

The fragile communities of Antikythera

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While many Mediterranean islands have been subjected to archaeological survey methods of one kind or another, until now few if any have been covered in both a comprehensive and intensive manner. In this article the authors describe a survey on the Greek island of Antikythera (the Antikythera Survey Project – ASP) and demonstrate how full investigation of a tiny, remote and very sparsely populated island offers distinct analytical advantages for archaeologists. Some of the resulting benefits are methodological, relating to simplified sampling procedures, while others relate to the archaeology itself and include the documentation of rollercoaster demographics, changing connections with the wider world and the development of idiosyncratic insular lifestyles.

The Antikythera Survey Project (ASP) brings together a range of specialists to consider the long-term history and human ecology of a tiny Greek island. Antikythera is one of the smallest (c.20km²) and most remote inhabited islands in the Mediterranean (Figs. 1–2) and might at first glance seem like a strange place in which to invest an intensive research effort. In fact, for two of us, the inspiration for such a study lies very much in past and present involvement with the Kythera Island Project (KIP, whose directors are Cyprian Broodbank and Evangelia Kiriati) which has been studying the larger island to the north since 1998.² Not only does our work on Antikythera offer an excellent complement to Kytheran research, but also provides an unusually attractive micro-perspective of its own through which to consider a whole range of methodological and substantive issues in Mediterranean archaeology. There are at least four main reasons for it being a favourable research locale

and we take these as a starting point for discussing some of our aims, methods and preliminary results.³

Simplified sampling

Surface surveys in archaeology have become ever more intensive in recent years, with the increasing adoption of systematic recovery methods, attention to landscape sampling issues and application of modern digital and/or analytical techniques.⁴ On Antikythera, we sought a compromise between introducing new approaches and ensuring comparability with the many existing survey datasets in the Aegean area.

Our investigative strategy therefore comprised two stages. The first adopted the well-known technique of breaking up the landscape into a series of arbitrary or field-shaped units (depending on the degree of local landscape variability) which a team of surveyors then walked across in a series of parallel lines, spaced 15m apart (Fig. 3a). Overall, we have walked over 95% of the island in

this manner, allowing us a relatively comprehensive picture of the surface artefact distribution across the island and, very unusually for a survey of this kind, recorded by each individual surveyor rather than lumped into broader survey units (Fig. 3b). Each surveyor also made separate collections of diagnostic pottery (defined for our purposes as rims, handles, base or decorated pieces) and all worked stone, glass etc for each 10m section that they walked. In general, we have placed great emphasis on make such permanent collections, rather than attempting to date artefacts solely in the field because they allow us slowly to improve our chronological understanding over the



Figure 2 Antikythera with place names mentioned in the text (original image courtesy of Digital Globe).

course of laboratory study. It is clear that artefacts from certain chronological phases are highly recognizable in the Antikytheran landscape, while others require far more careful and prolonged study to identify (particularly given the often coarse and nondescript nature of survey finds). It is the earliest, prehistoric phases of occupation that were initially most problematic (indeed these were almost entirely unknown prior to the survey). Our second stage survey method therefore involved returning to nearly 60 suspected prehistoric scatters and collecting further surface material on a 10x10m grid (Fig. 3c). Within each grid square, a circular area of 5m² was completely vacuumed of cultural material over a timed 5-minute observation period, and any further diagnostics (as defined above) in the remainder of the square were also collected. Overall, we covered about 1% of the island in this manner,

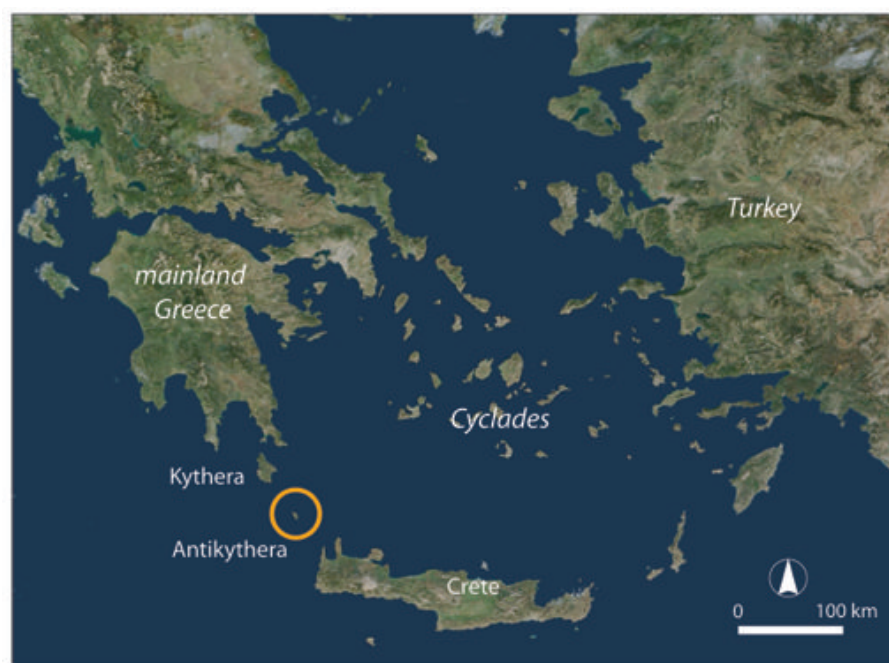


Figure 1 The Aegean with Antikythera circled in orange (original image courtesy of NASA, Terra-Modis).

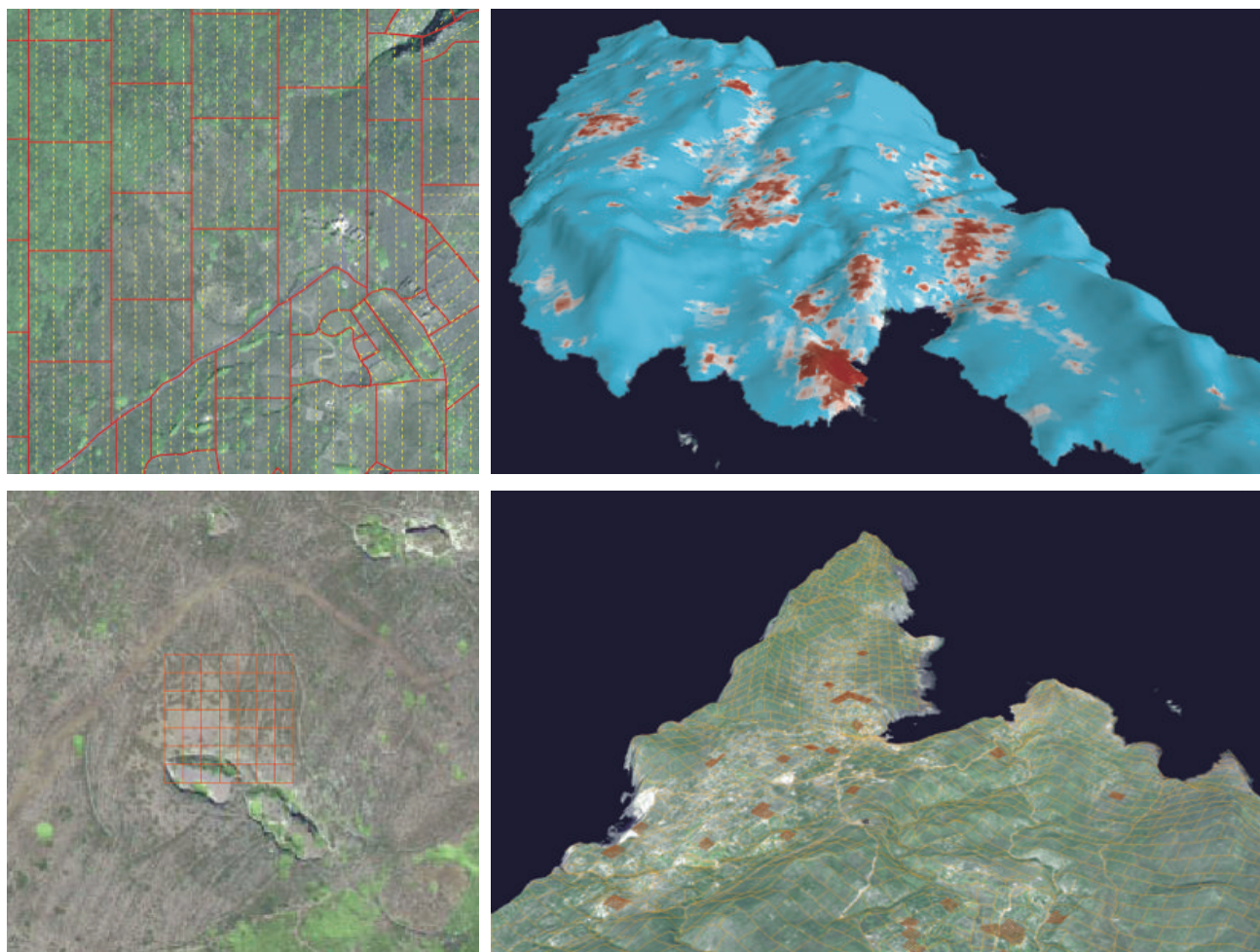


Figure 3 ASP's surface survey methods: a) stage-one "tractwalking" by surveyors spaced 15m apart, b) a perspective view looking south, with the density of surface pottery (all periods) plotted from the records of each individual walker, c) stage-two collection in 10x10m squares, d) a perspective view looking north, with the stage-one tract units outlines in orange and the stage-two gridded collections shown in red.

providing a more detailed impression of the size and function of the numerous prehistoric scatters observed across the island (Fig. 3d)

These methods reflect a strong concern with controlling the spatial scale and positional accuracy of our collection strategies as well as facing up to the inevitable uncertainty that exists in dating survey finds. In particular, we used a combination of high-resolution satellite imagery and GPS (both handheld and survey-grade) to ensure that all finds from the survey could be plotted to a uniform resolution (with a relative accuracy of c.10m or better in all cases). Not only does this make it easier to compare the finds from our two different stages of collection, but it also makes them far more easily integrated with various digital datasets. We also keep a separate database record for each one of our finds and, rather than giving them a categorical date in the usual way (e.g. "Hellenistic, or possibly Late Roman"), we have given each a rough probability of belonging to a certain phase (e.g. c.70% chance of being Hellenistic, c.30% Late Roman). Chronological uncertainty has

a huge effect on the interpretation of any archaeological pattern and such a belief-based (or probabilistic) approach to artefact dating allows us to address the issue statistically, as well as measure other important factors, such as intra- and inter-observer variation in the dates assigned by those specialists who study the artefacts, or the gradual accumulation of extra chronological clarity that comes from laboratory study.

We have also collected a range of datasets on an island-wide basis, including mappings of topography, vegetation communities, bedrock, soil chemistry, standing buildings, terraces and field systems, and perhaps most fundamental of all for our purposes, surface artefacts. The full coverage of the island combined with an attention to collection scale, locational accuracy and temporal uncertainty then allows us to deploy spatial statistics (to explore and confirm our archaeological patterns) with much greater confidence than in other landscape survey contexts where variable levels of investigation, unverifiable dating of finds by a few experts in the field, and/or ragged sample edges can all be very frustrating. We have taken a formal statistical approach

to studying, amongst other things, the relationship between artefact recovery, geomorphology and ground visibility; patterns of attraction or repulsion between different types of site; the factors affecting the location of settlements and field systems; routes of human and animal movement through the landscape and the influence of different patterns of on- and off-island visibility.

Rollercoaster demographics

A second important advantage of Antikythera and other small inhabited islands is that, because of their limited carrying capacity, they can experience rapid demographic changes, including periods of near complete abandonment and then recolonization. Our survey work on Antikythera confirms such a rollercoaster history, punctuated by population highs and lows. Briefly, the earliest identifiable evidence of human activity on the island probably dates to the 5th or 4th millennium BC, for which we have tiny, concentrated scatters (<0.25 ha) of chert and obsidian artefacts (Fig. 4), along with a small amount of pottery (for the latter, see Fig. 5a), and we propose that these are often the remains



Figure 4 An obsidian blade core and projectiles in both obsidian and white chert.

of seasonal visitations by hunters from either Crete or Kythera.

Though further study is still required to delineate these patterns fully, more substantial and differently configured exploitation of the island may begin sometime in the 3rd millennium BC (Fig. 5b) and is certainly established by the 2nd millennium BC, when we can document 25–30 small scatters (~0.25–0.5 ha) that in many cases appear to be single-family farmsteads. The people involved were probably cultivating particular soils and topographic features, such as flysch-filled sink-holes or the alluvial deposits found in shallow channels that could be cross-terraced to aid in soil and moisture retention.⁵ The communities exhibit very strong cultural affiliations with Crete,



Figure 5 Prehistoric pottery: a) a fragment of a Final Neolithic 'cheesepot', b) an Early Bronze 2 'saucboat', c-d) two fragments of a Minoan tripod cooking pot.



Figure 6 View looking north across the village of Potamos, with the Hellenistic fortified town ('Kastro') across the water in the background.

particularly in terms of pottery styles (Fig. 5c–d), clay-preparation recipes and weaving techniques, to the extent that at least some are likely to have been actual colonists from the larger island to the south.

After this peak of Bronze Age exploitation, there is no good evidence as yet for much activity during the earlier part of the first millennium BC. The next obvious phase of settlement occurs about a millennium later, most prominently in the late 4th to mid 1st century BC when the island is dominated by a fortified town (c.7ha) at a strategic position on its northern coast (Fig. 6), overlooking a natural protected harbour. Documentary evidence suggests its role in piracy (see below). Our survey indicates the presence of one or two other Hellenistic scatters on the island however and it remains to be seen whether these reflect smaller, more agriculturally-oriented communities or are, in some manner, part of the logistical and economic agenda of the fortified town itself. The latter's sack by the Romans in about 69–67 BC seems to have prompted a dramatic decline in activity and we do not find evidence for similarly extensive finds until much later, in the 5th–7th centuries AD. By this time, we can document 4–5 denser scatters of material, often accompanied by small groups of contemporary cist graves,⁶ each at the heart of a more fertile region of the island. Most of these appear to be relatively small hamlets, perhaps of a few families each, and one larger village near Potamos.

After another phase of apparent discontinuity, the next period of renewed of substantial exploitation at a number

of locations across the island occurs by around the 12th century. From the 13th century onwards, overall responsibility for Antikythera seems to have lain with a Venetian noble family, but the following centuries appear to have seen only limited activity, perhaps with periods of complete abandonment. Both archaeological finds and documentary sources suggest that substantial settlement only picks up again in the late 18th century when the island was recolonized more permanently by a group of families from western Crete. This initial episode was then sustained by a period of internal population growth, expanding agricultural investment and in-migration over the 19th century, with occasionally up to c.1,000 people living across the island, in small clusters of houses that were often given the name of the main family. The population has however declined again during the 20th century, and dramatically since the 2nd World War, so that now there are no more than 30 year-round inhabitants.

This comparatively discontinuous record of human activity on Antikythera is of course interesting for its own sake, but also means that the landscape is a less complicated palimpsest than in most other Mediterranean locations. In particular, we are excited by the way this simplified and punctuated record may inform us about one particularly characteristic feature of Mediterranean landscapes, their often complex and extensive systems of terrace fields. The latter are a good example of long-term, non-mechanical investments (sometimes called 'landesque' capital) that usually have an anticipated use beyond the current farming cycle and/or

over many human generations. Despite their obvious importance in the past, and clear relevance to modern concerns with sustainable agriculture, the social context in which these structures emerge is not clearly understood. On Antikythera, we have been exploring these structures in greater detail, through a combination of archaeological survey, geoarchaeological prospection and ethnohistorical research (Fig. 7). Overall, we have mapped some 12,000 terrace structures on the island. The most extensive period of terracing is probably the most recent one during the late 18th–19th century AD, but in several areas, stratified terrace soils and their associated finds indicate important earlier episodes, which we aim to clarify through further study, and radiocarbon or OSL dating. In addition, there are also clear correlations between those areas chosen for terracing and environmental variables such as soil type and prevailing aspect.

Island connectivity

A third interesting feature of Antikythera is the nature of its connections to the outside world and what these linkages imply for the wider geopolitics of the region. Both Kythera and Antikythera are, depending on the context, well-placed to act as favourable stepping-stones, as obstacles to be negotiated, or as filtering mechanisms for people, plants, animals and things travelling both north-south between the Peloponnese and Crete, and east-west, across the Mediterranean. For example, Antikythera is an extremely important stop-over for a variety of migratory bird species⁷ and is said to be host to endemic plant species as well.

From the earliest phases of human activity on the island there have been important off-island linkages, suggested for example by the surprisingly large amounts of obsidian (given the island's size, its location and the amounts found in neighbouring areas), which originally comes from the island of Melos some 100km away (Fig. 4). For the Bronze Age, Antikythera is an important early example of the process of Cretan colonization and/or cultural affiliation affecting the Aegean, prior to and contemporary with the emergence of the Cretan Bronze Age palaces.⁸ The island seems to have maintained important contacts both with Kythera to the north and with western Crete during this phase. Later on, the Hellenistic “pirate” community on Antikythera is an excellent indication of the island's strategic location with respect to shipping lanes, as is the number of known shipwrecks in the area, including a 1st century BC wreck which produced the intricately geared navigational device known as the Antikythera mechanism.⁹

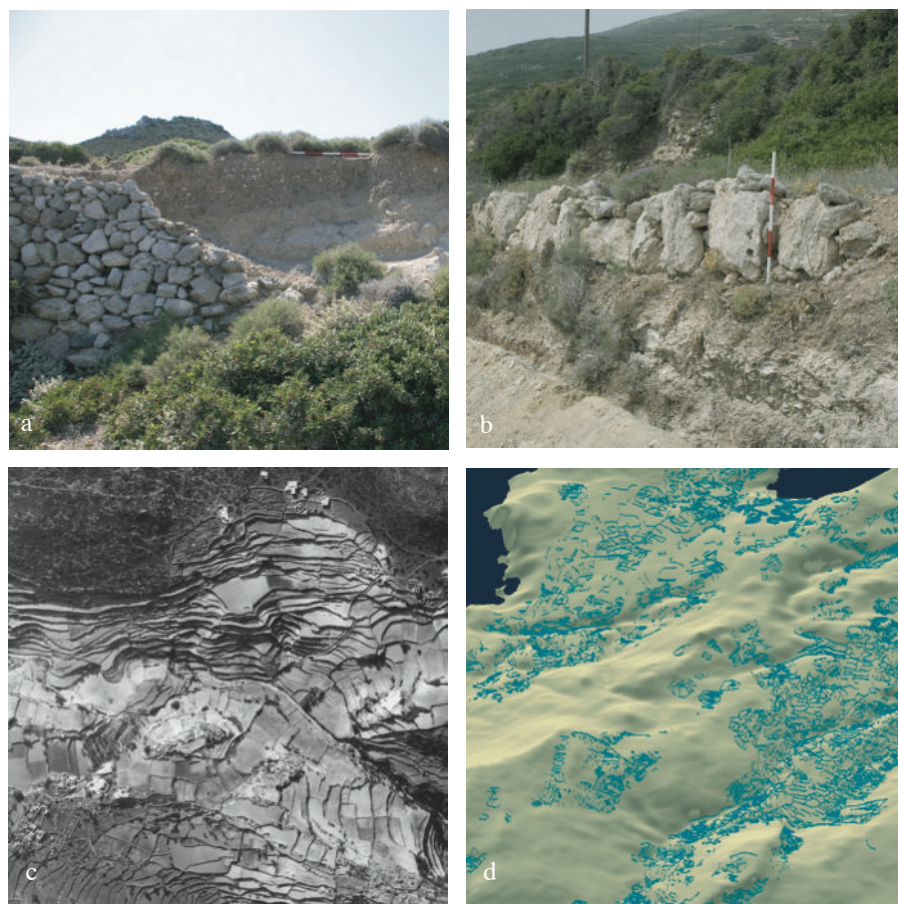


Figure 7 Terracing on Antikythera: a) a collapsed terrace wall made of even-sized limestone cobbles with at least two buried soil horizons behind it, b) a collapsing terrace wall made in a different technique, with large limestone slabs filled with smaller stones, c) an aerial photograph from 1944 when the terraces were last under heavy cultivation (courtesy of the Aerial Reconnaissance Archive), d) perspective view looking north-west with individual terraces plotted on top of a digital elevation model.

More recently, during the 2nd World War, Antikythera continued to hold a strategic importance well beyond its size. Major naval engagements occurred just off the coast and our survey has found bits of military equipment and installations of this date on the island. In 1944, the whole island's population was removed to Crete by the retreating German forces to avoid them assisting the Allied advance. All of these examples suggest that the island's off-island cultural connections have been very important to its viability as a place to live, but have often been quite fragile. Indeed, over the last twenty-five years, the Greek government has tried to subsidize this connectivity by providing extra ferry services, a new harbour mole, an electricity plant, a heliport, a full-time doctor and telephone services.

Eccentric lifestyles

A final interesting aspect of small, comparatively isolated, islands such as Antikythera is the set of eccentric, innovative or otherwise illuminating social roles that their inhabitants sometimes play in the wider world. In several works of literature, Antikythera has been evoked as a special place that promotes unusual

insights into human behaviour, and the island has also been the base for a range of fringe and/or socially transient types of people, including economic refugees, political exiles, hermits, hunters, pirates and perhaps monks.

For example, the earliest evidence for human activity on the island seems to argue for its importance to seasonal hunters from off-island. Migratory birds may have been one resource that such groups were aiming to exploit (as hunters still do today), but either native or introduced deer and/or goat are also possible targets given the size and number of stone projectile points we have found. The larger neighbouring island of Kythera was certainly visited by medieval monks wanting to get away from the corrupting influences of more populated centres, and there are hints that Antikythera occasionally offered a similar haven. During the 19th and early 20th century AD, Antikythera served as a place of exile for political radicals¹⁰ as well as seeing the arrival of sometimes quite substantial numbers of refugees for short periods. Another profession associated with Antikythera in Hellenistic times was that of piracy, to judge from several

separate documentary sources. By far the most impressive and imposing Hellenistic site on the island is known as the Kastro: it preserves remains of two phases of massive and beautifully-made fortification walls around the town, a similarly-protected upper citadel and other well-preserved structures such as a rock-cut ship-shed, a cemetery and a harbour temple to Apollo.¹¹ Piracy was often a quasi-legal activity in the Graeco-Roman world and the activities of Hellenistic Antikythera may in fact have their origins in Persian strategic initiatives during the time of Alexander.¹² However, later on, these activities still prompted at least two significant military responses (by Rhodian and Roman fleets respectively) and both are arguably visible in destruction layers present at the site and from projectile finds such as catapult balls, slingstones and projectile points.

In any case, we would argue that these eccentric activities, along with Antikythera's other analytical advantages, makes it not only an interesting place to study in its own right, but also an important touchstone for understanding the broader, Aegean- or Mediterranean-wide, social, political and economic systems that surrounded it. We have now completed almost all of our fieldwork and study. Preliminary versions of many survey datasets are available on our website (www.ucl.ac.uk/asp), and we will be completing a monograph on the results over 2008–9.

Notes

- 1 26th Ephorate of Prehistoric and Classical Antiquities, Greek Ministry of Culture.
- 2 www.ucl.ac.uk/kip
- 3 This research project has been conducted through the Canadian Institute in Greece, under permits from the Greek Ministry of Culture and Institute of Mining and Geology, and under the supervision of the 26th Ephorate of Prehistoric and Classical Antiquities and 1st Ephorate Byzantine Antiquities. Our chief funding agencies have been the Social Science and Humanities Research Council (Canada), the Arts and Humanities Research Council (UK), the British Academy and the Institute for Aegean Prehistory (US) with further support from University College London and Trent University, Canada. We owe a particular debt to the directors, Cyprian Broodbank and Evangelia Kiriati, and other team members of the Kythera Island Project with whom we have worked since 1998. In addition, the following offered important advice or academic support: Ted Banning, John Bennet, Angelos Chaniotis, John Cherry, Jack Davis, Jennifer Moody, Lucia Nixon and Todd Whitelaw. A final thanks to ASP team members and the current inhabitants of Antikythera for making all of this work possible.

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