

Understanding Keros: an overview of fifteen years of research **Κατανοώντας την Κέρο: μία επισκόπηση 15 χρόνων έρευνας**

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Περίληψη

Κατανοώντας την Κέρο: μία επισκόπηση 15 χρόνων έρευνας

Η ανακοίνωση αυτή παρουσιάζει μία επισκόπηση των τριών αρχαιολογικών ερευνητικών προγραμμάτων για την Κέρο που έλαβαν χώρα τα τελευταία 15 χρόνια: Cambridge Keros Project (2006-2008), Keros Island Survey (2012-2013) και Keros-Naxos Seaways Project (2015-2018).

Η Κέρος συγκέντρωσε για πρώτη φορά το ενδιαφέρον των αρχαιολόγων το 1963, ωστόσο η κατανόηση του χαρακτήρα της Πρωτοκυκλαδικής θέσης στο δυτικότερο άκρο του νησιού, καθώς και του ιδιαίτερου ρόλου της στην ευρύτερη περιοχή, ήταν δύσκολη εξαιτίας της καταστροφής που προκλήθηκε από τη σύληση. Το Cambridge Keros Project διερεύνησε μια ασύλητη «ειδική απόθεση»: μία περιοχή στην οποία έλαβε χώρα η συστηματική και σκόπιμη επιλεκτική εναπόθεση αντικειμένων όπως κυκλαδικά ειδώλια, λίθινα αγγεία και ένα σύνολο μη οικιακής κεραμικής, όλα θραυσμένα πριν την εναπόθεσή τους.

Η απουσία ενώσεων σε οποιαδήποτε κατηγορία υλικού υποδεικνύει ότι μόνο ένα τμήμα των θραυσμένων αντικειμένων μεταφέρθηκε στην Κέρο για εναπόθεση, ενώ οι αναλύσεις καταδεικνύουν την προέλευση των ευρημάτων από τις υπόλοιπες Κυκλάδες αλλά και πέρα από αυτές. Οι πρακτικές της περιοδικής συγκέντρωσης και εναπόθεσης που διαπιστώθηκαν από το υλικό οδήγησαν στην κατανόηση ότι ο Κάβος στη δυτική Κέρο λειτούργησε ως ένα παν-κυκλαδικό ιερό.

Η επιφανειακή έρευνα που διεξήχθη στην Κέρο σε συνεργασία με την Εφορεία Αρχαιοτήτων Κυκλάδων κατά τα έτη 2012 – 2013 αποσκοπούσε στον προσδιορισμό του χαρακτήρα του οικισμού και της χρήσης γης της ίδιας της Κέρου από την προϊστορική εποχή μέχρι και τους νεώτερους χρόνους, με ιδιαίτερη έμφαση στην αποσαφήνιση του ρόλου του ιερού στην ιεραρχία των αρχαιολογικών θέσεων του νησιού. Η κατοίκηση της Κέρου κατά την Πρωτοκυκλαδική περίοδο ήταν πιο έντονη και εκτεταμένη απ' όσο είχε ως τότε εκτιμηθεί. Άλλες περιόδους εντατικής κατοίκησης ήταν η Ύστερη Ρωμαϊκή - Πρώιμη Βυζαντινή, και οι νεώτεροι χρόνοι.

Η μικρή νησίδα του Δασκαλιού, περίπου 90 μ. δυτικά της Κέρου (κατά την Πρώιμη Εποχή του Χαλκού ήταν ακρωτήριο του νησιού εξαιτίας της χαμηλότερης στάθμης της θάλασσας), ερευνήθηκε κατά τα έτη 2007-2008 και 2016-2018. Σε αντίθεση με την περιοχή του Κάβου που βρίσκεται απέναντι, το Δασκαλιό είναι μία περιοχή με πυκνή δόμηση σε πολύ μεγάλα αναλήμματα. Τρεις χρονολογικές φάσεις, οι οποίες καλύπτουν την περίοδο 2750-2250 π.Χ., έχουν διαπιστωθεί. Η κύρια δραστηριότητα που έχει αναγνωριστεί μέχρι στιγμής είναι η μεταλλουργία, η οποία φαίνεται ευρέως διαδεδομένη σε όλη την έκταση της θέσης.

Στην ανακοίνωση αυτή συζητούνται τα αποτελέσματα των τριών αρχαιολογικών ερευνητικών προγραμμάτων στην Κέρο, ο χαρακτήρας της θέσης, οι συνέπειες για την κατανόηση της Πρωτοκυκλαδικής κοινωνίας, και τα ερωτήματα που παραμένουν αναπάντητα.

Summary

Understanding Keros: an overview of fifteen years of research

This paper presents an overview of three archaeological projects on Keros during the past 15 years: the Cambridge Keros Project (2006-2008), the Keros Island Survey (2012-2013) and the Keros-Naxos Seaways Project (2015-2018).

Keros first came to archaeological attention in 1963, but an understanding of the nature of the Early Cycladic site located at its western tip and its regional role was difficult due to the damage caused by looters. The Cambridge Keros Project investigated an unlooted 'special deposit': an area of systematic and deliberate deposition of choice material consisting of marble sculpture, stone vessels, and a non-domestic pottery assemblage, all in broken condition. The lack of joins in any category of material indicated that only a small portion of the broken objects was brought to Keros for deposition, and analysis indicates the provenance of the materials elsewhere in the Cyclades and beyond. The acts of congregation and deposition indicated by the material led to the understanding that Kavos on western Keros acted as a pan-Cycladic sanctuary.

The Keros Island Survey of 2012-2013, a joint enterprise with the Ephorate of Antiquities of Cyclades, was undertaken in order to determine the nature of settlement and land use on Keros throughout prehistory and later periods, with particular interest in defining the role of the sanctuary in the site hierarchy of the island. Occupation on Keros in the Early Cycladic period was more intense and widespread than might have been imagined. Other periods of intensive habitation were the Late Roman-Early Byzantine, and the early modern.

The small islet of Dhaskalio, some 90m west of Keros (in the Early Bronze Age a promontory due to lower sea level), was investigated in 2007-2008 and 2016-2018. Unlike the Kavos area opposite, Dhaskalio is a densely built-up area of buildings set on massive terraces. Three phases covering the period 2750-2250 BCE have been defined. The main activity identified thus far is metallurgy, which seems to have been ubiquitous throughout the site.

The paper reflects on the results of all three campaigns on Keros, the nature of the site, the implications for our understanding of Early Cycladic society, and what questions still remain to be answered.

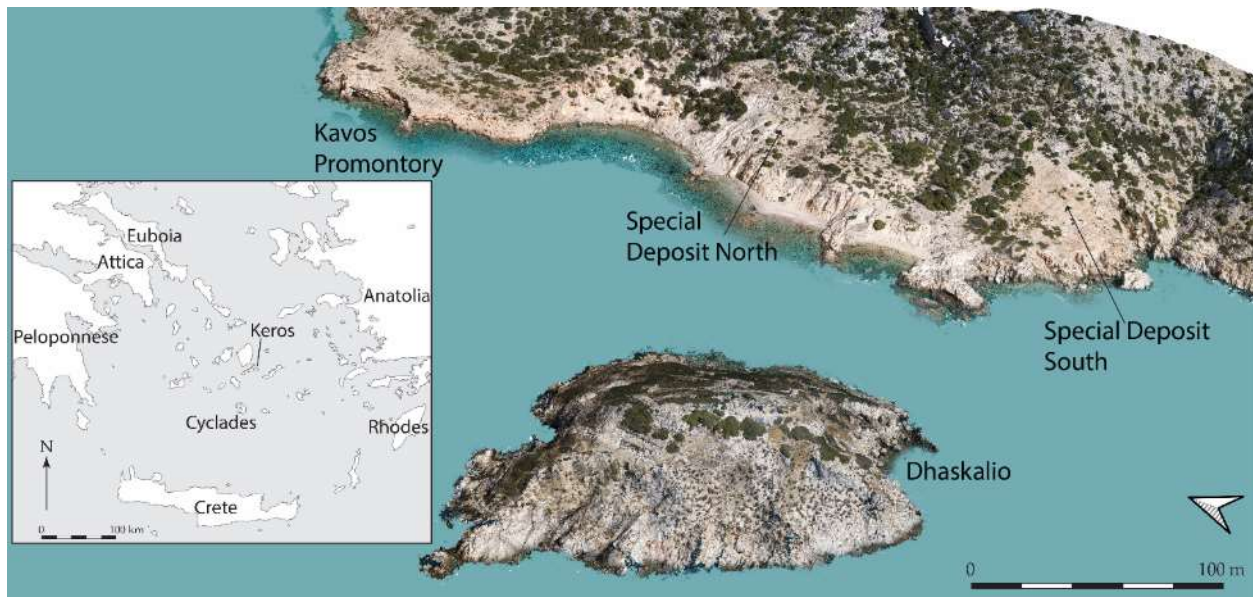


Figure 1. The western tip of Keros with the islet of Dhaskalio, showing archaeological zones mentioned in the text. Inset, position of Keros in the Aegean.

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 habitation² (see further below).

The earliest archaeological finds from Keros date to the nineteenth century. All are marble figures: the well-known pipe-player and harpist, published by Köhler³ 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 island⁴. 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 fragments⁵ (this material is

¹ C. Broodbank 2007, 131

² C. Renfrew et al. forthcoming

³ Köhler 1884

⁴ C. Doumas 2013

⁵ C. Renfrew 2007a

now stored in the Naxos Museum). Renfrew initially felt that the material must be the remnant of a severely looted cemetery⁶.



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

Christos Doulas undertook small-scale rescue excavations within the looted area in September 1963⁷. There he recovered some 59 fragments of marble figurines⁸, 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 jars⁹. He also undertook a few days' excavation on the islet of Dhaskalio¹⁰, recovering evidence for settlement there. Photeini Zapheirou and Konstantinos Tsakos undertook a larger rescue excavation in the looted area in 1967¹¹. They recovered some 174 further figurine fragments¹² along with a very large quantity of broken marble vessels (and vessels of other stone), as well as pottery¹³. 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

⁶ C. Renfrew 2013a, 13

⁷ C. Doulas 1964; C. Doulas 2007

⁸ C. Renfrew, Sotirakopoulou, and Boyd forthcoming

⁹ P. Sotirakopoulou 2004a

¹⁰ C. Doulas 2013

¹¹ Zapheirou 1968a; Zapheirou 1968b; Zapheirou 2007a; Zapheirou 2007b; Zapheirou 2017

¹² C. Renfrew, Sotirakopoulou, and Boyd forthcoming

¹³ P. Sotirakopoulou 2004a

cemetery was prevalent until Renfrew made the suggestion that the site might be some sort of sanctuary¹⁴. This suggestion was made at the colloquium in memory of N.P. Goulandris at the British Museum in 1983, and the discussion at that meeting¹⁵ led indirectly to the 1987 Inter-University Research Project on Amorgos and Keros, which conducted further small-scale excavation in the looted area¹⁶, and surveyed the entire Kavos area¹⁷. 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 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 large settlement would require¹⁸. 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 Cyclades¹⁹. 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 published²⁰, during which time Broodbank published his suggestions in detail in his magisterial survey of the Early Bronze Age Cyclades²¹, 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 of symbolic²³ 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 2006-2008²⁴, the Keros Island Survey of 2012-2013²⁵, and the Keros-

¹⁴ C. Renfrew 1984

¹⁵ Fitton 1984, 31–35

¹⁶ C. Renfrew et al. 2007

¹⁷ Whitelaw 2007a

¹⁸ Whitelaw 2007b; C. Broodbank 2000a; C. Broodbank 2000b

¹⁹ C. Doumas 1990; Bassiakos and Doumas 1998

²⁰ C. Renfrew et al. 2007

²¹ C. Broodbank 2000a

²² P. Sotirakopoulou 2005

²³ C. 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 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.

Naxos Seaways Project of 2015-2018²⁶. 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 Dhaskalio²⁷.

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 found²⁸ (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. The area in its initial phase 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 weather²⁹. 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 Table 1. In sum, the deposit contained some 53,639 pottery sherds (along with 10 fragments of 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,

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 Dimitris 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 its director, Dimitris 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 Balzan Foundation, the Stavros Niarchos Foundation, the A. G. Leventis Foundation, the Institute for Aegean Prehistory, the McDonald Institute for Archaeological Research, the Research and Innovation Foundation of Cyprus, the Cyprus Institute, the Packard Humanities Institute, the British Academy, the Leverhulme Trust, the National Geographic Society, the Society of Antiquaries of London, Gerda Henkel Stiftung, Cosmote, EZ-dot, Blue Star Ferries, Creta Farms, and private donors.

²⁸ Colin Renfrew 2015a

²⁹ Maniatis and Tambakopoulos 2015

including a large number of pebbles brought from the beach a few metres below. The paucity of ground stone and metal elements in the assemblage indicates a composition entirely unlike a settlement assemblage. The composition of the pottery further confirms this observation: as previously noted for the Special Deposit North³⁰, 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 assemblage³¹. This, combined with the overwhelming predominance of broken marble vessels and figurines in the finds, demonstrates an unusual nature for the assemblage.

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 & metallurgical finds	10
Stone discs	47
Ground stone	14

Table 1. Quantities of selected categories of find in the Special Deposit South.



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.

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 group³². It also includes a very 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

³⁰ P. Sotirakopoulou 2004b; C. Broodbank 2000b, 332

³¹ Peggy Sotirakopoulou 2018

³² Peggy Sotirakopoulou forthcoming

use in Early Cycladic III (Phase C)³³. The Special Deposit South was probably first used slightly later than the Special Deposit North³⁴, and may have extended in use slightly later³⁵.

To answer the question of whether such an assemblage could be related to funerary practices, a careful recovery methodology was adopted³⁶. 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 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 the production or the 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 deposit³⁷. 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 below³⁸).



Figure 4. Selection of marble figurine fragments from the Special Deposit South.

³³ Colin Renfrew, Molloy, et al. 2015

³⁴ P. Sotirakopoulou 2004b, 1334; Peggy Sotirakopoulou 2018, 440

³⁵ C. Renfrew, Sotirakopoulou, and Boyd forthcoming

³⁶ C. Renfrew 2013a, 15

³⁷ C. Renfrew, Sotirakopoulou, and Boyd forthcoming

³⁸ Colin Renfrew and Moutafi 2015

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 antiquity³⁹, 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 joins⁴⁰. Careful analysis and search for joins concluded that the great majority of objects were represented in the Deposit by only a single fragment (Figure 4), 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 indicate that breakage had occurred away from Keros, in the villages from which voyagers had set out to bring their materials to Keros⁴¹.

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 4), stone vessels and ceramics, particularly sauceboats and conical necked jars. The original objects had 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 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 maritime sanctuary⁴². It may be characterised as a centre of congregation⁴³ to which participants were drawn periodically, and where individual, island, Cycladic and Aegean notions of identity were negotiated, affirmed and indeed created. 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.

The work on the Special Deposit South was published in 2015 and 2018⁴⁴.

Further investigations on Kavos

Beyond the Special Deposit South, the Kavos region was further investigated by small-scale test trenches and by surface survey in the region of the Kavos Promontory. The area of the Special Deposit North was not itself further investigated. However, survey and excavations were carried out in the area of the Kavos Promontory. Here abundant evidence of metalworking (smelting of copper ore) was found⁴⁵. These results are not discussed further here as they are described more fully by Georgakopoulou in this

³⁹ C. Renfrew 2007b

⁴⁰ Tambakopoulos et al. 2015; Brodie 2015

⁴¹ C. Renfrew 2013b; Brodie 2015; Colin Renfrew 2015b

⁴² C. Renfrew, Boyd, and Bronk Ramsey 2012

⁴³ C. Renfrew 2013b

⁴⁴ C. Renfrew et al. 2015; C. Renfrew et al. 2018

⁴⁵ Brodie and Georgakopoulou 2015

volume. The Kavos Promontory was also the site of significant obsidian blade production⁴⁶. Further 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 years⁴⁷.

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, perhaps used for metalworking⁴⁸. 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 walls⁴⁹. 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.



Figure 5. Excavation underway in the rockshelters south of the Special Deposit South (Area A).

Area A (Figure 5), 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 locations⁵⁰. Most of the human material recovered came from inside the rock shelter, while the few artefacts were recovered mainly from the exterior deposits, to which some of them may have fallen from the Special Deposit South, above and

⁴⁶ Carter and Milić 2015; Michael J. Boyd and Renfrew 2018

⁴⁷ Kersel 2015

⁴⁸ Christos Doumas and Dixon 2015

⁴⁹ Colin Renfrew, Briault, et al. 2015

⁵⁰ Colin Renfrew and Moutafi 2015; Moutafi 2015

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 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 concentrate in two areas – along the elongated summit area of the island, and on top of a significant wall thought at first to relate to an enclosure or fortification. In total, some 364 m² were opened for excavation in 25 trenches (Figure 6, left). Indications of dense architecture were found everywhere.

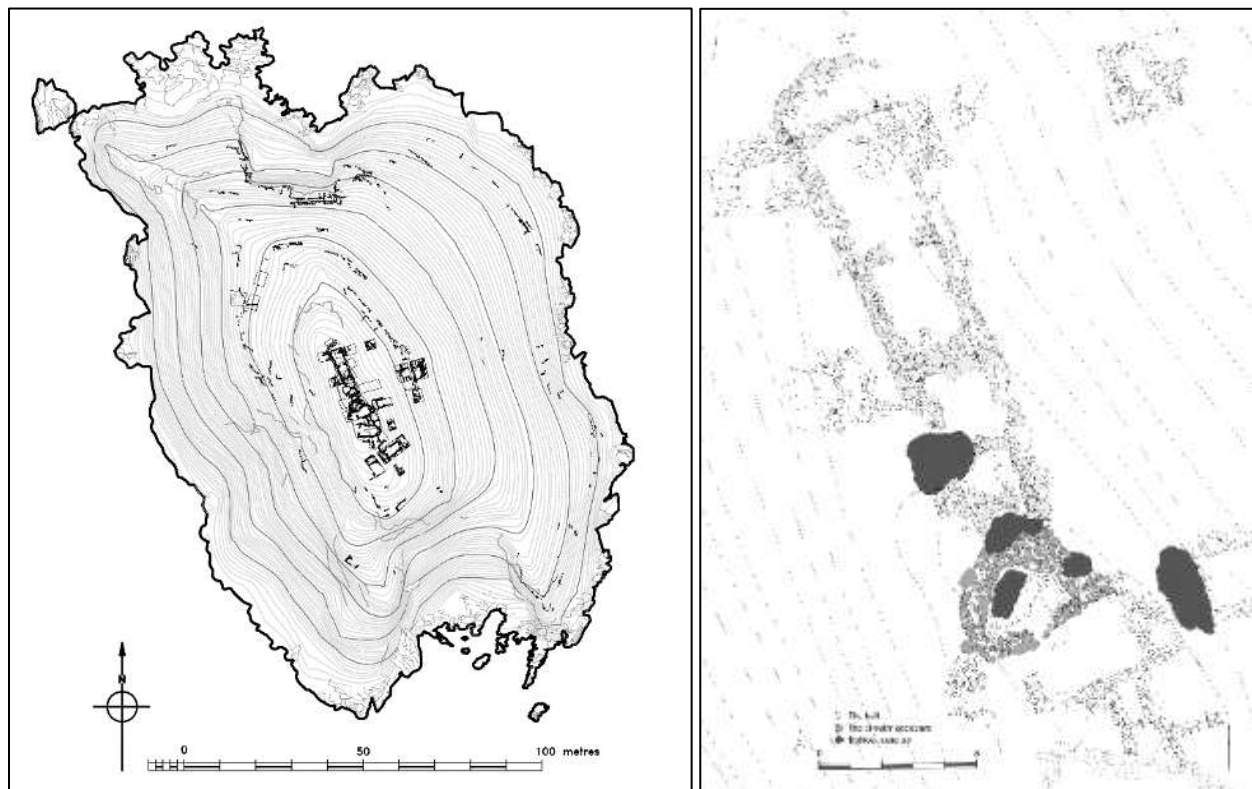


Figure 6. Left. Plan of Dhaskalio in 2008, showing walls excavated and recorded during survey. Right. Plan of the Hall and Summit Enclosure.

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 all⁵¹. 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 BCE⁵².

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 located⁵³. 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 were made of marble imported from southeast Naxos, some 10 km distant by sea⁵⁴. 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 input of energy and planning to achieve⁵⁵. 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 inhabited⁵⁶.

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 the 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 court⁵⁷ (Figure 6, right). 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 deposition of pebbles imported from the nearby Kouphonisia. Further south on the summit, the building complex revealed in Trenches VII and XXI seemed principally associated with storage, containing numerous large barrel jars⁵⁸.

The excavated areas of Phase B were much smaller in area, 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 and storage. (Metalworking at Dhaskalio is discussed in full by Georgakopoulou elsewhere in this volume, and so is not discussed further here). Although the pottery was dominated by coarse household wares⁵⁹, the full range of domestic activities was not securely documented⁶⁰. In particular, kitchens and refuse were not identified. This led to the tentative suggestion that the site's permanent residents were probably few in number, but that the buildings might have accommodated large numbers of visitors during the periodic gatherings at the

⁵¹ P. Sotirakopoulou 2016, 1–3

⁵² C. Renfrew, Boyd, and Bronk Ramsey 2012; Bronk Ramsey, Renfrew, and Boyd 2013; Manning 2015

⁵³ M. J. Boyd 2013

⁵⁴ Dixon 2013

⁵⁵ C. Renfrew 2013c, 714–15

⁵⁶ M. J. Boyd 2013, 203

⁵⁷ C. Renfrew, Moutafi, and Boyd 2013; C. Renfrew, Boyd, and Gavalas 2013

⁵⁸ C. Renfrew and Loughlin 2013

⁵⁹ Peggy Sotirakopoulou 2018, 435

⁶⁰ Margaritis 2013

sanctuary⁶¹. 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.

The excavations on Dhaskalio were fully published in 2013 and 2016⁶².

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 imported⁶³: Keros did not seem even to offer suitable clay for ceramic production. 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 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 over two seasons in 2012 and 2013. In the hope of broadening compatibility between datasets, its methodology was based on that used in the Kythera and Antikythera surveys⁶⁴. Initial extensive survey of the island 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 7) gives a good overall impression of the totality of human action over the surface of the island through the millennia. The earliest securely identified pottery is of Early Cycladic date (a few sherds might be earlier); earlier finds of Neolithic obsidian probably indicate occasional hunting parties rather than occupation. Early Cycladic is one of three periods in which the island is significantly used and inhabited (the others being Late Roman or Early Byzantine, and the early modern period; the Middle Cycladic period is also represented, but there is little evidence for Late Cycladic occupation). The focus of occupation in most periods is the northwest coastal zone, with further occupation 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.

⁶¹ C. Renfrew 2013c, 719–20; Peggy Sotirakopoulou 2018, 442; Margaritis 2013, 403

⁶² C. Renfrew et al. 2013; P. Sotirakopoulou 2016

⁶³ J. Hilditch 2013; Jill Hilditch 2018; P. Sotirakopoulou 2016

⁶⁴ Cyprian Broodbank 1999; Bevan and Conolly 2013

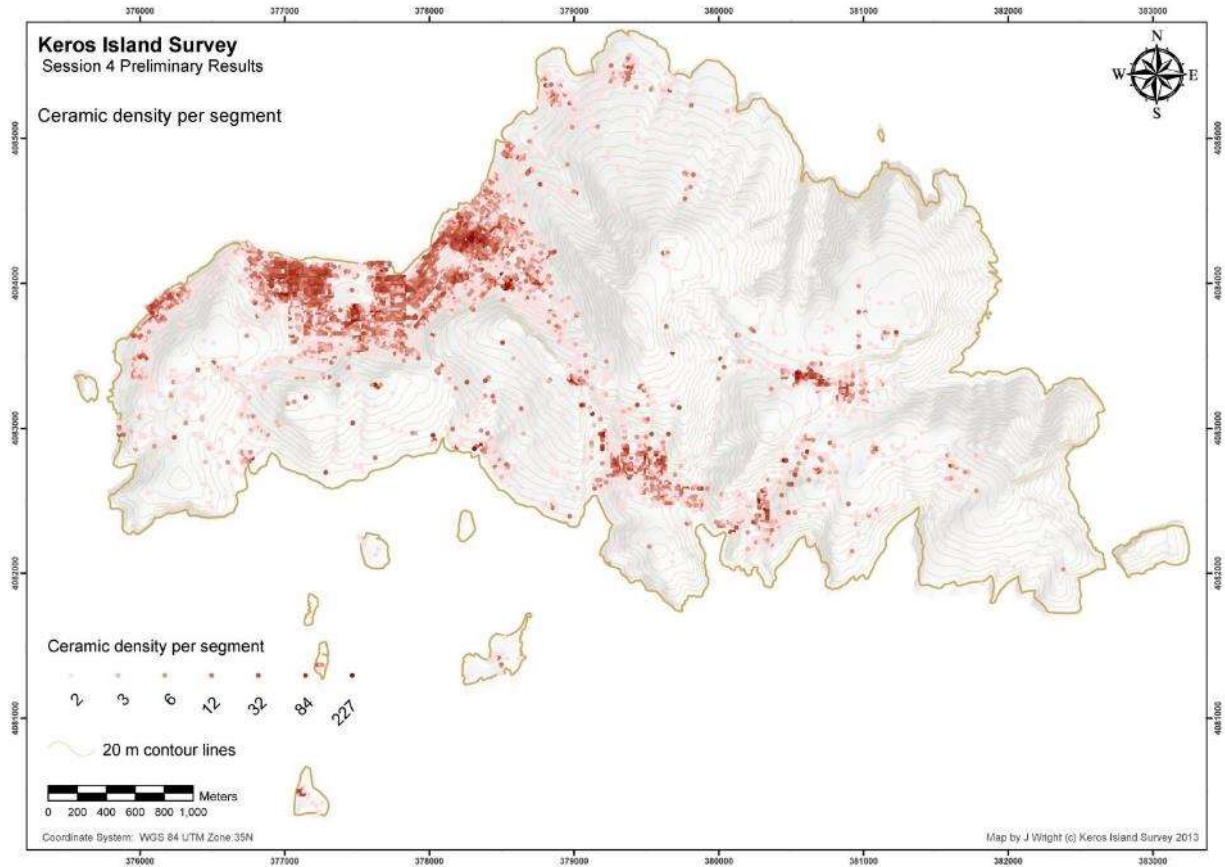


Figure 7. Keros Island Survey. Overall ceramic density in extensive survey.

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 hierarchy, 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 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 8). In this regard, 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 the 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.

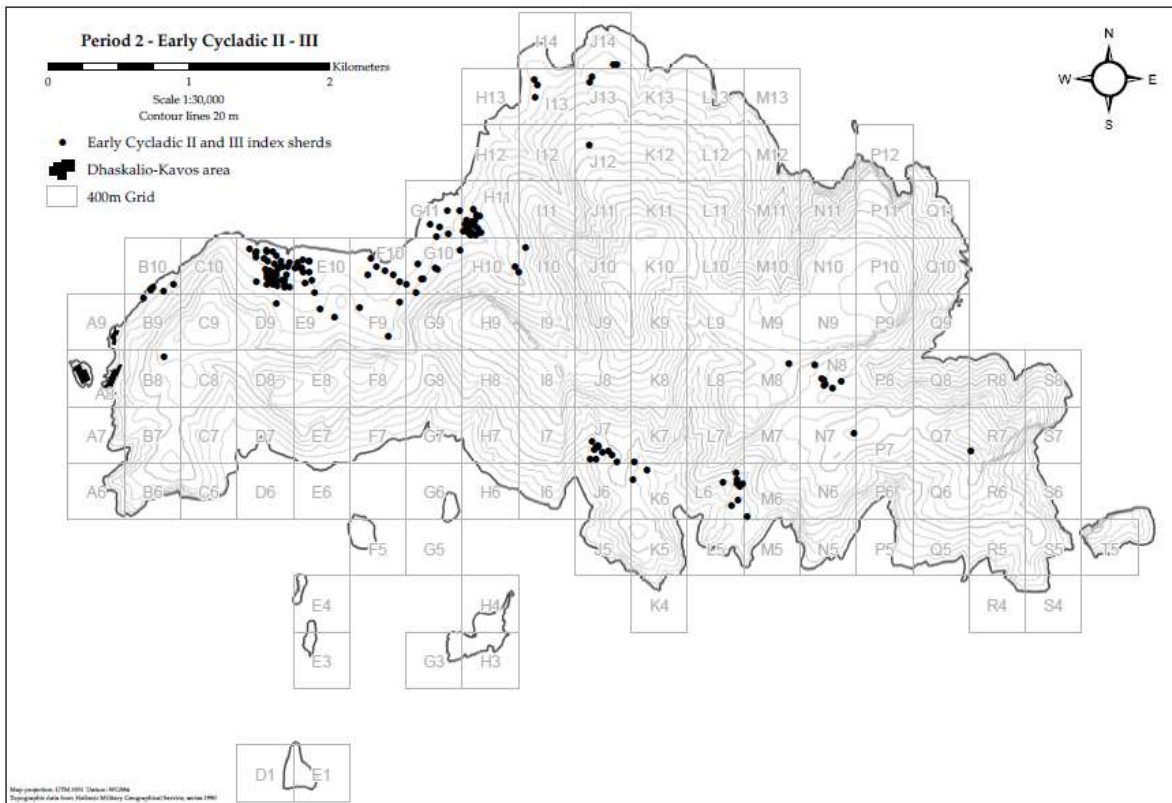


Figure 8. Keros Island Survey. Distribution of Early Cycladic index sherds.

The Keros Island Survey is being published as a monograph⁶⁵ 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.

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. The place of the sanctuary in Cycladic and Aegean networks, the nature of contacts and their intensity could be clarified by ongoing work concerning the range of provenances for excavation and survey material, but clear questions remained concerning the relationships with 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 Keros, so it must be assumed that some everyday supplies must be coming to the site from nearby locations. Moreover the surprising site hierarchy of Keros raised the question of to what extent this extended onto nearby landmasses. It was therefore clear that further survey was needed. There were several potential areas one could survey in the vicinity. We chose to survey one nearby island, Kato

⁶⁵ C. Renfrew et al. forthcoming

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. We also 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 the site itself, it was clear there was a need for further excavation on Dhaskalio. The earlier excavations had uncovered evidence mainly of Phase C, with some evidence for Phase B. The few contexts of Phase A gave very little information about that period. The latter period, however, was the floruit of the special deposits, and so there was a clear need to understand the earliest period of Dhaskalio better, 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 the extent of the site covered most of the islet. There was a clear need to test 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.

The study of the finds, analyses and interpretation were still in progress when this article was written, so all findings and conclusions below are tentative and subject to revision.

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 Polygon 4 all trenches contained only Early Bronze Age pottery (occasional sherds of later date were collected 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 (see also Georgakopoulou in this volume). 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 to what extent the structures are simply agricultural. No clear occupation surfaces were detected, but the further study of the pottery may elucidate some of the activities in this area. The results from Polygon 2 are on the other hand consistent with long-term 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 here all data were collected digitally rather than on paper, as previously). The ceramic density map of the island (Figure 9) indicates that abundant traces of human action are visible over the entire island, with particular concentrations in the northeast and in the centre-west. The latter is mainly accounted for by a large Early Bronze Age site, making Nero 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.

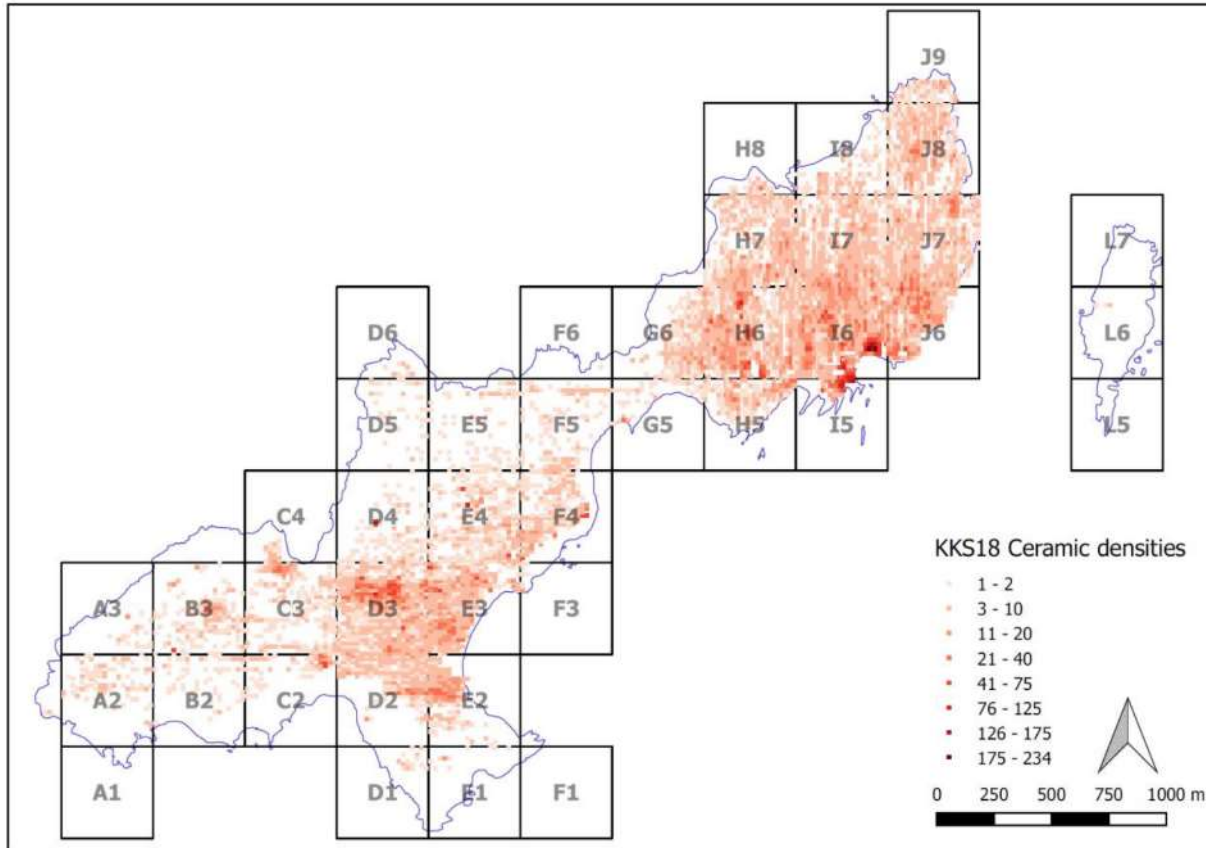


Figure 9. Survey of Kato Kouphonisi. Ceramic density on Kato Kouphonisi.

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 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.

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. A full discussion of this survey was

published in the *Proceedings of the 3rd International Cycladological Conference*⁶⁶, and so only a brief summary is offered here.

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 distance⁶⁷. The survey area included the known sites of Panormos⁶⁸, Spedos⁶⁹, Korfi t'Aroniou⁷⁰ and sites near Kalandos⁷¹, 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. Late Roman and Early Byzantine, and early modern, were again the two main other periods, with the former very much concentrated at Panormos, where there was clearly a large harbour site. In the prehistoric period, only the Kalandos valley gave an impression of widespread settlements; elsewhere the sites seemed nucleated at Spedos, Panormos and Korfi t'Aroniou. 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.

Excavations on Dhaskalio, 2016-2018

As set out above, the excavations on Dhaskalio from 2016 to 2018 aimed to answer questions of 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) covered 216 square metres (Figure 10). Given the expectation of finding more stone-built buildings 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 study⁷².

⁶⁶ Colin Renfrew et al. in press

⁶⁷ C. Broodbank 2000a, 101–2

⁶⁸ Angelopoulou 2014

⁶⁹ Stephanos 1905; Papathanasopoulos 1962; C. Renfrew 1972, 518

⁷⁰ C. Doumas 1965; C. Renfrew 1972, 519

⁷¹ Such as Karvounolakkoi: C. Renfrew 1972, 518, with references.

⁷² M. Boyd et al. 2021

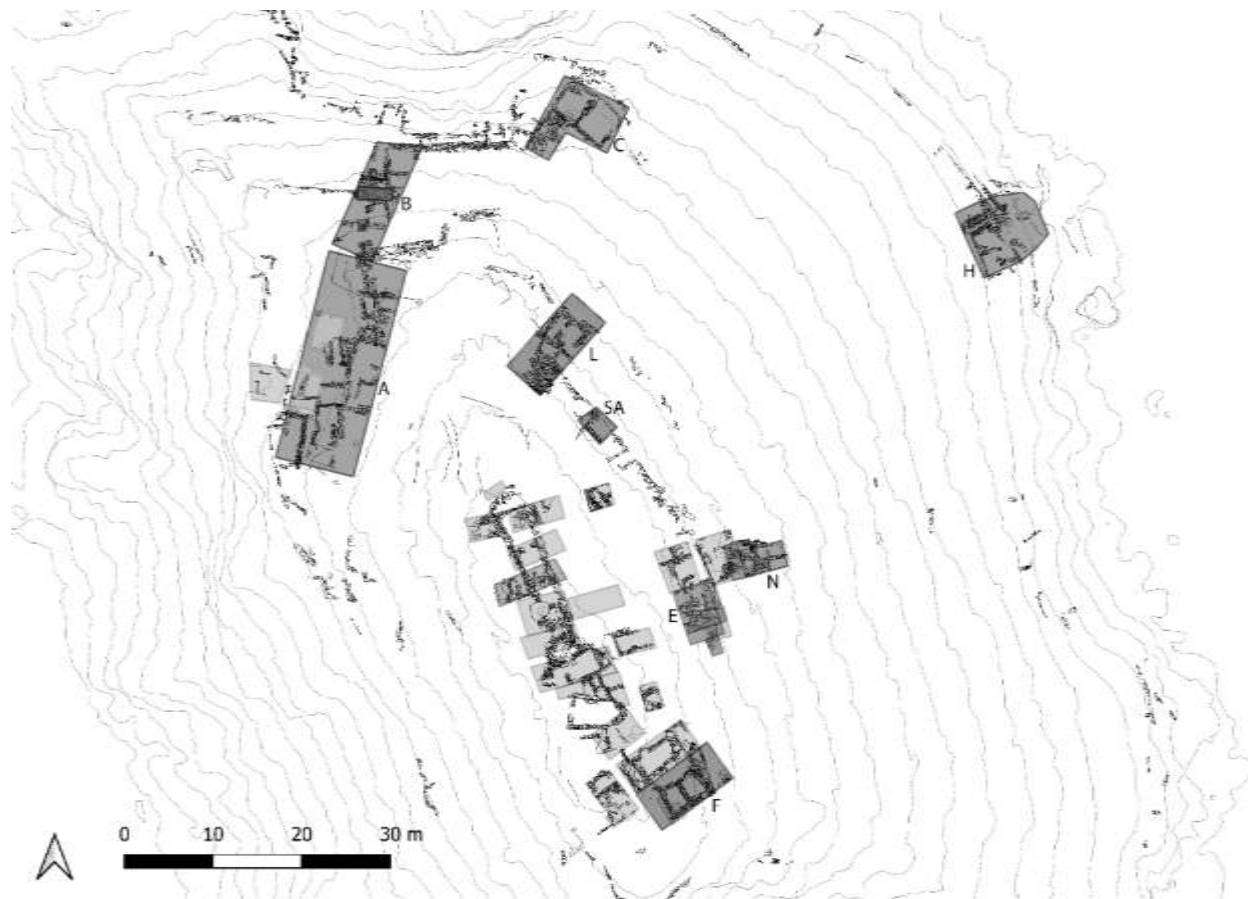


Figure 10. Excavation trenches on Dhaskalio, 2007-8 in light grey, 2016-2018 in darker grey and named.

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. With the exception of a few upper contexts in Trench E, Phase C was 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 out of use in Phase C, which 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 11). The large terrace wall below the summit was further investigated in Trenches E, SA and L. Trench L revealed evidence for a further terrace wall at a lower level. 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 plan⁷³.

⁷³ Floquet Forthcoming

The buildings themselves were set upon these terraces and were built of imported Naxos marble. The amount of stone imported must have exceeded 10,000 tonnes. The local stones, used for the terrace walls, may have come from nearby (perhaps in many cases from Dhaskalio itself) but their selection, rough working, transport to site and placement still constitute a massive undertaking. To this we can add the timbers needed for the roofs of the rooms, and the sediments used in the roofed spaces⁷⁴. These may have come from Keros, and were transported to Dhaskalio. Some buildings at least were two-storey. Altogether the simple requirements of planning, technical skill and human labour, combined with the resource requirement and the distance from which materials were imported indicate a massive, sustained and well-supplied enterprise. While drinking water was available at Dhaskalio, a considerable import of food must have accompanied the construction work on the site.



Figure 11. View of the northwest plateau on Dhaskalio, looking east. Trenches A (right) and B (left) open.

The principal activity within the settlement was metalworking, evidence for which was found ubiquitously. This is discussed in full in the paper by Georgakopoulou in this volume and so, despite the importance of this practice to an understanding of Dhaskalio, it is only mentioned in passing here. Gold, silver, copper and lead working are demonstrated, with some evidence for the use of tin bronze. Workshops 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 along with smaller objects. There is no evidence for smelting of ore on Dhaskalio, though, as noted above, such evidence does exist for Kavos Promontory. It seems clear that a significant skill base in metallurgical processes was maintained at Dhaskalio, and that quantities of metal were being brought to the site, while a significant production of metal artefacts was leaving the site and entering circulation. The importance of metallurgy in the development of the 'international spirit' of the third millennium was first underlined by Renfrew in 1967⁷⁵, and we now have a single site at which the technical processes may be understood and the role of metal in society further defined. While it is the case that

⁷⁴ Gkouma et al. forthcoming

⁷⁵ C. Renfrew 1967

almost all materials at Dhaskalio and Kavos are imported, the import of metal and its transformation to daggers and other objects at Dhaskalio is an important strand of evidence in the understanding of how the overall site of Kavos and Dhaskalio operated, drawing in people and resources and creating both communal and individual elements of local and regional identity.

The most common find on the site is pottery: some 102,773 sherds were collected (more than twice the number collected in 2007-2008). Storage jars are most common, representing almost half of recognised forms, with the so-called 'baking pan' being the second most common form. Storage jars are found very commonly throughout the settlement, including some left set into floors and broken *in situ* when roofs collapsed. The baking pans are 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 obsidian, seals and sealings, figurines, worked marble, worked stone, petroglyphs, 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. A key aim 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 approach⁷⁶ 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 larger range of activities which were supported by the monumental infrastructure project on Dhaskalio and by a wide web of connections through the Cyclades and beyond.

The key characteristics of Dhaskalio and Kavos include regional centralization; exceptional reach; intensification in production, including agriculture; aggrandizement and monumentality; a core ritual component; and an interest in 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. Keros, unlike the Cretan palaces, went out of use ca. 2250 BCE and was not subsequently reoccupied, meaning that its remains are not partly destroyed by those of later periods. Keros therefore is one of the key sites in the Aegean region for investigating the deep social changes taking place in the third millennium.

⁷⁶ C. Renfrew, Boyd, and Margaritis 2018

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