms this observation: as previously noted for the Special Deposit North,[30] the principal forms represented in the assemblage are sauceboats (41 per cent of the diagnostic sherds) and conical necked jars (25 per cent), a composition again entirely unlike a domestic assemblage.[31] This, combined with the overwhelming predominance of broken marble vessels and figurines in the finds (plus fine, large obsidian blades of a type usually associated with burial contexts), demonstrates an unusual nature for the assemblage.

The chronology of the Special Deposit South was not clarified by radiocarbon dating, given the almost complete lack of suitable organic materials within the deposit. Ceramically, the material is of Early Cycladic II date, including some sherds of the early Kastri group.[32] It also includes a very

Figure 3. Left. Excavations in progress in the Special Deposit South at Kavos. Note the aeolianite bench exposed in the trenches. Right. Finds of broken marble figurines during excavation.

Find	Special Deposit South
Folded arm figurine fragments	498
Marble rolled-rim bowl fragments	426
Sauceboat sherds	5121
Conical necked jar sherds	3183
Kouphonisi lamp sherds	243
Obsidian	3452
Metal and metallurgical finds	10
Stone discs	47
Ground stone	14

Figure 4. Quantities of selected categories of find in the Special Deposit South.

[30] Broodbank 2000b: 332; Sotirakopoulou 2004.
[31] Sotirakopoulou 2018.
[32] Sotirakopoulou forthcoming.

small number of sherds of the later Kastri group, which led to the conclusion that the deposit was mainly used in Early Cycladic II (Phases A and B of the Dhaskalio chronology, set out below), with some continuing sporadic use in Early Cycladic III (Phase C).[33] The Special Deposit South was probably first used slightly later than the Special Deposit North,[34] and may have extended in use slightly later.[35]

To answer the question of whether such an assemblage could be related to funerary practices, a careful recovery methodology was adopted.[36] One-fifth of all excavated soil was water-sieved on the nearby beach using a 3mm mesh. The aim was two-fold: to detect any presence of human bone, especially teeth, that might otherwise be missed with the naked eye, and to detect the presence of any small marble fragments that might relate either to production (were the site a workshop) or to breakage (had the breakage of the objects happened on site). No human bone at all was recovered from the Special Deposit South, nor was any marble fragment found that might relate to production or breakage. This conclusively demonstrated, for the Special Deposit South at least, both that the site contained no burials, and that neither production nor breakage took place there. (In contrast, it does seem possible that the area of the Special Deposit North did originally include both a small cemetery alongside a large special deposit.[37] Near the Special Deposit South, a spatially separate area was used for burials, in a series of rock shelters located at a lower level, described further below).[38]

The recognition, as a consequence of the 1987 project, that the breakage of the material recovered from the Special Deposit North had all happened in antiquity,[39] and was not the result of the looting, was therefore now further refined by the recognition that the breakage of the material recovered from the Special Deposit South did not occur in the immediate vicinity of the deposit (nor in any other location investigated). A further discovery afforded by the unlooted assemblage of the Special Deposit South was that none of the broken material, whether marble or ceramic, could be refitted by finding joins.[40] Careful analysis and search for joins concluded that most objects were represented in the Deposit by only a single fragment (Figure 5), and that even in the few instances where joins were found, these were usually simply two joining pieces, making up a larger fragment of a whole that was always absent. This clarified the nature of the act of deposition: it was not that whole objects were being deposited in several pieces, it was that a single, selected piece of an object was being deposited. Given that the breakage did not seem to have occurred in the vicinity, and given that the broad range of fabrics in the ceramics indicated a variety of provenances, this seemed to signify that breakage had occurred away from Keros, perhaps in the villages from which voyagers had set out to bring their materials to Keros.[41]

We are left, then, with a remarkable picture. Over a period of several centuries, voyagers travelled to Keros from the other islands of the Cyclades, bringing with them selected pieces of broken figurines (Figure 5), stone vessels and ceramics, particularly sauceboats and conical necked jars. The original objects had probably been broken before the start of the journey, presumably in rituals that took place on the islands from which the voyagers originated. They came together at Keros, an island with no strong previous history of habitation (see further below) to enact ceremonies of deposition in the two special deposits. For this reason Keros is now regarded as the world's earliest

[33] Renfrew *et al.* 2015b.
[34] Sotirakopoulou 2004: 1334; 2018: 440.
[35] Renfrew *et al.* forthcoming b.
[36] Renfrew 2013a: 15.
[37] Renfrew *et al.* forthcoming c.
[38] Renfrew and Moutafi 2015.
[39] Renfrew 2007b.
[40] Brodie 2015; Tambakopoulos *et al.* 2015.
[41] Renfrew 2013b; Brodie 2015; Renfrew 2015b.

Figure 5. Selection of marble figurine fragments from the Special Deposit South.

maritime sanctuary.[42] It may be characterised as a centre of congregation[43] to which participants were drawn periodically, and where individual, island, Cycladic and Aegean notions of identity were negotiated, affirmed and indeed created.[44] The longevity of the practice is in part testimony to the enduring social structures sustained through such activities. However, this longevity is also related to the other activities that took place in the regions of Dhaskalio and Kavos, as further discussed below.[45]

Further investigations on Kavos

Beyond the Special Deposit South, the Kavos region was further investigated by test trenches and by surface survey. The area of the Special Deposit North was not itself further investigated. Small excavations were carried out to the east, where nothing of significance was found, save a figurine fragment which had probably been carried uphill by hand in recent years.[46]

The survey carried out in 1987 on the Kavos Promontory, north of the Special Deposit North, had already recovered surprising evidence for metalworking. The archaeometallurgical assemblage from that survey included copper slags, copper spills, metallurgical ceramics, and a single litharge fragment.[47] A more intensive survey, as well as limited excavation, was undertaken on the Kavos Promontory between 2006 and 2008 (Figure 6).[48] The analytical examination of this material yielded some unexpected results.[49] The slags were found to be clearly copper smelting slags and not by-products from secondary metalworking, as would have been expected from a settlement context so far away from any known relevant ore sources.[50] The slags could be divided into two groups; the more numerous group was associated with the production of pure copper, while the second group was found to be associated with the production of arsenical copper rich in lead; these findings were also supported by the study of metallurgical ceramics. The distribution of metallurgical remains, primarily slags, very clearly increases towards the northern tip of the promontory, where the small smelting site was located (Figure 6). The location and layout of the smelting site is similar to other known smelting sites of this period in the Aegean, at the top of a slope, facing north, in the direction of the prevailing winds, making use of these to encourage burning.[51] Thermoluminescence dating of metallurgical ceramics from the Kavos Promontory confirmed dating of the activities to the third millennium BCE, but the error margins were too large to allow more precise phasing.[52] The litharge fragment was recognised as litharge-impregnated hearth lining or cupel material.[53] This opened the possibility that cupellation was also practised on the site and pointed to a particular technology that is now known from numerous sites across the Aegean of the same period with examples from Attica,[54] the Cyclades,[55] and Thasos,[56] as well as earlier examples beyond the Aegean.[57] The Kavos Promontory was also the site of significant obsidian blade production.[58] The localisation of the two practices of primary production of metal and obsidian on the Kavos Promontory, an unusually flat area on Keros potentially open to gatherings of large numbers of people, is noteworthy, and stands

[42] Renfrew *et al.* 2012.
[43] Renfrew 2013b.
[44] Barrett and Boyd 2019: 105–10.
[45] The work on the Special Deposit South was published in 2015 (Renfrew *et al.* 2015c) and 2018 (Renfrew *et al.* 2018b).
[46] Kersel 2015.
[47] Georgakopoulou 2007.
[48] Brodie and Georgakopoulou 2015.
[49] Georgakopoulou 2007; 2018.
[50] The main ore sources for the prehistoric Cyclades are considered to be located on the western Cycladic islands of Kythnos, Seriphos and Siphnos, as well as in southeast Attica at Lavrion (see Georgakopoulou 2016.)
[51] e.g. Betancourt 2006; Bassiakos and Philaniotou 2007; Georgakopoulou *et al.* 2011.
[52] Brodie and Georgakopoulou 2015: 518–20.
[53] Georgakopoulou 2007: 394–5.
[54] See Georgakopoulou *et al.* 2020. and references therein
[55] e.g. Papadopoulou 2011; Bassiakos *et al.* 2013.
[56] Bassiakos *et al.* 2019.
[57] Hess *et al.* 1998; Pernicka *et al.* 1998; 2011.
[58] Carter and Milić 2015; Boyd and Renfrew 2018.

Figure 6. Survey on the Kavos Promontory in 2006–2008. Left: obsidian; centre: Early Cycladic sherds; right: metallurgical remains.

Figure 7. Excavation underway in the rockshelters south of the Special Deposit South (Area A).

in strong contrast to the almost complete lack of metal and metalworking finds from the Special Deposit South. Similarly the obsidian blades produced on the Kavos Promontory are not thought to have been made for consumption in the nearby Special Deposit South.

The area between the two special deposits (dubbed 'The Middle Area') was sampled through seven trial trenches, and an additional three were set close to the Special Deposit South. Trench BA was of interest in being located in the vicinity of the so-called 'Doumas House', a small structure excavated by Doumas in 1963.[59] Although too small to interpret with confidence, the trench contained two walls and considerably more pottery than found in other trenches, suggesting intensive human activity in the area. Other trenches further north, closer to the Special Deposit North, showed evidence for rough, elongated walls of Early Bronze Age date, which may have acted as boundary walls.[60] A few figurine and marble vessel fragments were found during these investigations, some of which at least must have been deposited (perhaps by accident) in antiquity, but some of which may have been dropped during more recent looting activities in the Special Deposit North.

Area A (Figure 7), lying south of and below the Special Deposit South, contained three rock shelters, which may have been the place of primary inhumation of several burials, followed by a secondary burial ritual in which much of the bone was removed to other locations.[61] Most of the human material recovered came from inside the rock shelters, while the few artefacts were recovered mainly from the exterior zone, into which some of them may have fallen from the Special Deposit South, above and immediately to the north. The pottery recovered dates the finds to Dhaskalio Phase B. The disarticulated human bones recovered indicated that as many as 13 individuals had been buried in that locality, male as well as female, including non-adults. The burials were subsequently subjected to a secondary removal process, with the transfer of nearly all skeletal remains to an unknown location. Given the complete lack of human remains in the Special Deposit South, clearly those

[59] Doumas and Dixon 2015.
[60] Renfrew *et al.* 2015a.
[61] Moutafi 2015; Renfrew and Moutafi 2015.

using the shelters took care to keep the rituals performed there, and the material residue, separate from the quite different rituals of the Special Deposit South.

Excavation on Dhaskalio in 2007 and 2008

Excavation on Dhaskalio was delayed until 2007 to allow the project to concentrate on the Special Deposit South in 2006. The previous tests by Doumas and indications of visible walling led the excavation to focus on two areas – along the elongated summit area of the island, and on top of a significant wall on the east side thought at first to relate to an enclosure or fortification. In total, some 364m^2 were opened for excavation in 25 trenches (Figure 8). Indications of dense architecture were found everywhere.

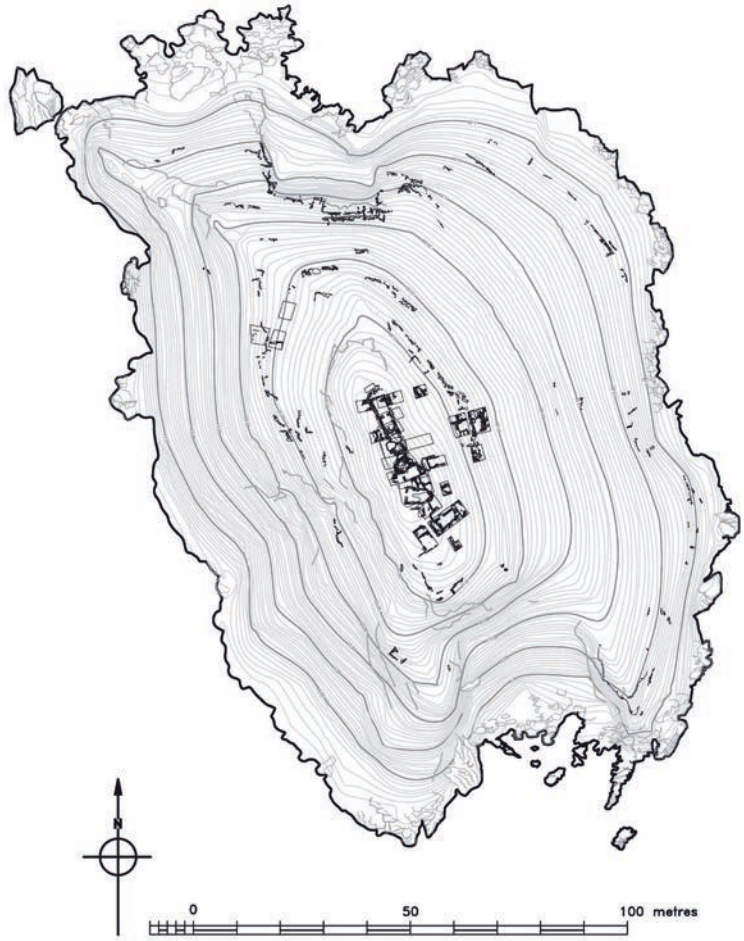

Figure 8. Plan of Dhaskalio in 2008, showing walls excavated and recorded during survey.

A three-phase chronology was determined from the plentiful ceramics recovered. Although there was a high degree of ceramic continuity between the three phases, sherds of the earlier Kastri group defined Phase B, and sherds of the later Kastri group defined Phase C, along with a significant presence of pale volcanic wares, leaving Phase A as those earlier contexts without Kastri sherds at all.[62] Radiocarbon determinations allowed these three phases to be dated as follows: Phase A, 2750–2550 BCE; Phase B, 2550–2400 BCE; Phase C, 2400–2250 BCE.[63]

The architecture of Dhaskalio had two unusual features. First, since the islet below the summit is steep almost everywhere, it was recognised that terrace walls were constructed to form platforms on which buildings could be located[64] (Figure 9). Although at first glance these walls might have been thought to have a defensive nature, it was already clear by 2008 from the excavated sections that their primary purpose was to create level areas for building. The construction material for these buildings forms the second interesting feature: building walls on the terrace surfaces were made of marble imported from southeast Naxos, some 10 km distant by sea.[65] While the local marble of Keros was used as mainly unworked or partly worked boulders for the terrace walls, the imported marble was preferred for building walls as its laminar nature allowed it to split into ideal building blocks. Already, at this stage of the project, it was becoming clear that this represented a prodigious

[62] Sotirakopoulou 2016: 1–3.
[63] Renfrew *et al.* 2012; Bronk Ramsey *et al.* 2013; Manning 2015.
[64] Boyd 2013.
[65] Dixon 2013.

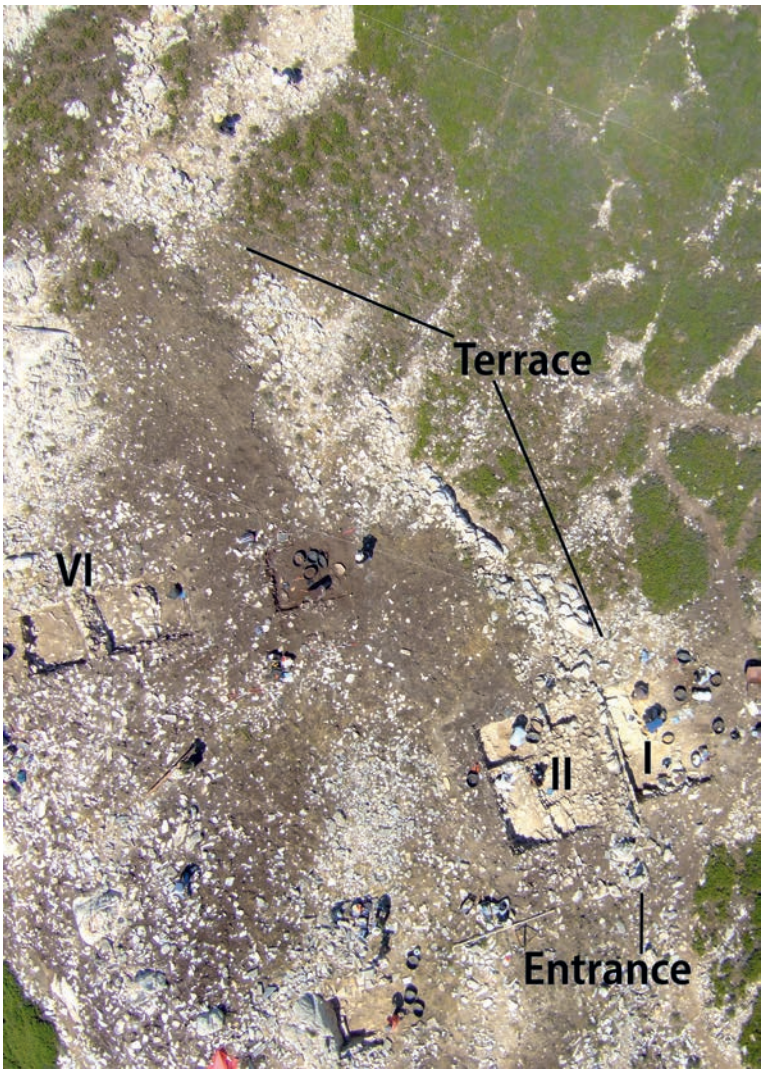

Figure 9. The summit and east side of Dhaskalio during the 2008 excavation season (north is to the top). Note the traces of the long terrace wall visible on the surface and investigated in Trenches I and II to the southeast. An impressive entranceway was subsequently excavated south of Trenches I and II (in Trench E): see Figure 21. The bedrock outcrops at the south of the Hall and Trench VI at its north end are visible.

input of energy and planning to achieve.[66] Aside from the excavated areas, which contained densely built architecture, the visible wall remains on the surface, combined with the apparent mass of collapsed building stone over the east and north of the islet, combined to give the impression that much of the islet may have been inhabited.[67]

The trenches opened on the summit covered the entire length of this long and narrow but flat area. All buildings and contexts excavated here were of Phase C, with the exception of a few contexts just above bedrock in Trench VI, at the north end of the summit, which were of Phase A. It was seen that the buildings incorporated a number of bedrock outcrops into a complex formed of a long and narrow building ('the Hall'), a small enclosure and a court[68] (Figure 10). These buildings seemed to have a non-domestic, possibly public function. The north part of the Hall may have been a two-storey building. The summit enclosure, accessed from the court, was the site of (possibly ritual) deposition of pebbles imported from the nearby Kouphonisia islands. Further south on the summit, the building complex revealed in Trenches VII and XXI seemed principally associated with storage, containing numerous large barrel jars.[69]

The excavated areas of Phase B were much smaller than those of Phase C, and Phase A was only represented in a few contexts. To Phase A, nonetheless, was dated the large terrace wall running east of and below the summit, investigated in Trenches I, II and XV. This demonstrated the early date for the inception of construction activities on Dhaskalio, even though the associated buildings were principally of Phase B. Activities represented in all phases included metalworking (casting) and storage. A small hoard of two arsenical copper and one tin bronze tools was found in the south

[66] Renfrew 2013c: 714–5.
[67] Boyd 2013: 203.
[68] Renfrew *et al.* 2013b; 2013a.
[69] Renfrew and Loughlin 2013.

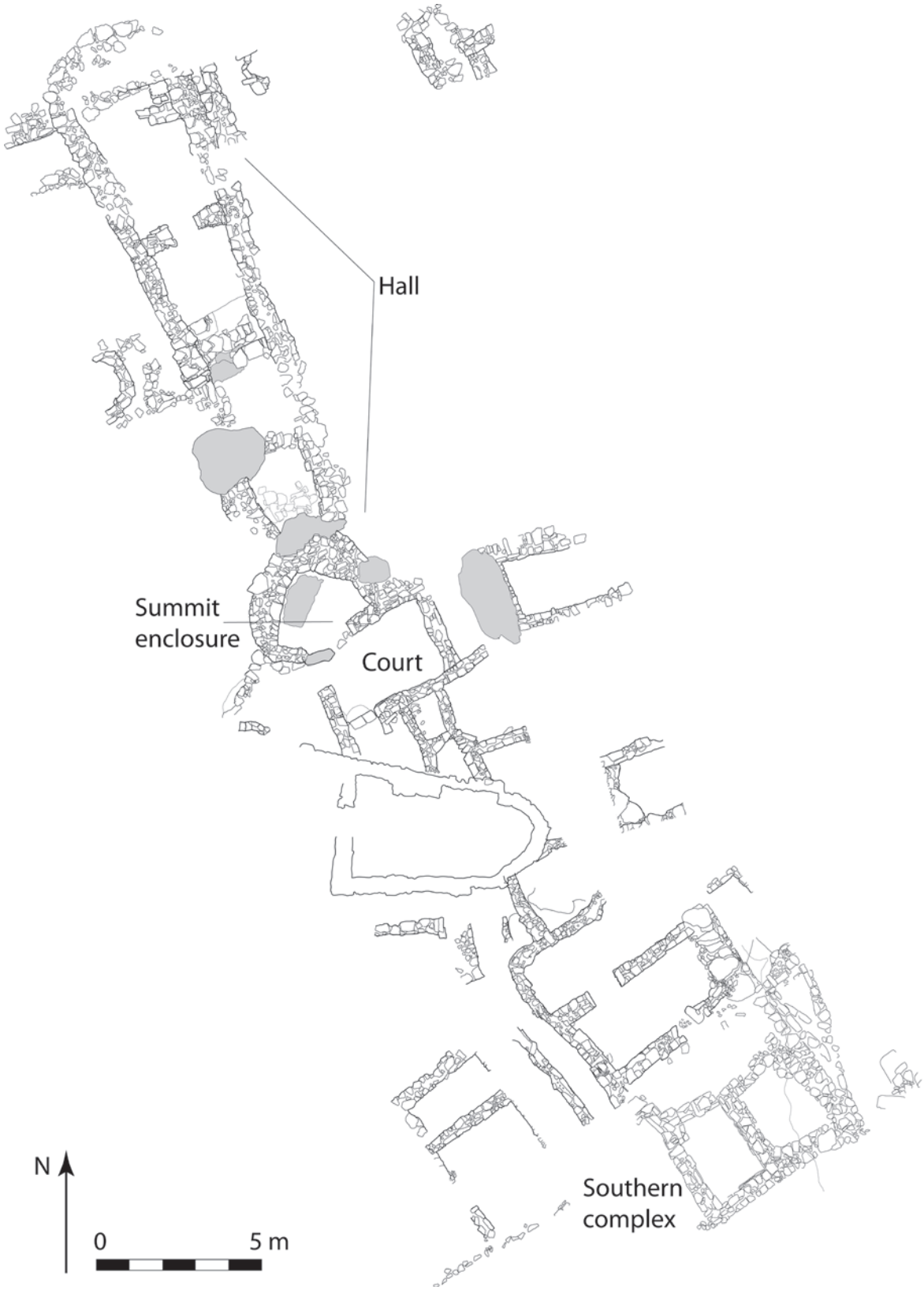

Figure 10. Plan of the summit area. Bedrock outcrops marked in grey. Byzantine chapel shown in outline.

Figure 11. Metal hoard recovered from the Hall on the summit. Phase C.

end of the Hall (Figure 11). Although the pottery was dominated by coarse household wares,[70] the full range of domestic activities was not securely documented.[71] In particular, kitchens and refuse were not identified. This led to the tentative suggestion that the site's permanent residents were perhaps few in number, but that the buildings might have accommodated large numbers of visitors during the periodic gatherings at the sanctuary.[72] This suggestion, although tentative, was supported by a number of strands of evidence, and became central to the design of further research questions concerning Keros, not least the agricultural and settlement potential of the wider island of Keros.[73]

The Keros Island Survey, 2012–2013

The location of Kavos and Dhaskalio, off the west coast of an island of seemingly poor agricultural potential and scant resources, did not seem an immediately obvious choice for the Cyclades' largest Early Bronze Age site. Study of the pottery from the excavation had already determined that it was all imported:[74] Keros did not seem even to offer suitable clay for ceramic production (although that is currently under further research). Beyond the detailed information coming from careful excavation and scientific study, it was clear that the site needed to be set into a wider context, beginning with an intensive pedestrian survey of the whole island of Keros. Such a survey would further refine our picture of the agricultural potential of the island. It would also allow us to understand the full occupation history of the island, including any predecessor habitation to the sanctuary, as well as habitation in later periods. A survey of Keros would allow for a focus on the internal dynamics of the island – a subject sometimes lost in the clear interest of the position of Dhaskalio and Kavos in the wider network of sites in the Cyclades. Were Dhaskalio and Kavos at

[70] Sotirakopoulou 2018: 435.
[71] Margaritis 2013.
[72] Margaritis 2013: 403; Renfrew 2013c: 719–20; Sotirakopoulou 2018: 442.
[73] The excavations on Dhaskalio were fully published in 2013 (Renfrew *et al.* 2013c) and 2016 (Sotirakopoulou 2016).
[74] Hilditch 2013; Sotirakopoulou 2016; Hilditch 2018.

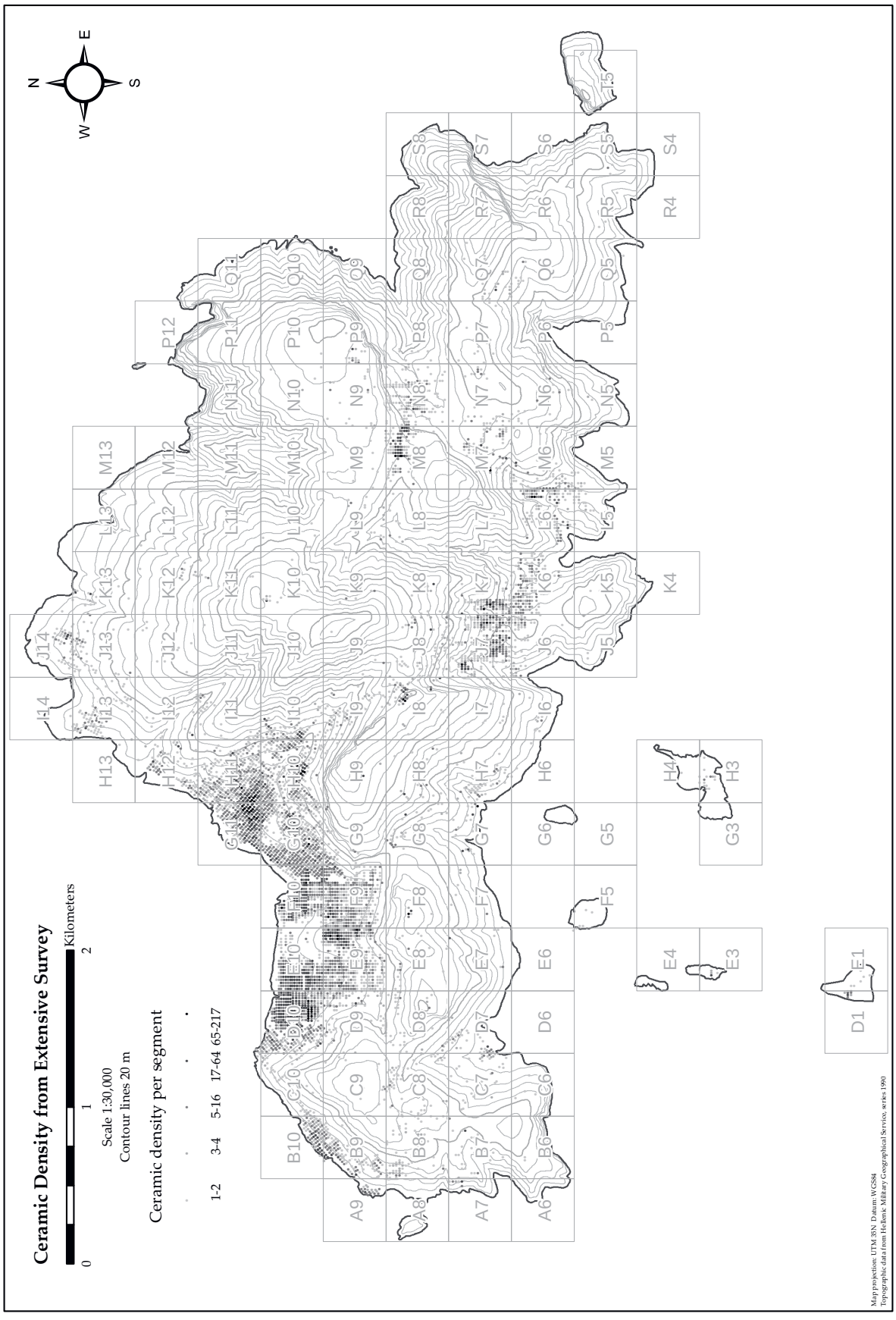

Figure 12. Keros Island Survey. Overall ceramic density in extensive survey.

the top of a Keros settlement hierarchy, or did they sit alone? Finally, a survey might be hoped to offer information about potential production sites for the materials found in the special deposits; it might also yield a location used for the breakage so richly demonstrated in the deposits; and it might offer clues as to the extent of the use of the island for funerary purposes.

The survey was carried out in 2012 and 2013. In the hope of broadening compatibility between datasets, its methodology was based on that used in the Kythera and Antikythera surveys.[75] Initial extensive survey of the island covered the whole island and led to the definition of locales for further research ('polygons') within which more intensive artefact collections then took place. The surprising first result of the survey was that 28 such polygons could be defined, covering some five per cent of the island's surface. The ceramic density map (Figure 12) gives a good overall impression of the totality of human action over the surface of the island through the millennia. The geomorphological study showed that most concentrations are broadly *in situ*, and that locations with favourable drainage and soil-formation characteristics were most often chosen for settlement. The earliest securely identified pottery (Figure 13) is of Early Cycladic II date (a few sherds might be earlier); earlier finds of Late and Final Neolithic obsidian arrowheads probably indicate occasional hunting parties from other islands, rather than occupation of Keros at this time. The Early Cycladic is one of three periods in which the island is significantly used and inhabited (the others being Late Roman or Early Byzantine, Period 11, and the early modern period, Period 15; the Middle Cycladic period is also represented, but there is little evidence for Late Cycladic occupation). The focus of habitation in most periods is the northwest coastal zone, with further settlement in the south-central area. While a surprising amount and spread of evidence for occupation was recovered, no evidence for marble production or breakage was found.

Index period	Chronology	Number of diagnostic sherds	Duration	Sherds per year	Period group	Total duration	Total sherds	Sherds per year
0	5300–4500 BCE	0	800	0	-	**800**	0	0
1	4500–2850 BCE	0	1650	0	**A**	**3400**	1033	0.30
2	2850–2100 BCE	192	750	0.26				
3	2100–1100 BCE	84	1000	0.08				
4	1100–800 BCE	0	300	0	**B**	**1400**	548	0.39
5	800–600 BCE	8	200	0.04				
6	600–350 BCE	31	250	0.12				
7	350–250 BCE	5	100	0.05				
8	250–100 BCE	7	150	0.05				
9	100 BCE – 100 CE	16	200	0.08				
10	100–300 CE	0	200	0				
11	300–700 CE	284	400	0.71	**C**	**900**	488	0.54
12	700–1200 CE	17	500	0.04				
13	1200–1400 CE	0	200	0	**D**	**750**	437	0.58
14	1400–1780 CE	8	380	0.02				
15	1780–1950 CE	181	170	1.07				

Figure 13. Chronological table showing numbers of sherds per index period and per period group. Totals for each period group include both index sherds and sherds assigned only to period group.

[75] Broodbank 1999; Bevan and Conolly 2013.

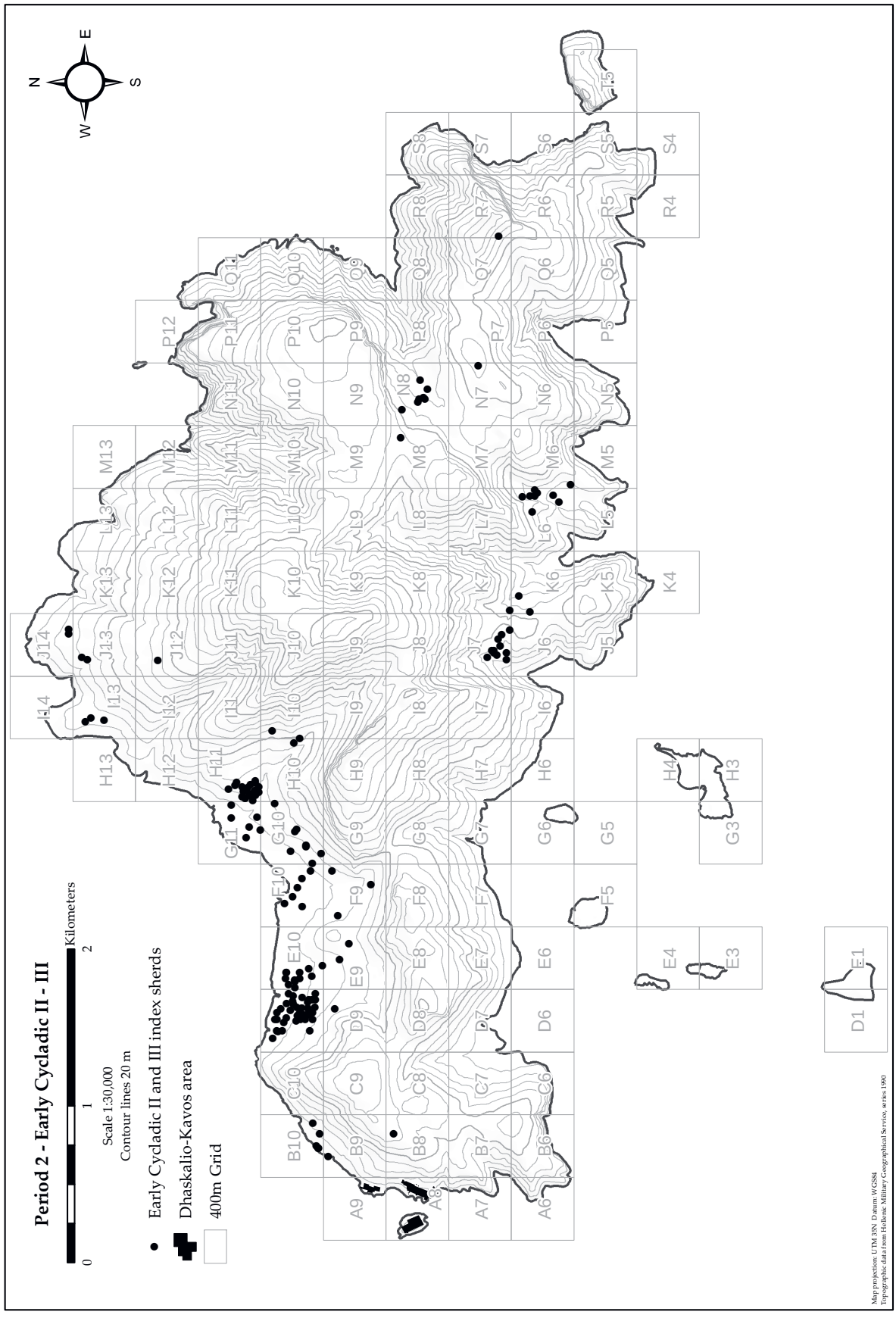

Figure 14. Keros Island Survey. Distribution of Early Cycladic index sherds.

The results were challenging for our initial feeling that Keros could not support a significant population. Dhaskalio and Kavos were clearly placed at the head of a settlement system, rather than set alone in splendid isolation. Given the coarse chronological resolution of survey pottery, the 12 polygons with significant amounts of Early Cycladic material may cover some seven or eight centuries. There is no reason to believe all were occupied simultaneously. Nonetheless, it is now clear that the landscape of Keros was exploited in the Early Bronze Age to a greater degree than had been appreciated (Figure 14). A study of all visible built features over the surface of the island demonstrated a palimpsest of terraces clearly of different dates. Apart from those obviously of the early modern era, a good number of more robust structures could be assumed to be from the Late Roman or Early Byzantine occupation, or in any case to be post-prehistoric in date. But a large number of much slighter structures was identified, and these we postulated might support the prehistoric agricultural regimes on the island. This opened the way for a notion of mobile inhabitation, where different daily activities could be located in different places, with many domestic and agricultural activities located on the wider island of Keros, and more specialised activities on Dhaskalio. This concept was to be tested in the subsequent Keros-Naxos Seaways Project.[76]

The Keros-Naxos Seaways Project, 2015–2018

The rationale for the project

Although the excavations of 2006–2008 and the subsequent survey had provided a lot of information and clarified many aspects of the unusual features of the sanctuary, which are part of its enduring fascination, there was a clear rationale for further work at the site and in the wider region. While the place of the sanctuary in Cycladic and Aegean networks, and the nature of contacts and their intensity could be clarified by further work on the range of provenances for excavation and survey material, clear questions remained over the relationships between Keros and nearby islands. The insights into agriculture on Keros itself did not solve the problem of how one might supply a site with the potential capacity of Dhaskalio, so it must be assumed that some everyday supplies would be coming to the site from nearby locations. Moreover the surprising site hierarchy of Keros raised the question of to what extent this pattern extended onto nearby landmasses. It was therefore clear that further survey was needed. There were several potential areas one could survey in the vicinity, including the islands of the Small Cyclades (Ano and Kato Kouphonisi, Iraklia and Schinousa) or the neighbouring larger islands of Naxos, Ios and Amorgos. We chose to survey one nearby island, Kato Kouphonisi, and part of the more distant and much larger island of Naxos, in order to obtain an understanding of the organisation of settlement and agriculture at differing distances from Keros. Southeast Naxos was also an inviting focus for research given that the marble used for the buildings of Dhaskalio was imported from there. In parallel we decided to follow up on the discoveries of the Keros Island Survey by carrying out small test excavations on some of the surface features of Keros, partly to date them, and partly to gain insights into their function.

At Dhaskalio itself it was also clear that there was a need for further excavation. The earlier excavations had uncovered strata and buildings mainly of Phase C, with limited evidence for Phase B. The few contexts of Phase A had given very little information about that period. The latter period, however, seemed to be the floruit of the special deposits, and so there was a clear need for a better understanding of the earliest period of Dhaskalio, both in terms of its inception and in its relationship to the sanctuary. The earlier excavations had concentrated on the summit and higher reaches of the site, but the careful examination of the standing features on the island had suggested that the extent of building covered most of the islet. There was a clear necessity to test

[76] The Keros Island Survey is being published as a monograph (Renfrew *et al.* forthcoming a,) with a series of additional studies in the form of journal articles and book chapters. A large petrographic study of the ceramics will offer further insights into the imported pottery repertoire of Keros and its provenance.

this theory, and to understand the relationships and activities of the different parts of the site. Finally, the northern part of the site had suggested a monumental aspect, and so this was also a feature that required further investigation to elucidate.[77]

Trial excavations on Keros, 2016–2018

To follow up on the mapping of surface features across Keros in 2012 and 2013, small trial trenches (generally 1.5m x 1.5m, sometimes a little larger) were opened across Polygons 2 and 4. Polygon 2 is a large, flat area on the northwest coast of Keros, covering about 18 ha; 11 trenches were opened here in 2016. Polygon 4 is close to Kavos, some 230m northeast of the Kavos Promontory, and about 3 ha in extent. Nine trenches were opened here in 2017, and Trench 9 was extended in 2018.

The pottery in many trenches in Polygon 2 was mixed with both prehistoric and later sherds, although in some trenches (such as Trench 10) there were securely prehistoric strata. In contrast in Polygon 4 all trenches contained only Early Bronze Age pottery (occasional sherds of later date were collected only on the surface). OSL dates (not yet published) taken by Tim Kinnaird are also, in some cases, prehistoric. It seems possible that Polygon 4, located close to the Kavos area, is in some senses an extension of it. Sporadic evidence for metalworking and unusual finds, such as a copper pin, seem to suggest a range of activities here, and it is not clear whether the structures are simply agricultural, as initially assumed. No clear occupation surfaces were detected, but the further study of the pottery and finds may elucidate the activities in this area. The results from Polygon 2 are on the other hand consistent with long-term geomorphological processes: the movement of sediment and finds. It is to be hoped that careful study of the results will inform our interpretation of the survey results of Polygon 2 as a whole.

Survey on Kato Kouphonisi, 2018

Kato Kouphonisi is the nearest island of any size to Dhaskalio and Kavos, being about 2.6 km away at the nearest point (the distance from the beaching point on the Kavos landbridge to the beach at Nero on Kato Kouphonisi is about 3.3 km, and these would seem the likely stopping points). Kato Kouphonisi is some 3.5 square kilometres in area, and was entirely surveyed using the same methodology as the Keros Island Survey (although in this case all data were collected digitally rather than on paper, as was done on Keros). The ceramic density map of the island (Figure 15) indicates that abundant traces of human action are visible over the entire island, with notable concentrations in the northeast and in the centre-west. The latter is mainly accounted for by a large Early Bronze Age site, making Nero in D3 the main prehistoric centre of the island. The concentration of material toward the northeast is more clearly related to Roman occupation of the island, although prehistoric material was also noted there.

The study of material from the survey is at an early stage. It is clear that the density of material observed on the surface was high and more or less continuous. The average density of both pottery and obsidian is much higher than either southeast Naxos or Keros. The ploughed fields and a predominance of low-lying terrain are important factors in the high densities of finds, and will require careful comparison with the other two surveys. Twenty-two polygons were defined (including one on Glaronisi). While intensive occupation in the Early Bronze Age, Late Roman and Early Byzantine, and early modern periods confirmed the pattern detected on Keros and southeast Naxos, Mycenaean, Geometric and Archaic pottery was also found.

[77] The study of the finds, analyses and interpretation of all aspects of the Keros-Naxos Seaways Project were still in progress when this article was written, so the findings and conclusions below are subject to revision.

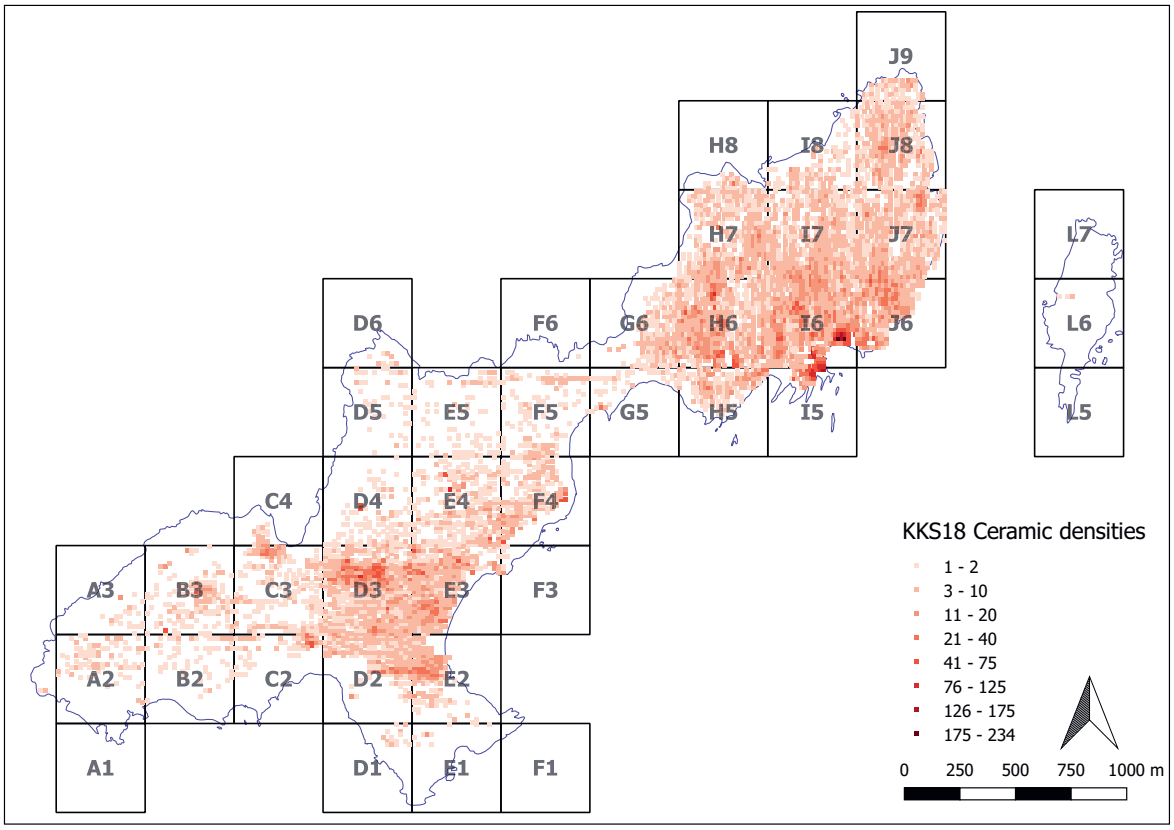

Figure 15. Survey of Kato Kouphonisi. Ceramic density on Kato Kouphonisi from tract walking.

Survey on southeast Naxos, 2015

Pedestrian survey was carried out on southeast Naxos in 2015 in a six-week field season. The methodology again followed that of the Keros Island Survey closely to maintain compatibility in the datasets. Approximately 10 square kilometres were surveyed.

Naxos was chosen as a target for survey as so much of the imported materials at Keros, including stone and ceramics, seem to originate there. At a distance of 10 km from Keros at the nearest point, Naxos is significantly more distant than Kato Kouphonisi, though still within a single day's paddling distance.[78] A primary aim of the survey was to understand and characterise the early bronze age occupation of the coastal zone, in order better to understand the near-distance maritime networks within which Keros was situated. The survey area included the known sites of Panormos,[79] Spedos,[80] Korfi t'Aroniou[81] and sites near Kalandos,[82] and for this reason it was expected that the results would show a busily inhabited Early Bronze Age landscape. Expectations were again confounded, however. Ceramic density on the survey is easily the least dense of the three surveys, and the obsidian density in particular was very low. The distribution of Early Cycladic sherds in the landscape largely mirrored the known sites (Figure 16). Late Roman and Early Byzantine, and early modern, were again the main other periods, with the former very much concentrated at Panormos, where there was clearly a large harbour site. In the prehistoric period, only in the Kalandos valley was there an impression of widespread settlement; elsewhere the sites seemed nucleated at Spedos, Panormos and Korfi t'Aroniou. As before, Early Cycladic II-III was

[78] Broodbank 2000a: 101–2.
[79] Angelopoulou 2014.
[80] Stephanos 1905; Papathanasopoulos 1962; Renfrew 1972: 518.
[81] Doumas 1965; Renfrew 1972: 519.
[82] Such as Karvounolakkoi: Renfrew 1972: 518, with references.

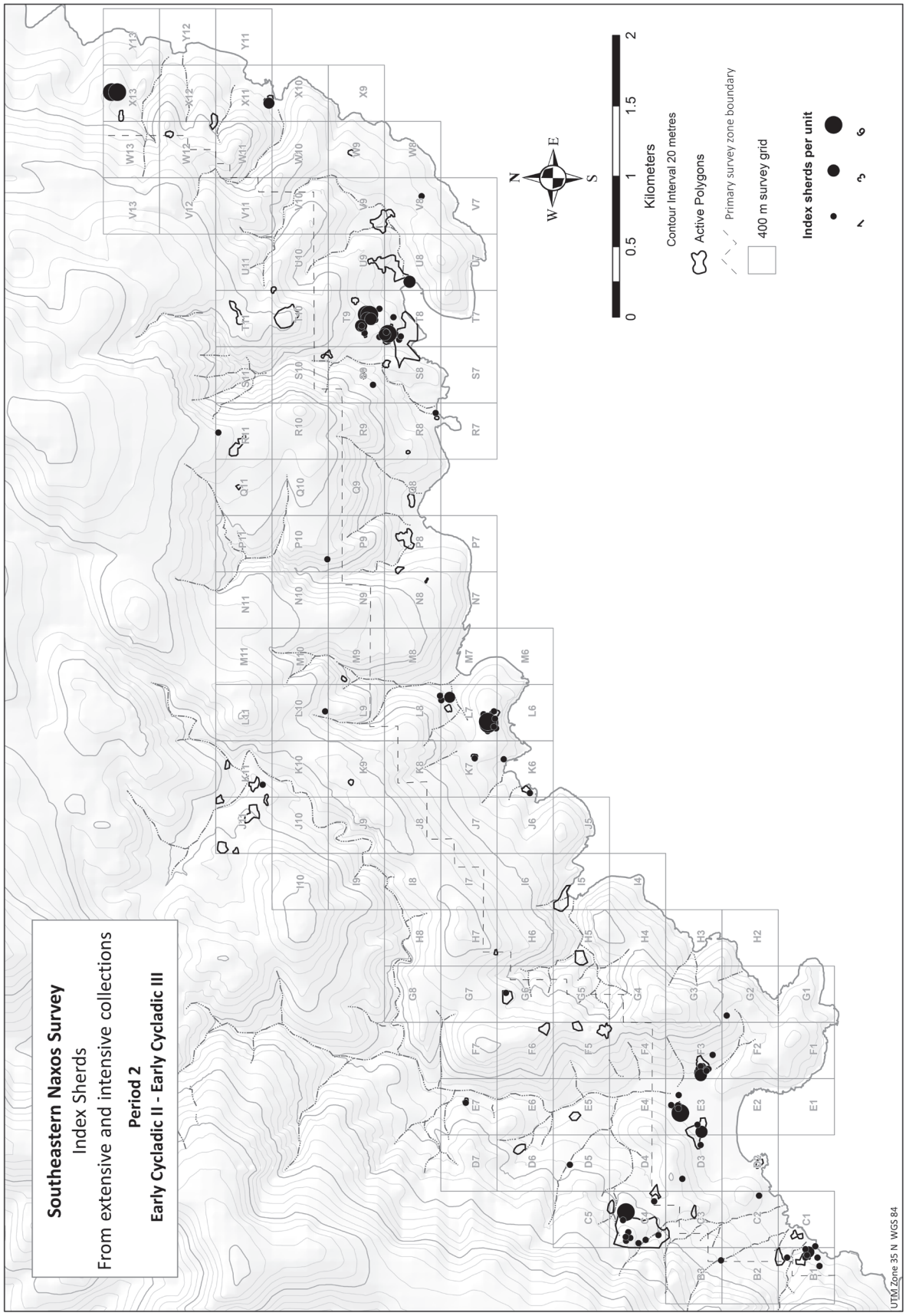

Figure 16. Early Cycladic index sherds collected in the Southeast Naxos Survey.

Figure 17. Detail of curvilinear wall visible on the surface at Spedos. North is to the top. Orthophoto by James Herbst.

well-represented, with fewer indications of the second millennium. As we go forward with the interpretation of results, it will be a priority to understand the settlement and productivity of southeast Naxos and how it relates to the maritime world of Kato Kouphonisi and Keros.

In this regard the site of Spedos was a focus of careful study. The graves at Spedos were investigated over a century ago, but the extent and nature of nearby settlement was not previously well understood.[83] It had seemed possible that Spedos represented a 'stronghold',[84] perhaps similar to broadly contemporary Panormos[85] in nature. The prehistoric acropolis is located at the west end of a promontory about 75m above sea level. Pottery recovered includes 63 diagnostic sherds of the EC II-III period, with no indication of later habitation. Two structures are apparent at the summit: one is a rectangular building at least 13m in length and 6.5m wide with a flattened apsidal end to the east. In the absence of any later evidence, this seems to be a structure of the Early Bronze Age, markedly similar in appearance to the Hall at Dhaskalio (Figure 10). To the west a strong wall, with a curvilinear aspect, was observed over a length of 22m (Figure 17). It is 1.9m thick and is located

[83] Stephanos 1905; Papathanasopoulos 1962.
[84] Renfrew 1972: 518.
[85] Angelopoulou 2014.

Figure 18. Complete palette found in the cemetery of Spedos.

at the highest point of the summit. There is at present, however, no evidence that the site was enclosed. At about 3000m^2, the site is decidedly smaller than Dhaskalio, and the material spread of the summit was noticeably limited in extent, with no evidence for settlement on the surrounding hillsides. Part of the previously excavated cemetery was located in the valley below; marble slabs used as walls for cist graves were located, and fragments of five large stone palettes were recovered (Figure 18).

Neither the site at Spedos nor any other of the sites investigated during the survey suggested that there was a site on southeast Naxos of comparable size to that of Dhaskalio. Similarly, the site at Nero on Kato Kouphonisi was not of comparable size to Dhaskalio. This suggests that, for the areas investigated so far, Dhaskalio was clearly set at the top of the settlement network, for the EC II period at least.

Excavations on Dhaskalio, 2016–2018

As set out above, the excavations on Dhaskalio from 2016 to 2018 aimed to answer questions concerning the extent of the site and the nature of the architecture, as well as its inception and the relationship with the special deposits. Given that the earlier excavations had shown that complex and dense architecture characterised the site, it was decided to adopt open area excavation in larger trenches in order to understand the articulation of interior and exterior space, pathways and terracing systems. Nine trenches were opened, the largest of which (Trench A, 24m x 9m) covered 216 square metres (Figure 19). Given the expectation of finding more stone-built constructions which had collapsed after abandonment, much thought was given to excavation processes and recording, leading to the adoption of an all-digital strategy for both field and field laboratory, with the aim of developing rapid feedback mechanisms between excavators and specialists. Single context recording was adopted, and extensive use of photogrammetry replaced field drawings and has resulted in a vast repository of data currently under intensive study.[86]

[86] Boyd *et al.* 2021.

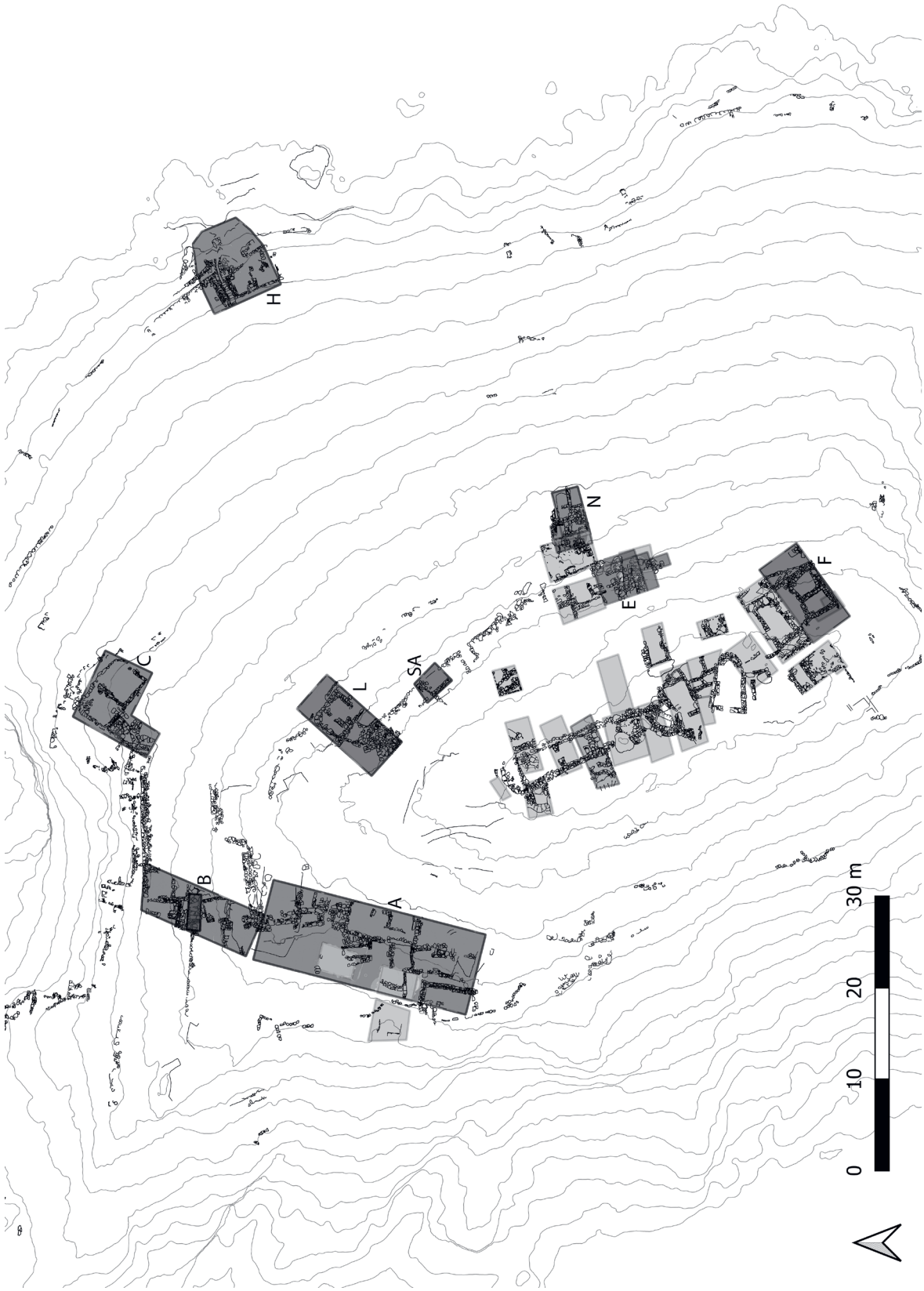

Figure 19. Excavation trenches on Dhaskalio, 2016–2018 in darker grey and labelled, 2007–8 in light grey.

Figure 20. View of the northwest plateau on Dhaskalio, looking east. Trenches A (right) and B (left) open.

Contexts of all three phases were excavated, although only in one trench (Trench E) is there a stratigraphic sequence from Phase A to Phase C. Phase C was otherwise only detected in Trench F, which was placed on the summit to complete the excavation of a building originally partly excavated in 2007–2008. The other trenches placed around the islet below the summit contain only contexts of Phases A and B. This implies that the building remains evident across the islet may date mainly to Phases A and B, and that most buildings were therefore out of use in Phase C, when occupation is principally limited to the summit area. This is a significant new understanding carrying implications for the inception and growth of the site, as well as for its final period.

The new excavations offered further insight into the planning and layout of the settlement (Figure 20). The large terrace wall below the summit mentioned above was further investigated in Trenches E, SA and L. Trench L revealed evidence for a parallel terrace wall at a lower level, while in Trench E a stairway leading toward the summit was set within a monumental entranceway (Figure 21). Terrace walls at the northern end of the site were investigated in Trenches B and C, and toward the sea in Trench H. It now seems clear that an approximately concentric system of lateral terrace walls ran along the northern and eastern sides of the site. It seems likely that these were conceived in advance rather than being added to, piecemeal, as settlement expanded. They included features such as drainage and access systems which demonstrate the degree of pre-planning involved in the architectural design[87] (Figure 21).

The local stones, used for the terrace walls, may have come from nearby (perhaps in some cases from Dhaskalio itself) but their selection, rough working, transport to site and placement constitute a massive undertaking. Greater still was the effort to import building stone from Naxos. The buildings set upon these terraces, some of which were two-storey, were built of such imported Naxos marble, and the amount of stone imported must have exceeded 7,000 tonnes. To the requirements we can add the timbers needed for the roofs of the rooms, and the sediments used in the floors and roofed spaces.[88] These may have come from elsewhere on Keros and were

[87] Floquet forthcoming.
[88] Gkouma *et al.* 2022.

Figure 21. Entranceway within the large terrace wall toward the summit (Trench E). Compare Figure 9.

transported to Dhaskalio. Altogether the expansive requirements of planning, technical skill, and human labour, combined with the resource requirement and the distance from which materials were imported, indicate a massive, prolonged and well-supplied enterprise. While drinking water was available at Dhaskalio, a sustained import of food must have accompanied the construction work on the site.

The principal productive activities within the settlement were metalworking and obsidian production, evidence for which was found ubiquitously. The finds (from all seasons) relating to metallurgy, both in terms of artefacts and metalworking remains, are impressive, truly surpassing in number and variety anything known from settlement contexts of the same period in the Cyclades.[89] Several hundred metal artefacts include nine gold and three silver fragments. Gold had been exceedingly

[89] Georgakopoulou forthcoming.

Figure 22. Metallurgical evidence from Trench H. Left: stone mould for spearhead. Right: metalworking hearth in situ, set in bedrock.

rare in the Cyclades before these excavations. Other artefacts are generally small items, with lead clamps predominating among the lead items (which also include two miniature axes and two spools).

The collection of metallurgical remains undeniably reveals Dhaskalio as a major metalworking centre for the EBA Aegean. Arsenical copper predominates, but analysis currently in process suggests working of precious metals as well as lead and bronze. Workshop remains exhibiting different technical processes are located in three trenches (A, H and L). Copper spills are found very widely in the settlement. Moulds have been found for daggers and spears (Figure 22) along with smaller objects. The worked stone assemblage from the site has been characterised as oriented toward craft processes (such as metalworking) rather than domestic. The largest single category of finds is that of metallurgical ceramics, where a large open shape (the 'baking pan') predominates. Its precise role in the metallurgical process is currently under investigation, but adherent metal and slagging, and copious traces of burning, show that many of these were used in metallurgical processes. The assemblage also includes an impressive collection of tuyères or their fragments, representing approximately forty individual examples in a range of imported fabrics, and smaller numbers of crucible fragments. The workshop in Trench A seems to have been used for lead working, possibly for clamp repair of ceramic objects. The workshops in Trenches H and L were mainly for copper metallurgy, perhaps with two different processes (and potentially in two different phases): in Trench L in Phase B the use of the baking pan is clearly demonstrated (but the remains here may simply be workshop debris – this is under investigation), whereas in Trench H in Phase A small plaster-lined furnaces were set into the bedrock (Figures 22, 23).

It seems clear that a significant skill base in metallurgical processes was maintained at Dhaskalio, and that quantities of both ore and metal were being brought to the site, while a significant production of metal artefacts was leaving the site and entering wider circulation. The importance of metallurgy in the development of the 'international spirit' of the third millennium was first underlined by Renfrew in 1967,[90] and we now have a single site at which the technical processes

[90] Renfrew 1967.

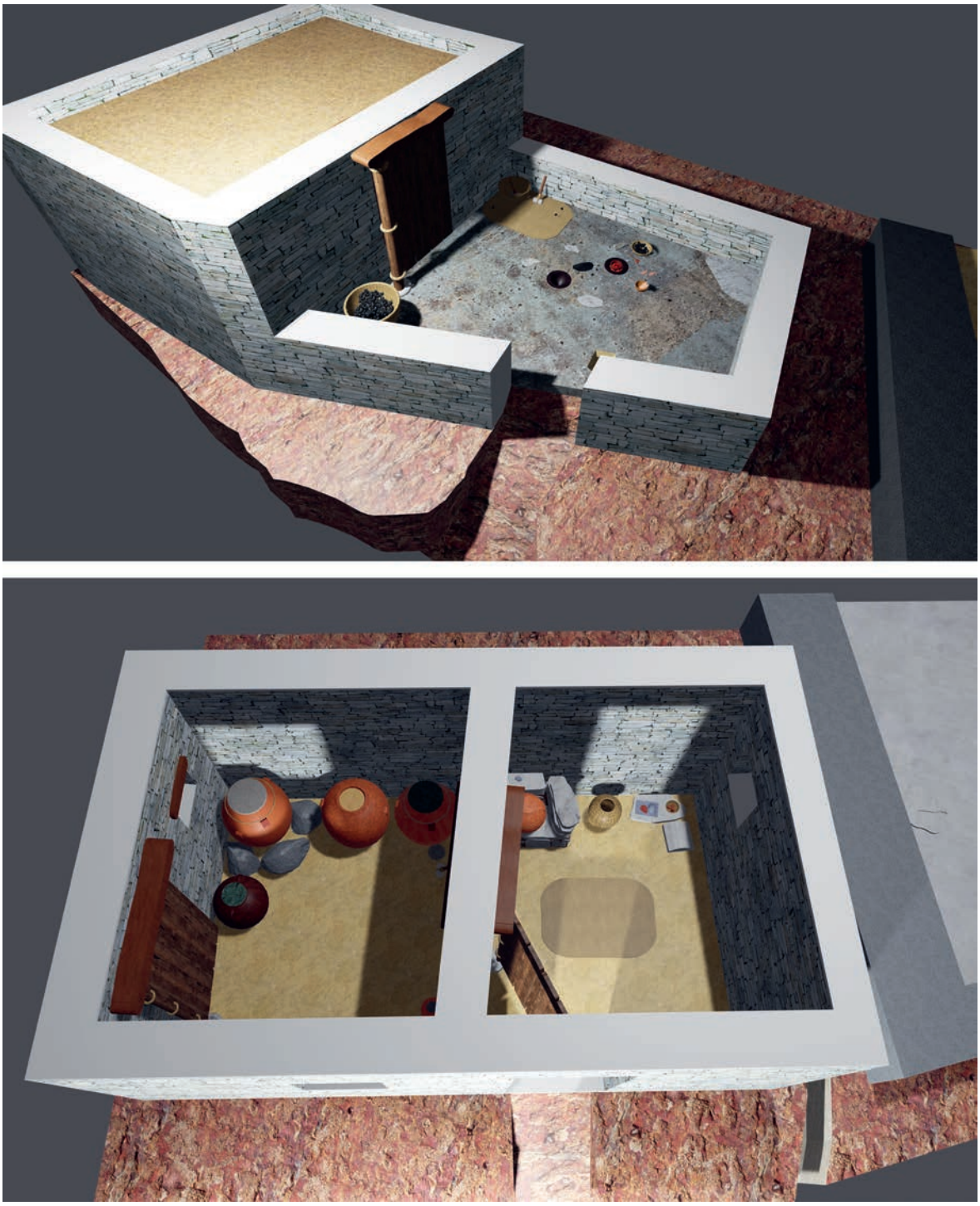

Figure 23. Sketch 3D reconstructions of Trench H (north to the right). Top: Trench H Phase I (Dhaskalio Phase A). Metalworking workshop. Bottom: Trench H Phase III (Dhaskalio Phase B). Storage area (roof removed for clarity). Ceramic vessels as found in situ.

may be understood and the role of metal in society further defined. While it is the case that almost all materials at Dhaskalio and Kavos are imported, the import of metal and its transformation to daggers and other objects (both 'choice' and more mundane) at Dhaskalio is an important strand of evidence in the understanding of how the overall site of Kavos and Dhaskalio operated, both the community centred there but distributed across Keros and the Kouphonisia, and the wider Keros nexus, drawing in people and resources, and creating both communal and individual elements of local and regional identity.

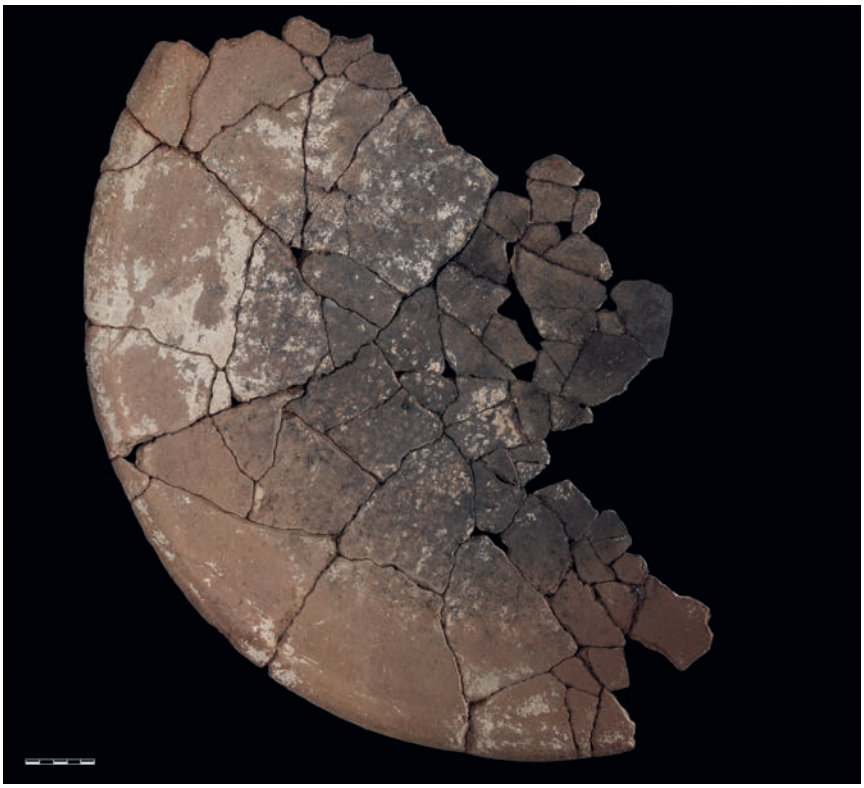

Figure 24. Baking pan from Trench B. Note traces of burning.

Obsidian working at Dhaskalio, as documented by the 2007–08[91] and more recent excavations, is providing us with a rare insight into the organisation of production and consumption in the early bronze age Aegean. While previous claims that skilled obsidian pressure blade manufacture was an exclusive practice at the intra-regional level, a means by which certain communities came to achieve and maintain socio-economic distinction,[92] there has been little insight as to how this craft was organised at the intra-settlement level.[93] At Dhaskalio obsidian working appears, like metalworking, to have occurred throughout the settlement in all phases, and there is thus far no suggestion of a dedicated workshop. While a proportion of the blades manufactured were intended for use on site, end-products seem to be under-represented in relative proportion to blade cores, suggesting that quantities of these implements were taken off-site. While this may have related to activities taking place elsewhere on Keros or Kato Kouphonisi, some end products may indeed have been taken further afield. The assemblages are also noteworthy for producing quantities of pressure blades made from Cappadocian raw materials that came from some 800 km to the east. This material, along with handfuls of obsidian from the Dodecanesian source of Giali A,[94] further attests to Dhaskalio's hyper-connected character in the context of the Early Bronze Age Aegean.[95] A handful of non-local glossed flint blades ('sickle elements') of unknown origin, found only in Phase C contexts, indicates at the very least shifting depositional practices over time, if not fundamental changes in harvesting technologies and site functionality.

The most common find on the site is pottery: some 102,773 sherds were collected (more than twice the number collected in 2007–2008), all of which appear to have been imported from other Cycladic centres and, in smaller quantities, from more distant regions. The ceramic assemblage is characterised by numerous elements that are not paralleled on contemporary sites, thereby

[91] Carter and Milić 2013.
[92] Carter 1994; 2008.
[93] Except for Early Helladic Lithares, Tzavella-Evjen 1985.
[94] Carter *et al.* 2016.
[95] E.g., Broodbank 2000b.

highlighting the specialised function of the site. While fine wares are generally rare, Kastri pottery is well-represented and includes hybrid vessels featuring both Anatolian and Cycladic traditions. Storage jars are the most common type, representing almost half of recognised forms, with the so-called 'baking pan' being the second most common form (Figure 24). Storage jars in several forms and sizes are found very commonly throughout the settlement, including some left set into floors and broken *in situ* when roofs collapsed (Figure 23 bottom). The storage jars shown in Figure 23 come from Amorgos, Ios and Melos. The baking pans are, as noted, commonly associated with metallurgy (forming the dominant component of the workshop debris in Trench L, for example) but may also sometimes be associated with *ad hoc* cooking practices (built hearths are few in the settlement, and built ovens, found at other contemporary settlements, are unknown).

Analyses of the metals, ceramics and all other categories of find are currently ongoing. These include seals and sealings, figurines, worked marble, worked stone, petroglyphs (which are common on Dhaskalio), pebbles, and stone discs. As a result of sieving and intensive flotation the recovery rate of microartefacts is high. In addition, organic and environmental remains are also under study, including seeds, charcoal, phytoliths, animal bones, shell, starch and lipid residues, paleoproteomics, human bone (an inhumation was found in Trench E) and mat and leaf impressions on pottery. These studies will offer much information on the economy of the site. A second key aim is to understand the provenance of all the imported materials at Dhaskalio. Another focus of the ongoing study is to understand the functionality of space in all the excavated areas, to assess the nature of everyday life in the Dhaskalio community and understand the extent to which a mode of extended habitation may have applied, with different activities carried out at different locations.

Conclusions

A detailed, scientific and multidisciplinary approach[96] to understanding Keros has completely transformed our understanding of the site. The fact of its exceptional nature was apparent from the first archaeological work in 1963, but the complexity of the human practices and interconnections anchored at the site are only now becoming clear. The ritual practices richly demonstrated for the special deposits can now be understood as part of a wider range of activities which were supported by the monumental infrastructure project on Dhaskalio and by a varied web of connections through the Cyclades and beyond.

The key characteristics of Dhaskalio and Kavos include regional centralisation; exceptional reach; intensification in production, including agriculture; aggrandisement and monumentality; a core ritual component; and an interest in the expression of identity through material and locale. These characteristics, it may be suggested, form the antecedents of urbanism, and not only foreshadow the key characteristics of the later Minoan and Mycenaean palace societies, but can be compared directly with the prepalatial centres of Crete, especially Knossos.[97] Keros, unlike the Cretan palaces, went out of use *c.*2250 BCE and was not subsequently reoccupied, meaning that its remains are not damaged by those of later periods. The final use of the site (perhaps different in nature and somewhat reduced in intensity) and the reasons for its abandonment, whether or not connected with the so-called '4.2ka event'[98] or changes in seafaring technology,[99] are just two of the fascinating questions currently under consideration as we move toward final publication. Because of its preservation, and because of this confluence of connected activities Keros will therefore remain one of the key sites in the Aegean region for investigating the deep social changes taking place in the third millennium.

[96] Renfrew *et al.* 2018a.
[97] Barrett and Boyd 2019: 115.
[98] Wiener 2014; Railsback *et al.* 2018.
[99] Broodbank 2000a.

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