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# THE MYCENAEAN CITADEL AND ENVIRONS OF DESFINA-KASTROULI: A TRANSDISCIPLINARY APPROACH TO SOUTHERN PHOKIS

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## ABSTRACT

Despite its ubiquity in historical and mythological narratives, the ancient region of southern Phokis in central Greece has been approached primarily as a backdrop for more prominent neighbors (e.g. Delphi, Boiotia), whose roles have been codified in extant histories. Archaeological research has been likewise limited, with the result that southern Phokis has remained largely untouched and unintegrated into the larger narratives of each of the major periods of antiquity. Recent work by the Southern Phokis Regional Project (SPRP) in the Desfina Plain is correcting this lacuna. SPRP is blending the strongest attributes of several disciplinary approaches (e.g. classics, archaeochemistry, digital humanities) to produce a comprehensive transdisciplinary study of the natural and cultural landscape of the region, thereby illuminating the important role of southern Phokis during some of the richest epochs of human history.

Our 2018 study of Desfina's natural and cultural environs, bolstered by excavations at the Mycenaean citadel of Kastrouli (ca. 1350-1000 B.C.E.), is revealing that southern Phokis served as a major, if not the primary, gateway to points south and west for northern Phokis, western Boiotia, and perhaps even eastern Lokris by securing access to the Corinthian Gulf. Our survey has documented ambitious engineering works that include a major hydrological project reminiscent of the Kopais Basin and "Cyclopean" terrace walls that sculpt the landscape. These achievements testify to a level of socio-cultural complexity and interconnectivity previously overlooked. In the shadows of Mount Parnassos, Desfina makes the best case yet to be not only the home of Echedameia, destroyed by Philipp II during the Third Sacred War, but also Homeric Anemoreaia.

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**KEYWORDS:** Greek archaeology and history, Late Helladic IIIC, Late Bronze Age collapse, Anemoreaia and Kyparissos, transdisciplinarity, drone photogrammetry, digital humanities, OpenARCHEM

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## 1. INTRODUCTION

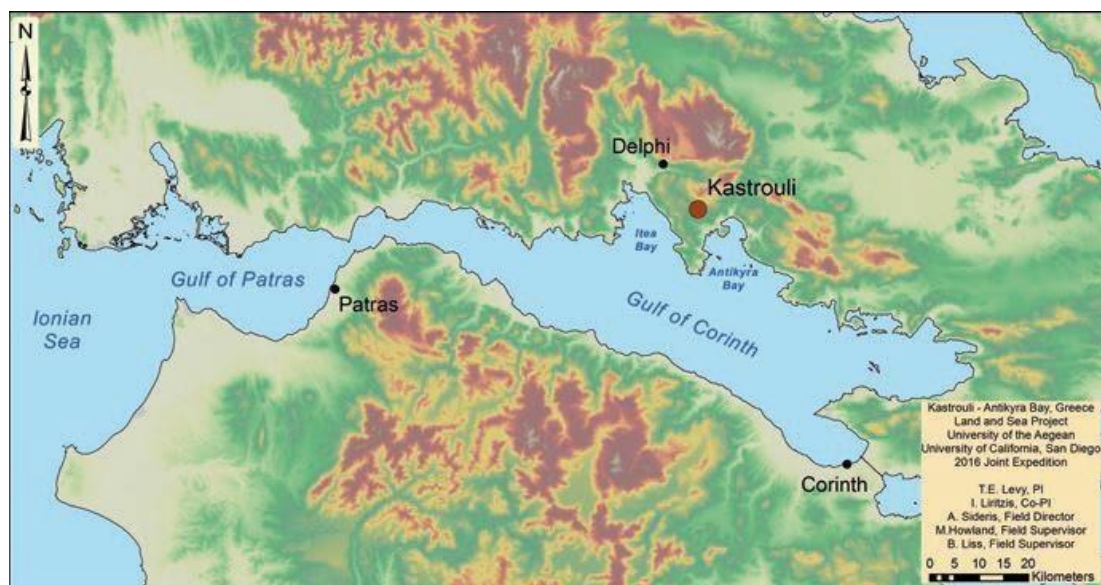
*“Long before the emergence of a Phokian federation, or koinon, at the end of the 6th century, there existed a Phokian tribe, or ethnos.”*  
McInerney 1999

*“The discovery of a rich burial assemblage at such a seemingly peripheral site suggests a need for further excavation to clarify the nature of the small Mycenaean coastal world that linked Kastrouli to the Bay of Antikyra and larger Gulf of Corinth during the Late Bronze Age.”*

Levy *et al.* 2018

The third excavation season at the Mycenaean citadel of Desfina-Kastrouli in the southern Phokis re-

gion of central Greece (Fig. 1) coincided with the preliminary season of the Southern Phokis Regional Project (SPRP), a natural and cultural survey of the greater Desfina environs, to better understand the contextual circumstances of Kastrouli and nearby sites in the region. In addition to the initiation of a broader scientific study of the ecology, landscape, and material culture of the plain surrounding the modern village of Desfina, new systematic excavations commenced at the Southern Terrace of Kastrouli (“little castle”) located 4 km east of the village as a complement to both the new survey activities and previous rescue excavations centered on the tombs in the western part of the citadel.



*Figure 1. Site of Desfina-Kastrouli in southern Phokis of central Greece (Map by M. Howland and B. Liss, Levy *et al.*, 2018)*

The two previous excavation seasons at Kastrouli focused on Late Helladic (LH) III tombs and Building 1 on the citadel’s western side in conjunction with an ambitious “land and sea” project investigating the site’s connections with ancient anchorages on the Antikyra Bay (Liritzis *et al.*, 2016; Chovalopoulou *et al.*, 2017; Sideris *et al.*, 2017; Levy *et al.*, 2018; Sideris and Liritzis, 2018; Baziotis *et al.*, 2019). As PI of the ongoing project in Desfina, Ioannis Liritzis (University of the Aegean) co-directed the preliminary 2018 survey of the Desfina Plain by SPRP with Andrew Koh (Massachusetts Institute of Technology), who also serves as Co-PI of the project. Ian Roy (Brandeis University) supervised research technology and digitization (e.g. drone photography, 3D scanning) and the team was joined at the Southern Terrace of the citadel by Kathleen Birney (Wesleyan University), who served as Co-PI of the 2018 season and co-area supervisor with Koh of the excavations around what was tentatively labeled Building 2 during the previous season and is now called Building 2

West and Building 2 East. Athanasios Sideris continued to oversee excavations on the mound with an eye towards completing the important work at Building 1 and the LH III tombs in the western area of the citadel. A final excavation volume will be forthcoming at a future date.

In March 2018, Koh entered into a collaborative agreement with Liritzis and the University of the Aegean to formalize this new phase of the project (i.e. Southern Phokis Regional Project) that inaugurated its first field season in July of that year. The SPRP is the next phase of a novel interdisciplinary initiative begun in 2016 for the study of Kastrouli and its environs, which combined modern archaeological excavation techniques and archaeometric methods in a holistic approach to the study of the Late Helladic period in southern Phokis. The international team of the SPRP was composed of Greek researchers joined by international volunteers hailing from American institutions, primarily students and alumni/ae from Brandeis University and Wes-

leyan University. During the last week of the season, Koh and Sarah Schofield-Mansur joined Liritzis to conduct oral history interviews with long-time residents of Desfina to document the rich ethnohistory and ethnobotany of the region (Fig. 2)<sup>i</sup> and supplement fifteen years of similar field records by the ARCHEM project, now being populated in the

emerging OpenARCHEM archaeometric database (cf. <http://openarchem.com>). Presented here are the initial findings from research activities connected to SPRP first presented by Koh, Liritzis, and Roy at the 2020 Annual Meeting of the Archaeological Institute of America, which will serve as a guide in designing future research.

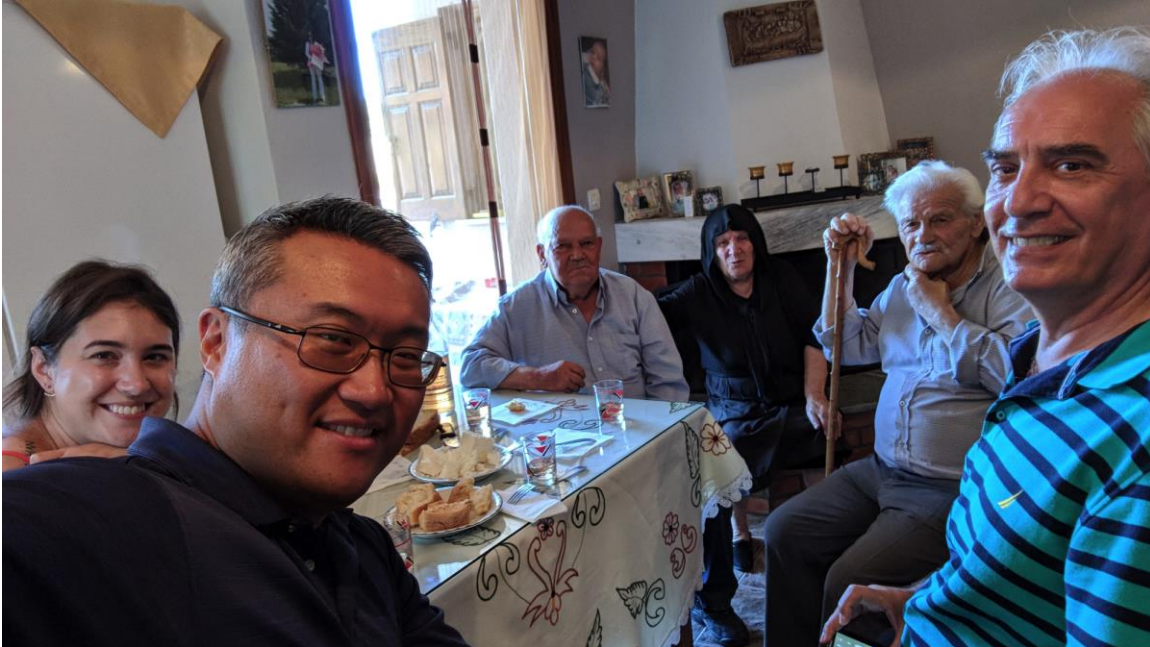


Figure 2. Documenting oral histories in the village of Desfina  
(Photo by A. Koh)

## 2. THE DESFINA PLAIN AND SOUTHERN PHOKIS

Αὐτὰρ Φωκίων Σχεδῖος καὶ Ἐπίστροφος ἦρχον, υἱὲς Ἴφίτου μεγαθύμου Ναυβολίδαο, οἱ Κυπάρισσον ἔχον Πυθῶνά τε πετρήεσσαν Κρῖσάν τε ζαθέην καὶ Δαυλίδα καὶ Πανοπῆα, οἳ τ' Ἀνεμώρειαν καὶ Ὑάμπολιν ἀμφινέμοντο,

And the Phokians were led by Schedius and Epistrophus, sons of great-hearted Iphitus, son of Naubolus; these were they who held Kyparissos and rocky Pytho, and sacred Krisa and Daulis and Panopeus; and who dwelt about Anemoreia and Hyampolis;

Homer, *Iliad* 2.521 (tr. A. T. Murray)

ἀντὶ δὲ Κρίσης ὄρων Κροτωνιάτιν ἀντίπορθμον αὐλάκα βοῶν ἀροτρεύσουσιν ὀλκαίῳ πετρῶ, πάτραν Λίλαιαν κάνεμορείας πέδον ποθοῦντες Ἄμφισσάν τε καὶ κλεινὰς Ἄβας.

And in place of the bounds of Krisa they shall till with ox-drawn trailing ploughshare the Crotonian fields across the straits, longing for their native Lilaia and the Plain of Anemoreia and Amphissa and famous Abai.

Lycophron, *Alexandra* 1073 (tr. A. W. Mair)

Ἡ δὲ Ἀνεμώρεια ὠνόμασται ἀπὸ τοῦ συμβαίνοντος πάθους· καταγιγίσει γὰρ εἰς αὐτὴν ὁ καλούμενος Κατοπτήριος χῶρος, κρημνὸς τις ἀπὸ τοῦ Παρνασσοῦ διήκων·

Anemoreia has been named from a circumstance connected with it: squalls of wind sweep down upon it from Katopterion, as it is called, a beetling cliff extending from Parnassus.

Strabo, *Geographica* 9.3.15 (tr. H. L. Jones)

ὠνόμασται ἀπὸ τοῦ συμβαίνοντος· ὑπερκείμενον γὰρ αὐτῆς τὸ καλούμενον Κατοπτήριον χωρίον, [ἐξ οὗ] δι' ἡμέρας καὶ νυκτὸς καταγιγίσει πανταχόθεν.

[Anemoreia] is named from the fact that overlying it is the so-called Katopterion (down-looking) locality, from which it is buffeted by windstorms day and night from all sides.

Stephan of Byzantium, *Ethnika* 95.1 (tr. A. Meineke)

Southern Phokis is located in central Greece and demarcated sharply by its landscape. What is 10km by air is 30km and 45min by automobile between Desfina and Delphi due to well-defined natural boundaries that accentuate natural friction and choke points for ground transport (Fig. 3a). Delphi lies above a seismogenetic structure, the Delphi ac-

tive fault, which bounds to the south the calcareous massif of Mt. Parnassos that represents the northernmost antithetic structure of the Gulf of Corinth half-graben (Armijo *et al.*, 1996). The Gulf of Corinth defines the southern boundary of Phokis while simultaneously serving as its gateway to the Peloponnese and points farther west (e.g. Ionian Islands, Italy). Mt. Parnassos and the Pleistos River Valley (fed

by the Kastalian Spring) separate the roughly triangular Desfina Peninsula (ca. 230km<sup>2</sup>) from the rest of Phokis while Mt. Helikon serves as a prominent eastern barrier with Boiotia. SPRP focuses on this region immediately south of Parnassos with a particular interest in the Desfina Plain, which dominates the center of the peninsula (Fig. 3b).

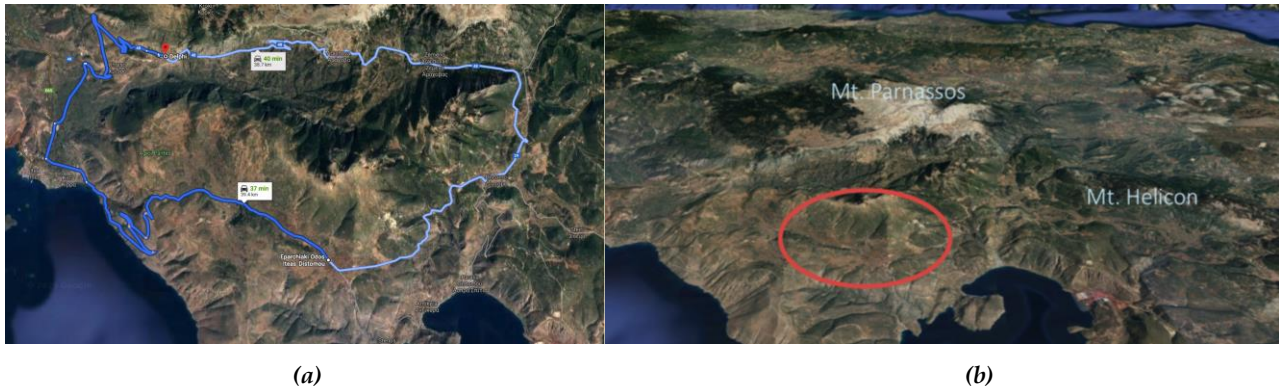


Figure 3. (a) Modern driving routes, (b) The Desfina Plain in central Greece (circled)  
(Map data © 2020 Google Maps)

Even by Greek standards, southern Phokis has rich cultural and natural histories, its reputation simultaneously burnished and overshadowed by the prominence of the Panhellenic sanctuary at Delphi during classical antiquity.<sup>ii</sup> As a result of Delphi's dominant role in the historical framework of ancient Greece, it is not surprising that modern studies of the region have traditionally radiated from the sanctuary,<sup>iii</sup> predicated on further illuminating its hallowed place in Greek history. One example is the Great Isthmus Corridor Route project (Kase, 1991), which attempted to trace access routes well into the ancient past between Thermopylai and Delphi, but was more interested in validating this proposed route within existing frameworks. Nor did it effectively factor in fluctuating socio-political circumstances throughout the centuries, especially those predating the rise of Delphi (e.g. the decentralization of Mycenaean authority following the Late Bronze Age collapse, cf. Cline, 2014; Wiener, 2014).

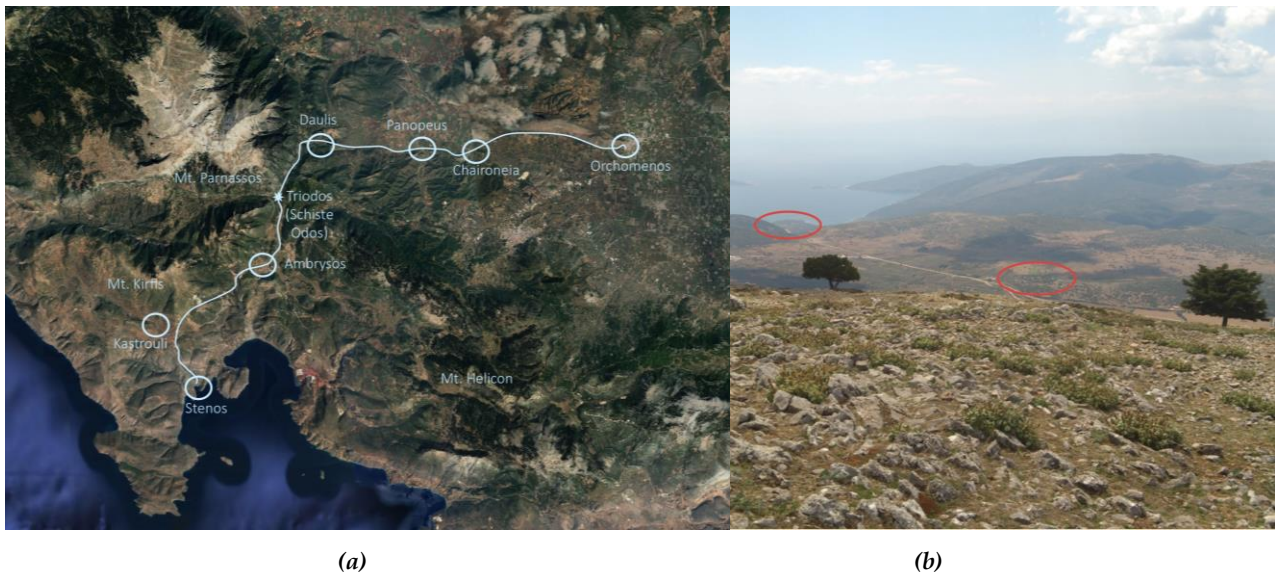
Regardless, one cannot deny that mythology (e.g. Oedipus at the Triodos crossroads, Sybaris at Mt. Kirfis) and history (e.g. Philip II razing Echedameia, Mark Antony requisitioning grain through Antikyra) testify to the importance of southern Phokis, though these accounts typically frame the region as a backdrop to particular narrative events culminating elsewhere (e.g. Thebes, Chaironeia, Actium).<sup>iv</sup> Strabo has been aptly labeled "extremely lacunose" when it comes to providing details about Phokis (McInerney, 1999: 92). Thus, while southern Phokis has been historically "defined", it has largely faded into the background, both in the Bronze Age as well as in

subsequent periods, relegated to relative obscurity and essentially sidelined from contributing more substantively to our overall understanding of Classical and Mediterranean antiquity. This makes an archaeological and scientific approach imperative to uncovering the rich past of southern Phokis, to serve as a vital complement to the existing textual narrative.

Based on our initial study of the region, it is now clearer than ever that southern Phokis played a much more significant role through the centuries than the view propagated through extant documentary records and codified into our histories. This is certainly true for the Late Bronze to Iron Age transition based on our research. The conventional view, based on ancient Delphi's strong appetite for livestock and modern observations of the Desfina ecosystem, has portrayed southern Phokis as a relatively arid and nondescript pastoral landscape supplying its famous neighbor with basic foodstuffs, which, in turn, has been extrapolated to characterize the region through all of human history. While the stature of Phokis is established when it was said to have contributed 40 ships to Troy (*Iliad*. 2.521), it is scarcely defined by Homer with its heroes, Schedius and Epistrophus, remaining among the most obscure. Yet during the Late Bronze to Early Iron Age transition - the present focus of this project - we posit that southern Phokis served as a major, if not the primary, gateway to points south and west for northern Phokis, western Boiotia, and perhaps even eastern Lokris by providing secure access to anchorage along the Corinthian Gulf (Fig. 4a). Based on both

topographic clues (e.g. *Alexandra* 1073; *Geographica* 9.3.15, *Ethnika* 95.1) and the obvious importance of the site conveyed by the quality of material remains presented in this study, the LH III citadel of Desfina-Kastrouli is the best candidate yet to be the Myce-

naean settlement of Anemoreia.<sup>v</sup> Strong prevailing winds descending from Parnassos and Kirfis, and channeled upon Kastrouli throughout the year, lend additional credibility to this identification (Fig. 4b, cf. Fig. 10).



**Figure 4.** (a) Least slope path between Orchomenos and Stenos anchorage passing well-known ancient cities, (b) View south from Mt. Kirfis (ca. 1500msl) with Kastrouli citadel and Stenos anchorage (circled)  
(a. Map data © 2020 Google Maps, b. Photo by I. Liritzis)

Southern Phokis played an equally key role during the Classical and Hellenistic periods, when the region served as an important stage during the Sacred Wars and subsequent battles in central Greece that had supraregional implications. Once again in surviving textual sources, Phokis serves more as a passing backdrop than a point of focus in these narratives, particularly in contrast with nearby

Chaironeia, which is celebrated for hosting history-defining battles involving forces headed by figures as diverse as Philip II, Matellus, Mithridates VI, and Mahmud II. Yet the remains of sprawling classical ruins and fortifications littered throughout the region (Fig. 5), virtually undocumented in the Desfina Plain, suggest that there is a much richer story to be told here.



**Figure 5.** Ancient remains in Desfina Plain  
(Photo by A. Koh)

The present South Phokian lacuna is thus both archaeological and historical. While major sites of Boiotia, Lokris, and the opposite coastal area of the Corinthian Gulf (i.e. Achaia and Corinthia) have benefited from intensive studies, the same cannot be said for the great majority of the north gulf coast absent Delphi (Fig. 6). Southern Phokis remains largely untouched and unintegrated into the larger narratives of each of the major periods of antiquity, despite the Corinthian Gulf's prominent role in Greek history and its intriguing connections to Pan-Mediterranean events stretching back at least as far as the Late

Bronze Age Collapse (e.g. Peleset Headpiece of Portes, cf. Yasur-Landau, 2013).

The excavations at Desfina-Kastrouli and the new Southern Phokis Regional Project are attempting to correct these lacunae. Through its transdisciplinary<sup>vi</sup> and diachronic approach, SPRP will enrich our understanding of ancient Greece's interregional interactions in a prime liminal zone, one that remains largely untapped and thus can cast new light on the overarching narrative of ancient Greece and the Mediterranean world it inhabited.

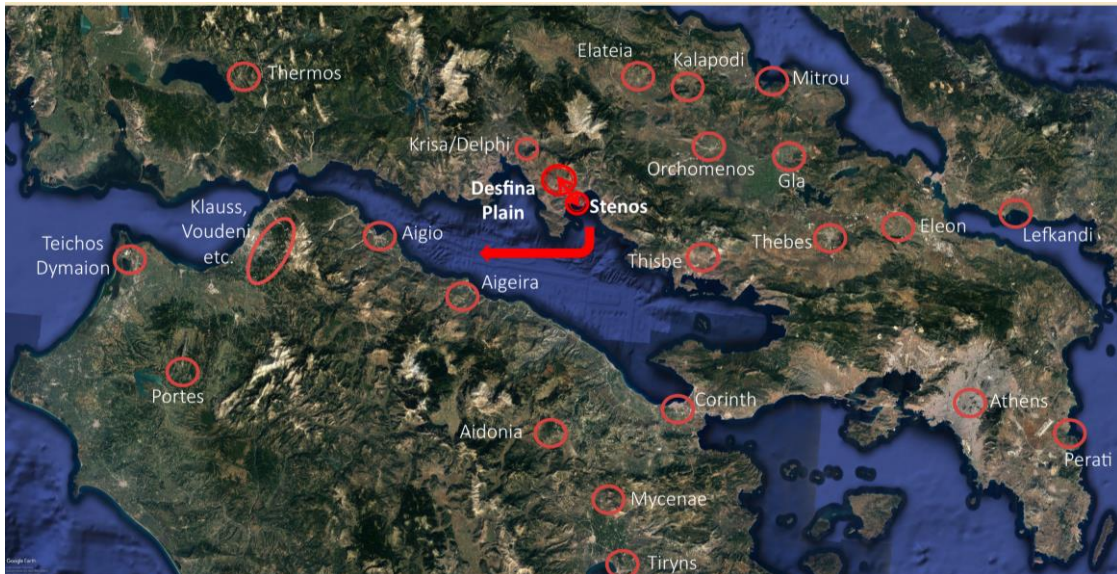


Figure 6. Major known Mycenaean sites around the Corinthian Gulf (Map data © 2020 Google Maps)

### 3. MATERIALS AND METHODS

Subsequent to McNerney's groundbreaking and sweeping historical survey of Phokis (McNerney, 1999), which still only managed to touch upon the Desfina Peninsula, attention was brought to the region in 2005 when the local ephoreia conducted rescue excavations at the LH III tombs at Kastrouli in response to modern looting activities, revealing finds suggesting their association with a major Mycenaean settlement (e.g. gold, fine stirrup jars, cf. Sideris *et al.* 2017). In 2016, Liritzis and the University of the Aegean commenced two seasons of the Kastrouli-Antikyra Land and Sea Project with Thomas Levy and the University of California San Diego as a part of an ambitious methodological project to better integrate land and sea archaeology in the Mediterranean and beyond (Levy *et al.*, 2018). From the abun-

dant remains of marine fauna found at Kastrouli (Sideris and Liritzis, 2018), it is clear that the citadel had a connection to a port. Based on this comprehensive study of the Antikyra Bay environs (Levy *et al.*, 2018), we can safely say that a small but significant complementary LH III site exists on a strategic acropolis at Stenos (Fig. 7a), which overlooked what was almost certainly the harbor for the Desfina Plain that served as a major access point to the west for surrounding regions until the rise of neighboring Antikyra in historical times (Fig. 7b). Some have even equated Stenos with Homeric Kyparissos, which would make sense of Pausanias (10.36.5) recording a local tradition at Antikyra claiming its more ancient name to be Kyparissos (Faraklas, 1978; Sideris, 2014: 24-26).



Figure 7. (a) Mycenaean harbor town at Stenos (circled), (b) View toward Stenos from Desfina Plain  
(a. Map data © 2020 Google Maps, b. Photo by A. Koh)

SPRP is fundamentally an archaeological project, but one that was “born scientific” and remains centrally driven by and steeped in science rather than having it serve as an adjunct of archaeology as traditionally modeled. SPRP brings together the strongest attributes of various disciplinary approaches (e.g. classics, chemistry, digital humanities) to serve as tools for a comprehensive transdisciplinary study of the natural and cultural landscape of the region, in order to unlock the important role it must have played in defining some of the richest epochs of human history.

More specifically SPRP aims to: 1.) seamlessly blend comprehensive scientific methodologies with

traditional archaeological and historical approaches to leverage a transdisciplinary multiplier effect<sup>vii</sup> and 2.) elucidate regional cultural microclimates and interregional interactions through this blended approach. SPRP team members are individually trained in both archaeological and scientific methods at the highest levels (e.g. ethnohistory, drone-assisted survey, ethnobotany, organic residue analysis, ceramic fabric analysis, 3D modeling) and have been developing and deploying edge-finding methodological approaches in all project areas (cf. <https://openarchem.com>), always with an eye towards illuminating the cultural and natural landscape of southern Phokis.

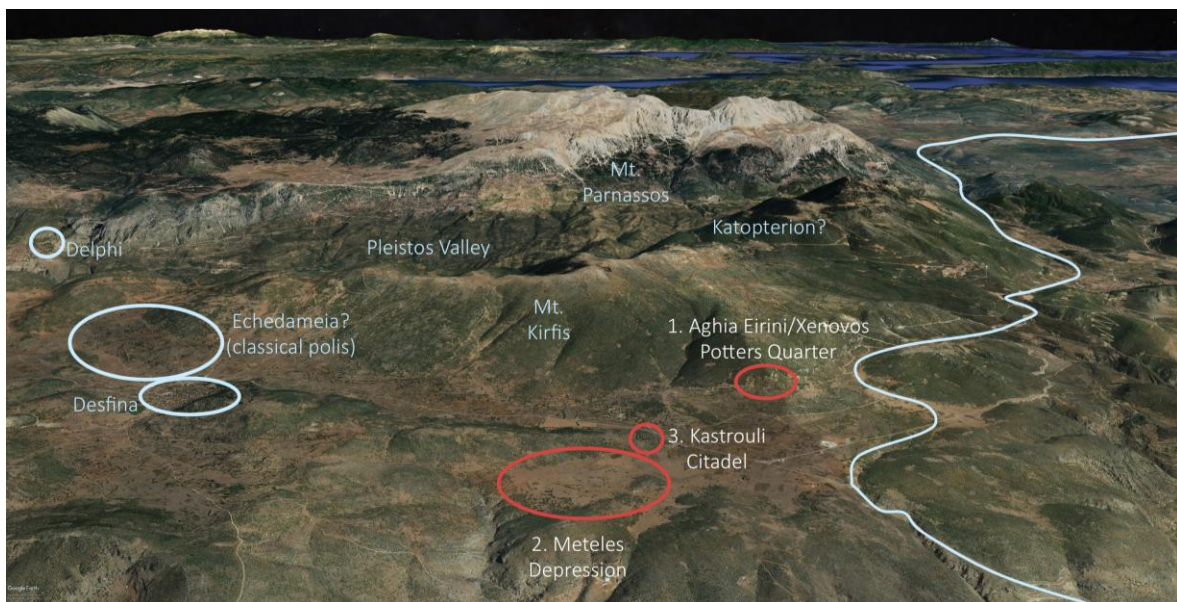


Figure 8. Three initial areas of interest for SPRP in the Desfina Plain (circled in red)  
(Map data © 2020 Google Maps)

Our three initial areas of interest include the Asproyia foothills of Mt. Kirfis to the northeast of the Mycenaean citadel, including the robust ancient pottery production facilities at Aghia Eirini and the terraced access roads leading up to them at Xenovos, the Meteles Depression to the immediate south of the citadel with its hydrological engineering works,

and the Mycenaean citadel of Kastrouli itself that must have served as the nucleus of all these activities (Fig. 8). The scale and similarity of the constructed features on the citadel and at these surrounding sites suggest the existence of a strong, centralized Bronze Age authority with sufficient resources to execute major projects. These features certainly belie the lin-



gering characterization of the region as an unchanging pastoral hinterland, and in fact they confirm that its strategic location for commerce and trade must have been recognized in antiquity. In particular, it might have offered a securable access point by sea to the west for Boiotia, and more likely Orchomenos in particular. This calls to mind the circumstances of Mitrou in East Lokris on the opposite coast of central Greece, where Aleydis Van de Moortel theorizes that the harbor town was taken over in LH III by the same suspected Boiotian parties (Karkanas and Van de Moortel, 2014), presumably to gain access by sea to points east. These access points would certainly not have been overlooked by Boiotian powers for their commercial and military value, especially in LH III when the florescence of a Mediterranean international age made good harbors vital for any aspiring power.

## 4. RESULTS

### 4.1. *Aghia Eirini/Xenovos Pottery Production Site*

The rich clay beds of Aghia Eirini are situated along the southern slopes of Anthimos (ca. 640msl), a local promontory of Mt. Kirfis that is visible from the Kastrouli citadel 1.4km to the southwest and overlooked the main route to the Phokian and Boiotian interior (Fig. 8). The site features a large constructed cistern (ca. 2m x 2m x 10m) more than several centuries old, which lies adjacent to substantial building ruins. These most likely supported ceramic production activities (i.e. potters quarter) related to the clay beds in this relatively hilly and remote area. LH sherds detected in areas of erosion mark this as an excellent target for future excavations.



(a)



(b)

Figure 9. (a) Rich clay deposits at Aghia Eirini, (b) "Cyclopean" retaining wall at Xenovos (Photos by A. Koh)

Archaeometric studies carried out on raw clay samples and LH III ceramics from the citadel demonstrated that the Aghia Eirini clays served as a major source for pottery production in the area over many centuries.<sup>viii</sup> The distinctive whitish sediments in the excellent clay beds (Fig. 9a), in fact, gave rise to its local name, *Asproyia*. The path up to the site from the area immediately to the west, dubbed Xenovos, boasts large retaining walls with "Cyclo-

pean" masonry (Fig. 9b), which have obvious typological affinity with the LH III retaining wall encircling the Kastrouli citadel and LH III sherds in their immediate surroundings. In light of these promising characteristics, SPRP carried out a preliminary on-site and drone survey of these remains to serve as a model of how we will approach large study areas with relatively confined but obvious signs of material culture.

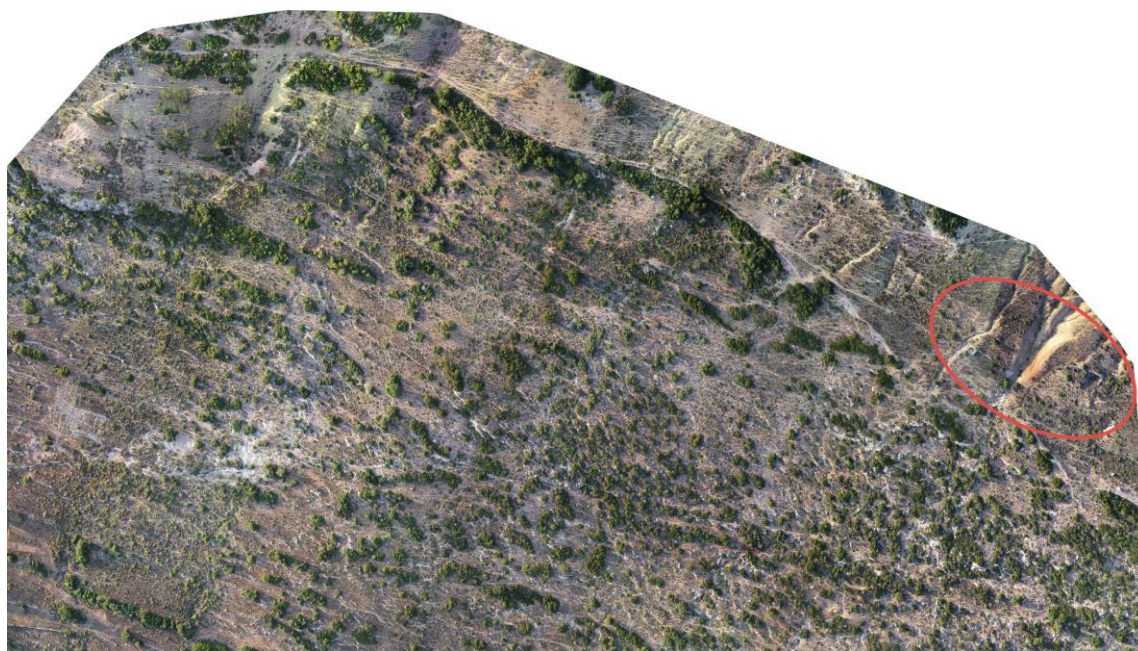


*Figure 10. Summer rain on Mt. Kirfis from the Desfina apothiki  
(Photos by A. Koh)*

With rich and abundant clay deposits easily accessible through water erosion, plentiful water stores in a region that becomes increasingly arid as one goes south to the Corinthian Gulf (it was often seen during the summer to rain on Mt. Kirfis with little to no rain immediately to the south, Fig. 10), and access to plentiful wood for fuel, the site was well-situated for sustained ceramic production. These advantages would justify the significant investment in infrastructure to access and maintain the workshop facilities that likely served as a major pottery production center for Kastrouli during the Bronze Age and beyond (Bratitsi et al., 2018; Baziotis et al., 2019; Liritzis et al., 2020).

In lieu of immediate excavations, our initial drone survey allows for a preliminary study of the adjacent

environs connected to Kastrouli, such as the Aghia Eirini/Xenovos landscape, and how they fit into the cultural network of the Desfina Plain during antiquity. For these extensive aerial surveys, we used a DJI Phantom 4 Pro drone and Pix4D Capture to fly the drone. Our default height was 70m above ground level (agl), with a camera angle of 80 degrees and an overlap of 60%. In respect of Greek drone laws, SPRP always drew a flight path grid with a diameter of <500m so that project members were always within 500m of the drone. The processed drone data photogrammetrically produced 3.66 cm per pixel resolution 3D models (Fig. 11 and <https://openarchem.com/3d-models>), which allows for year-round study of the landscape between field seasons.



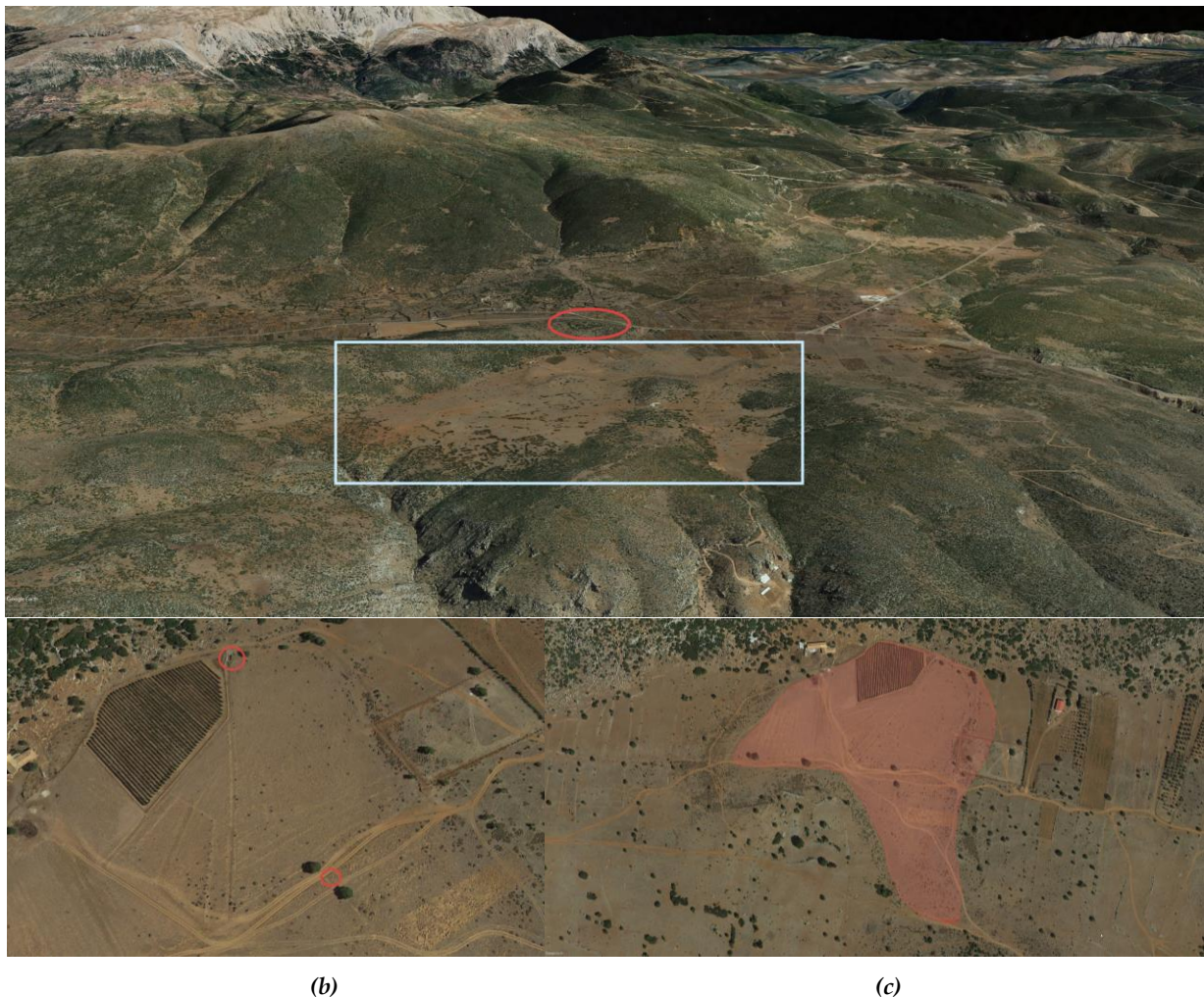
*Figure 11. Static capture of 3D model by drone of terraced Xenovos road leading to Aghia Eirini potters quarter (circled)  
(Image by I. Roy)*

#### 4.2. *Meteles Hydrological Engineering Site*

Directly to the south of Kastrouli lies the depression of Meteles in the Desfina Plain (Fig. 12a), which gently slopes to the north and is intermittently submerged by several meters of water every winter. At least two ancient holes lined with worked stones currently serve as drains (or perhaps a hydraulic air gap and/or maintenance access in the case of the smaller one, Fig. 13) with the significantly larger one severely altered and meticulously maintained for centuries from what likely started as a natural sink-hole (Fig. 14a). The two drains, approximately 200m apart, also roughly delineate the radius of the modern seasonal lake (Fig. 12b), whose southern limits stretch another 200m south of the smaller drain that is bracketed by two trees (Fig. 12c). The modern lake roughly fills a depression within a localized 500msl topographical contour that stretches another 800m east of the lake's current eastern extent suggesting

the ancient lake was possibly double in size when the Bronze Age climate was likely more temperate and wetter (Drake, 2012). From their typology and nearby scatters of LH III pottery, both hydrological features were operating throughout antiquity as far back as LH III. Deeper down, the bigger drain displays clear signs of larger stone masonry as found on the Mycenaean citadel, suggesting another major engineering project during the Late Bronze Age on the scale and of the type evidenced by the retaining walls at Xenovos and farther afield in places like the Argolid (Balcer, 1974) and Boiotia (Kountouri *et al.*, 2013). The larger drain, in fact, is highly reminiscent of the drainage system in Boiotia between the LH sites of Orchomenos and Gla (i.e. the Kopais Basin), which suggests a connection between southern Phokis and western Boiotia that we hope to elucidate in future seasons.

(a)



(b)

(c)

**Figure 12.** (a) View northeast of Meteles Depression (boxed) with Kastrouli Citadel (circled), (b) Close-up view northeast with location of drains (circled), (c) View north with rough limits of modern seasonal lake (outlined) based on ethnographic interviews  
(Map data © 2020 Google Maps)



Figure 13. Small drain feature in Meteles Depression  
(Photos by A. Koh)

In addition to the standard ~4cm per pixel resolution regional drone survey at 70m agl, an intensive ~0.5cm per pixel low elevation drone survey was conducted at 15m agl directly above the large drain with 321 photos captured with the Phantom 4 Pro drone's 20-megapixel sensor (Fig. 14b and

<https://openarchem.com/3d-models>). Future work includes stitching together and digitizing the 1:5000 Hellenic Army maps of the entire region in order to embed our drone data for nuanced GIS analyses such as hydrological simulations, viewsheds, least slope paths, etc.

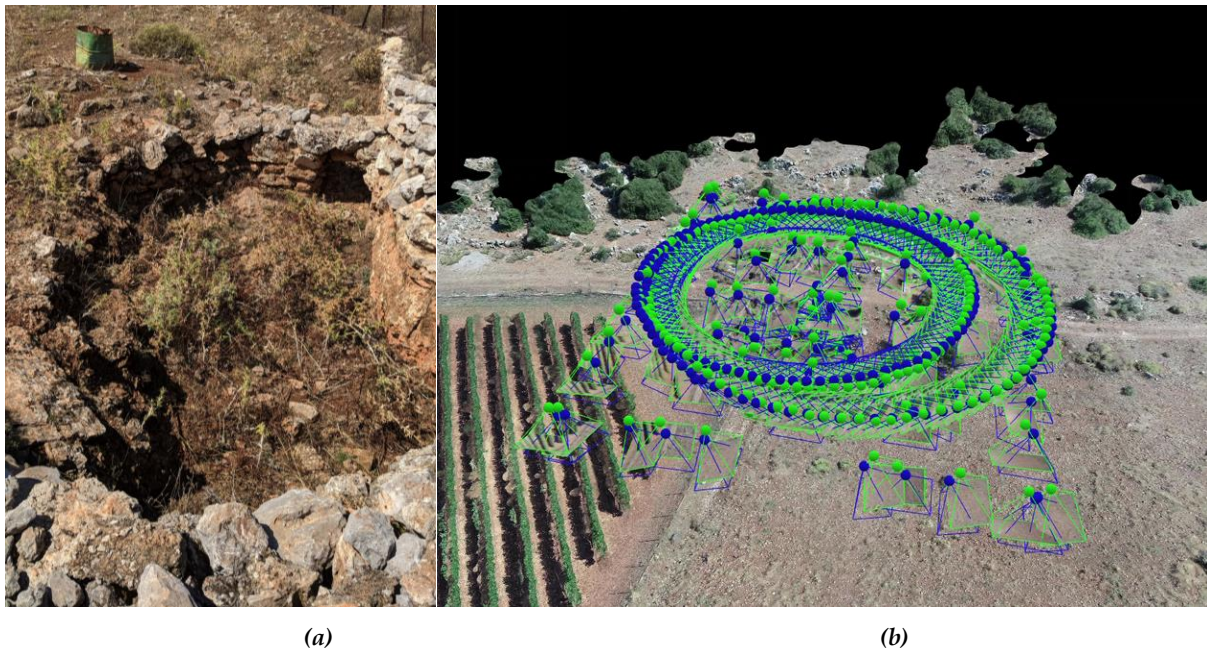
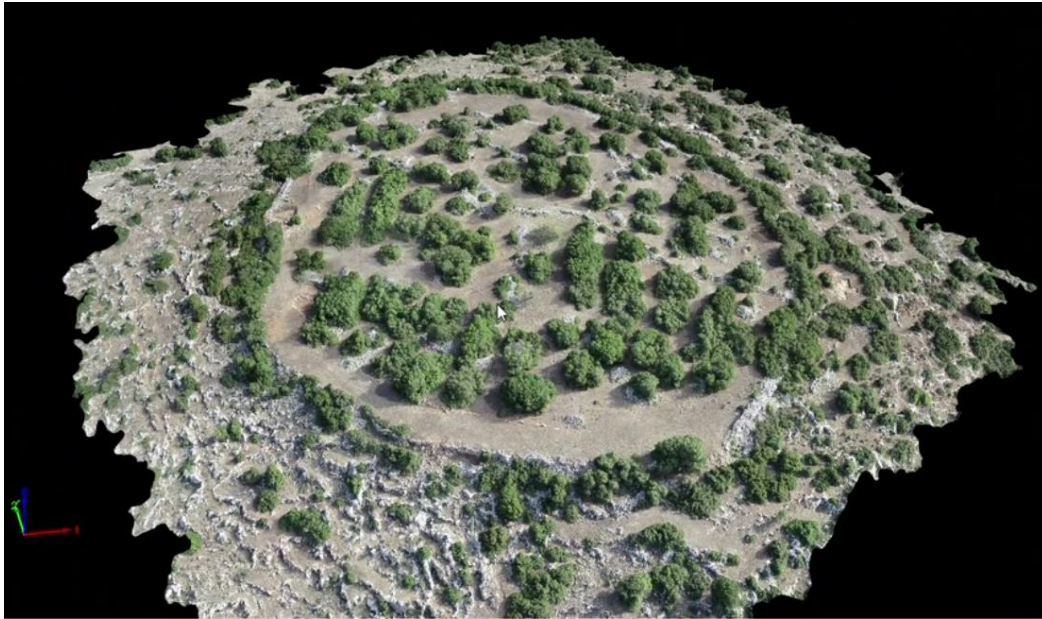


Figure 14. (a) Meteles large drain feature, (b) Static capture of 3D model by drone of the Meteles large drain feature with Pix4D rayCloud showing flight path and camera position/orientation  
(a. Photo by A. Koh, b. Image by I. Roy)

#### 4.3. Kastrouli Mycenaean Citadel: A Preliminary View from the Southern Terrace and the Site's Significance for the Region

A third season of excavations continued in the western area of the robustly built 1.67 ha citadel mound (Fig. 15). Previous work had revealed two tombs, Tomb A (excavated 2016 and 2017) and Tomb B (excavated 2018), and one structure Building 1 (excavated 2017 and 2018). The remains had been as-

signed a Late Mycenaean (LH IIIA2-C, ca. 1350-1050 B.C.E.) date on the basis of architectural and ceramic data from the tombs (Raptopoulos, 2012; Sideris and Liritzis, 2018; Levy et al., 2018; Baziotis et al., 2019) as well as optical luminescence and radiocarbon dating (Liritzis et al., 2016; Liritzis et al., 2019). These hinted at the strong likelihood of additional and substantial LH III occupation across the site, an assessment that has now been confirmed by the new excavations at the Southern Terrace (Fig. 16).



*Figure 15. Static capture of 3D model by drone of Kastrouli Citadel at start of season (Image by I. Roy)*



*Figure 16. Static capture of 3D model by drone of Kastrouli Citadel Southern Terrace at start of season (Image by I. Roy)*

Throughout excavation, archaeological material was recorded and entered using the FAIMS database system (<https://www.fedarch.org>) in records that included daily supervisor notes, all registered artifacts, and all samples immediately selected for scientific analyses in keeping with our project's seamless transdisciplinary approach. In addition to traditional photography, drone flyovers of the Southern Terrace

were carried out twice daily (at 11am break and at the end of the day's fieldwork at 2pm) at 15m agl, 60 degree camera angle, 60% overlap, and ~10 mins flight time (Fig. 17). Trench supervisors used the high-resolution images produced from the drone flights as daily top plans to guide excavation while directors could simultaneously keep updated on overall progress.

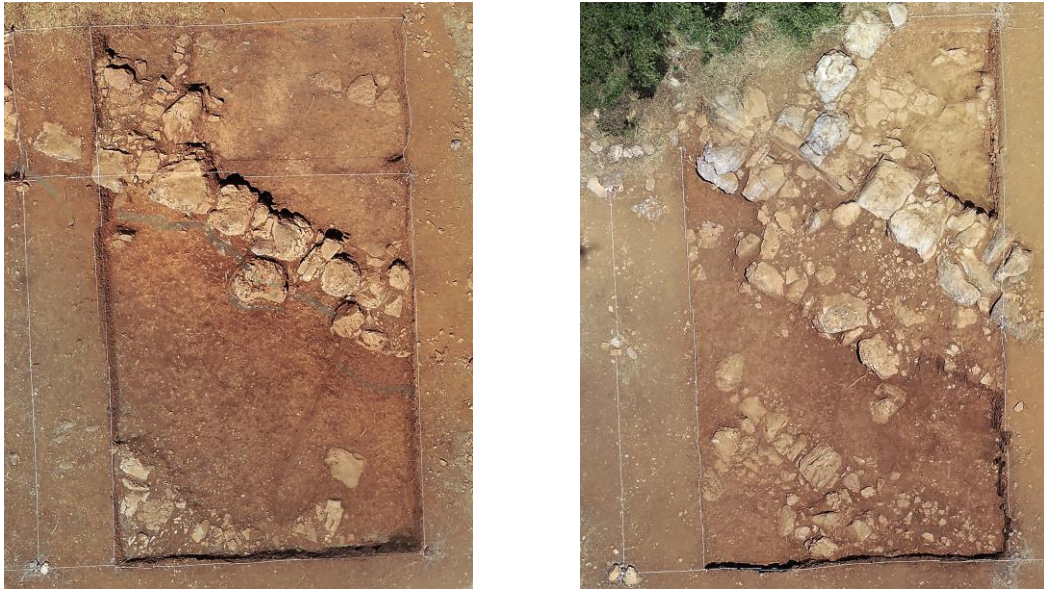


Figure 17. Examples of twice-daily drone trench photos (Trenches C and A)  
(Photos by I. Roy)

For the high quality render of the entire Kastrouli citadel on July 6th, we used 3 batteries on Pix4D Capture with these settings: 1.) 70m agl, 80 degree camera angle, 60% overlap, 100 image set, ~25 mins flight time; 2.) 50m agl, 60 degree camera angle, 60% overlap, 100 image set, ~25 mins flight time; and 3.) 15m agl, 60 degree camera angle, 60% overlap, 100 image set, ~25 mins flight time. Multiple altitude

settings were required to provide context and help with the alignment of the lower elevation scans, which provide the highest resolutions (Fig. 18 and <https://openarchem.com/3d-models>). This resulted in <0.5cm per pixel overall resolution where Google Earth is 1m per pixel at best. The final results were rendered with Pix4DMapper with normal quality 3D mesh settings.

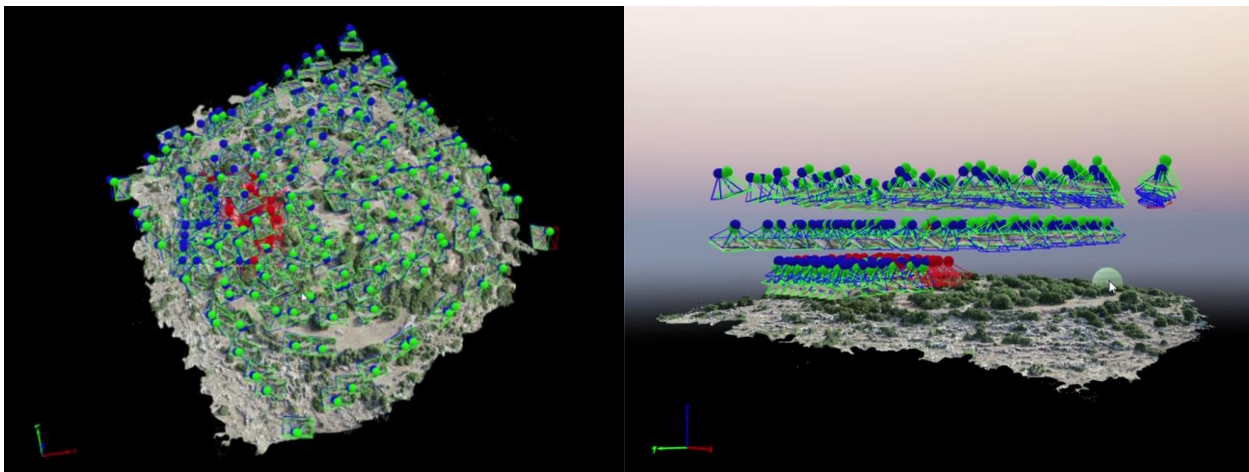


Figure 18. Pix4D rayCloud showing flight path and camera position/orientation for the Kastrouli Citadel 3D model  
(Images by I. Roy)

The Southern Terrace is the lowest of several terraces contained within a conspicuous site-wide retaining Wall (SRW) ringing the entire site (Fig. 15), portions of which had been documented in earlier seasons (cf. Fig. 23). This circular retaining wall nicely delineates at least the core of the settlement and affords it a higher degree of defensibility as a citadel (Koh and Clinton, 2015). Occupation on this terrace had been recognized in prior seasons with the identification of a prominent wall initially dubbed Wall 1

(and “long wall” in Sideris and Liritzis, 2018), still visible at the surface, which subtly curves in parallel (ca. 12m away) with the southern section of the SRW (Fig. 19a). Subsequent geomagnetic remote sensing between these two walls carried out in 2017 by Grigoris Tsokas and his team (Fig. 19b) suggested the presence of a number of parallel walls and structures (Levy et al. 2018), initially dubbed Building 2 (Sideris and Liritzis, 2017), hinting at robust occupation during antiquity.



Figure 19. (a) Site-wide retaining wall at Southern Terrace, (b) Magnetic gradient at Southern Terrace  
(a. Photo by I. Roy, b. Image by G. Tsokas in Levy *et al.*, 2018)

As the visible stones of Wall 1 were quite large, it remained unclear whether it constituted a terrace wall in its own right, or was part of a structure connecting remains further up the hill with those detected by the geomagnetic survey (or perhaps both). Our 2018 team established three trenches across the line of Wall 1 (Trench A, B, C from west to east with each composed of two 5m $\times$ 5m squares with 1m baulks, Fig. 20) with the intention of revealing the occupa-

tion on either side of the wall, and in order to gain insight into the original topography and possible terracing practices. We also sought to gain a preliminary view of the nature of occupation in this area of the site, as a point of comparison to the structures farther west on the citadel, with the ultimate goal of better situating the site within southern Phokis, central Greece, the Aegean, and ultimately the Mediterranean world.

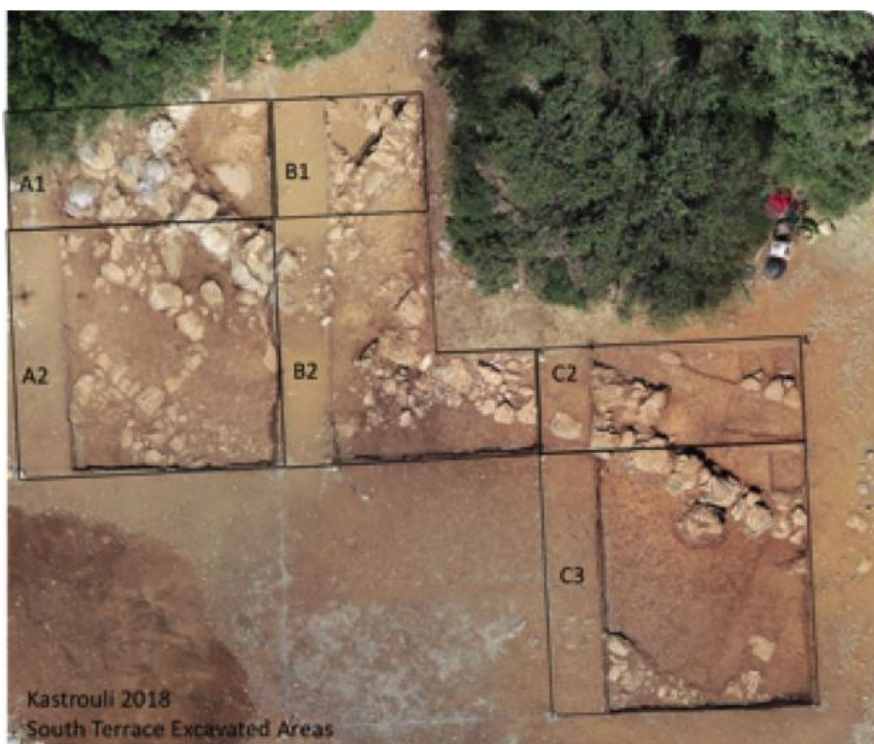


Figure 20. 2018 Trenches at Southern Terrace of the Kastrouli Citadel  
(Photo by I. Roy)

### 4.3.1. Preliminary Chronology of the Southern Terrace

Our work in the 2018 seasons revealed three periods of ancient stratigraphic occupation, which we associate with the following chronological layers<sup>ix</sup> (Fig. 21):

Southern Terrace Layer 1: Modern/20th century agricultural use

Southern Terrace Layer 2: Submycenaean<sup>x</sup>/Early Protogeometric

Southern Terrace Layer 3: Late Helladic IIIC Late

Southern Terrace Layer 4: Late Helladic IIIB2-Late Helladic IIIC Middle

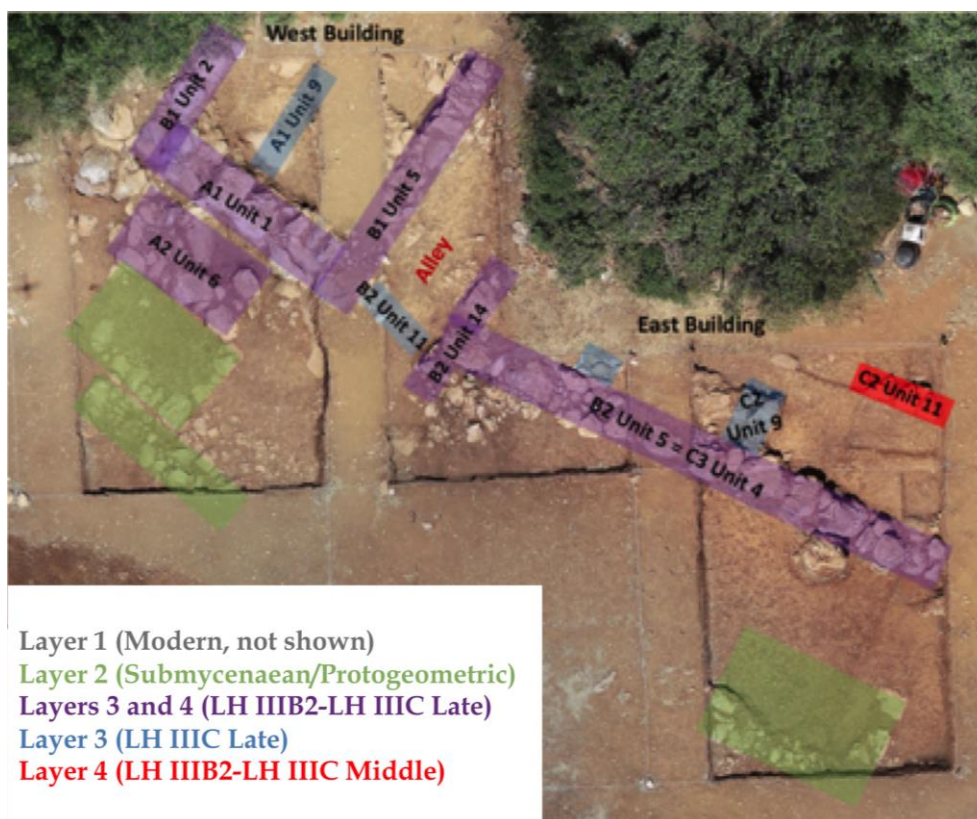


Figure 21. Southern Terrace: preliminary architectural phases  
(Image by I. Roy, K. Birney, A. Koh)

It is possible that Layer 4 reflects the earliest occupation in the area of the Southern Terrace. Bedrock was encountered, though not fully exposed, underneath the leveling fills for the Layer 4 floor in Trench A1 for Building 2 West. However, this cannot be definitively stated without broader exposure in future seasons; moreover, some construction features of the southern closing walls in this Layer (see below) hint at the possibility of additional phases or subphases to be revealed in future seasons. It is also premature to comment too specifically on the relationships between the occupation on the Southern Terrace and the activities on the citadel's western edge until the final publication of excavations on the mound.

The ceramic assemblage recovered from the Southern Terrace to date offers a reliable overview of the range of chronological layers present. Stratigraphic assignments, including subphasing, are quite clear. However, it must be emphasized that the

chronological assignment of the individual layers offered here must be considered preliminary only. Two points are of particular import. First, the ceramic readings were carried out only in a preliminary fashion – essentially a “field reading.” In light of worldwide disruptions engendered by Covid-19, we felt it prudent as an international team to provide an initial assessment now to facilitate ongoing work while making a final reading the top priority once field seasons resume. The second observation is that as expected the Southern Terrace is on the periphery of the main occupation area for the site with few primary deposits. The majority of our ceramic material is therefore coming from mixed secondary or tertiary deposits (i.e. raked debris, unsealed fills, and modern agricultural plowing). We anticipate continued refinements of the chronological horizons with further study toward the center of the mound. The results from each layer are summarized below, in order from earliest to latest.



### 4.3.2. Layers 4 and 3: LH IIIB2 – LH IIIC Middle and LH IIIC Late

There are two occupational phases associated with LH III on the Southern Terrace. The LH IIIB2 – IIIC Middle (Layer 4, the earliest found to date) occupation came to a clear end in a conflagration that damaged the Southern Terrace structures. Shortly afterwards, likely in LH IIIC Late (Layer 3), the original buildings were subsequently reconstructed and repurposed. This sequence echoes a pattern familiar from other Mycenaean sites across Greece, where the disruption of urban centers in LH IIIC was followed by reconfigurations and a change in urban character.

While stratigraphically distinct, the two layers cannot yet be cleanly sequenced ceramically, in no small part due to the predominance of non-primary deposits (see above) along with the typological prevalence of utilitarian forms, which tend to exhibit greater continuity. Nonetheless, the prevalence of LH IIIC Late forms in the later Layer 3 suggests a general date range for Layer 4 in LH IIIB2 – LH IIIC Middle. On the basis of the existing corpus and other mainland comparanda, it seems reasonable that the substantial architecture of the earlier Layer 4 occupation should coincide with the tail end of the peak of site occupation (presumably LH IIIA2-IIIC Middle based partially on finds from the western tombs) for the Kastrouli citadel, and that the disruption that brought this occupation to an end may have been the result of the same earthquakes that toppled Kynos (Phase 5) in East Lokris during LH IIIC Middle (Da-

koronia, 2003). Future excavations will allow us to refine these chronological assessments.

#### 4.3.2.1. *Layer 4 (LH III B2 – LH IIIC Middle)*

Layer 4 occupation, the earliest found to date on the Southern Terrace, was characterized by two substantial buildings (Building 2 West in Trench A and Building 2 East in Trenches B and C), separated by a narrow north-south alleyway (Fig. 21). Prior to excavation, the visible features were tentatively labeled as Building 2 (Fig. 16, cf. Sideris and Liritzis, 2018), but proved to be multiple structures as suspected. Both buildings extended beyond the excavated areas and are indicative of substantial multi-roomed structures that continue both east and west on the Southern Terrace, and north towards the center of the citadel. Both were closed to the south by massive stone walls with rough-cut “Cyclopean” masonry – Building 2 West by the massive stone Wall A1 Unit 1 (Fig. 22a) that first brought attention to the area as Wall 1 (Fig. 16) – described even earlier as the “long wall” (Sideris and Liritzis, 2018) – and Building 2 East by Wall B2 Unit 5 (Fig. 22b) and Wall C3 Unit 4 (Fig. 27a),<sup>xi</sup> the upper courses of which were identical in construction style and scale to Wall A1 Unit 1. Variations in the foundations of these major southern closing walls suggest several possible rebuilds and repairs<sup>xii</sup> even beyond our present subphasing, and hint at a use-life, which may predate Layer 4. These closing walls arc in a course parallel to the “Cyclopean” wall that encloses the south end of the Southern Terrace and rings the entire citadel, the SRW (see above).



Figure 22. (a) Building 2 West with Wall A1 Unit 1, (b) Building 2 East with Wall B2 Unit 5 (Photos by A. Krohn)

The style and scale of the SRW in the south (particularly that of the lower courses) clearly corresponds to that of the LH III enclosure wall in the west of the mound (Fig. 23, cf. Levy *et al.* 2018) and functioned together with Building 2 West and Building 2 East in both Layers 4 and 3. The SRW was like-

ly constructed earlier than LH IIIB2 as the massive feature served as the stabilizing outer terrace retaining wall for the entire citadel, which contains material at least as early as LH IIIA2 (Sideris and Liritzis, 2018).



Figure 23. Site-wide retaining wall at western end of citadel abutting LH IIIA2-LH IIIB tombs (Levy et al. 2018)

Our results indicate that the spaces to the north of these major southern closing walls of Building 2 West and Building 2 East (A1 and B5) were interior rooms in both Layers 4 and 3. With a few exceptions (see below) modern seasonal plowing removed the

bulk of LH III material in the ca. 12m wide spaces spanning these southern closing walls and the SRW to the south, so we cannot yet determine whether the terrace area bracketed by these two massive walls was originally interior or exterior space.



Figure 24. (a) Southern closing wall of Building 2 West Layers 3-4, (b) Burnished mudplaster, (c) Burnt roofing (Photos by A. Krohn)

Excavations during the 2018 Season exposed an entrance into Building 2 West from the south and a single room within it (Fig. 24a). Room 12 was a partially stone-paved room just over 3m x 3m in size, limited by Wall A1 Unit 2 to the west and B1 Unit 5 to the east.<sup>xiii</sup> The room was entered through a doorway to the southwest built into Wall A1, which

was constructed with a finely cut ashlar lintel roughly 0.60m wide, which sat level with the stone paving in the room's entrance. The room had been decorated on the interior with burnished mudplaster (MC 8, Fig. 24b), and burnt clay roofing material (MC 10, Fig. 24c), many pieces found in later construction fills with reed impressions still visible, which offer

some insight into the original building construction.<sup>xiv</sup> At least one fragment of mudplaster could be seen adhering to the northern face of Wall A1 Unit 1. Underneath the paving stones abutting the doorway lintel, a circular stone cairn had been set directly on

the bedrock in what appears to be a purposeful manner (Fig. 25a) and a steatite spindle whorl (Fig. 25b) was recovered from among its stones - perhaps indicating a votive deposit during the original construction of the room.



Figure 25. (a) Stone feature A1 Unit 23, (b) Steatite spindle whorl MC 29  
(Photos by A. Krohn)

Just outside the southern entrance to Room 12 was a stone platform or ramp (A2 Unit 6, roughly 4m x 1.4m) (Fig. 26) built abutting the south face of Wall A1 Unit 1. This was framed with large rough-cut stones and paved with a surface of smaller stones and gravel. The structure sloped very slightly down to the east, continuing nearly as far as the line creat-

ed by B1 Wall 5, before being interrupted by agricultural disturbance. The slope was difficult to gauge given the poor level of preservation, but may suggest that this platform may have been part of a constructed ramp connecting Room 12 with areas to the south and east. These areas are now, however, lost to modern agricultural disruption.<sup>xv</sup>



Figure 26. Stone platform A2 Unit 6  
(Photo by A. Krohn)

Buildings 2 West and 2 East were separated by a narrow alleyway 1.5m wide, which ran between B1 Unit 5 on the west, and B2 Unit 14 to the east (Fig. 21). The area between the two walls was characterized by a series of rocky fills, which ran uninterrupted, crossing the wall line of Walls 1 and B2 Unit 5=7, until cut by the Layer 1 plow zone to the south.

East of the alley was Building 2 East, a large building whose width extended more than 10m east to west (Fig. 21). Our team excavated only a portion (5 x 2.8m) of a single large room in this structure due to the layout of our trenches, though it is notable for producing what is potentially a Linear B-inscribed clay fragment currently under study (see below).

The Building 2 East room was limited by the large southern closing wall, B2 Unit 5 (Fig. 21b) and C3 Unit 4 (Fig. 27a), with a fieldstone wall B2 Unit 14 to the west, but its eastern closing wall lay beyond the excavated areas; to the north it was limited only by a narrow mudbrick partition/half-wall C2 unit 11 (Fig.

27b). It is clear from this that the room must have continued some distance to the north towards the center of the citadel and was of a substantial size. In the absence of clear partitions or pillar bases, the room would have been nearly three times the size as Room 12 in Building 2 West.



Figure 27. (a) Southern closing wall of Building 2 East, (b) Interior of Building 2 East inset with MC 32 (Photos by A. Krohn)

The original Layer 4 occupation (or bedrock) in this room has yet to be reached. Excavations thus far have revealed only a substantial stone platform some 0.35m in depth, a mixed construction of boulders ringed by smaller cobbles built abutting the north face of the main southern closing wall. Its pur-

pose is uncertain. Just north of the partition wall C2 Unit 11, a small steatite spindle whorl was recovered (C2 Unit 12, MC32, Fig. 27b), likely marking proximity to the original floor. The whorl is the same style as the spindle whorl recovered from Trench A1, although slightly smaller.

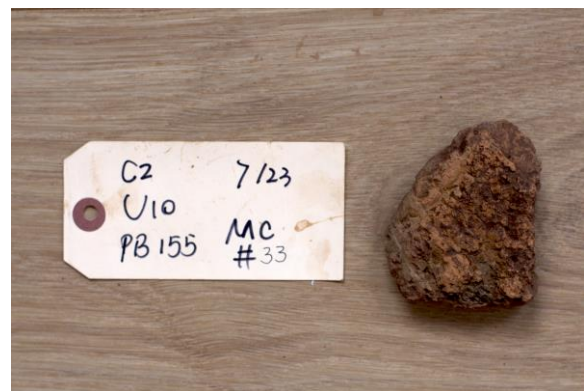


Figure 28. Burnt mudplaster with reed impressions from Building 2 East (Photos by A. Krohn)

Layer 4 occupation in Building 2 East was covered over with 0.25m of fill (Units 12-13, 8-10) thick with mudplaster building materials burnt to bright orange and other signs of heavy burning (Figs. 28-29). Although ashy across the space, evidence for burning was most intense on either side of the partition wall C2 Unit 11, where chunks of bright orange burnt mudbrick – perhaps an indicator that partition wall Unit 11 had originally held a mudbrick superstructure – had fallen on both sides. Throughout the room pockets of ash and an intact piece of a burnt roof beam (Fig. 29) fallen near the southern closing

wall show the ravages of a fire that had swept the room. The total absence of intact vessels and artifacts, however, coupled with the fact that the soil was not compacted into occupational lenses show that this was not burning in situ but rather cleared destruction debris used to level the room for the Layer 3 floor above. Although the evidence for burning was not as pronounced in Building 2 West as it was in Building 2 East, numerous fragments of clay roofing material and burnt mudplaster (Fig. 24b-c) suggest that it suffered a similar fate in LH IIC Middle.



Figure 29. Burnt roof beam from Building 2 East  
(Photo by A. Krohn)

#### 4.3.2.2. *Layer 3 (LH IIIC Late)*

The Layer 3 occupants began with a damaged site, raking over the burnt debris before rebuilding. In both buildings, they shored up the major southern closing walls by buttressing the interiors with a mix of reused paving stones, cobbles and mudplaster. In Building 2 East, buttressing required the construction of an additional short wall stub or pier, C2 U9, which was built directly atop the raked ashes and integrated into one of the upper courses of the earlier “Cyclopean” foundations (Fig. 27b).<sup>xvi</sup> The extent of these efforts indicates that the southern closing walls of both buildings had become fundamentally structurally unsound by the end of Layer 4 (i.e. LH IIIC Middle), damage that might have resulted from a severe earthquake that resulted in a conflagration. In both buildings, the leveling fills for the subsequent Layer 3 (LH IIIC Late) floors were thick with burnt building material, which had fallen from the earlier

roofs and walls. The interior spaces were marked by reuse and reconfiguration, subdividing rooms through the addition of partition walls and blocking passageways.

While the presence of residual LH IIIB forms such as the shallow angular kylix and a number of cup forms suggest connections with the finer material recovered from Building 1 adjacent to the tombs in the western edge of the citadel, the vast majority of the Layer 3 deposits from the Southern Terrace are, however, generally later (LH IIIC Late) and more utilitarian in nature. Vessels include cooking pots, pithoi, vats, jugs, and an assortment of drinking cups and bowls. This is in keeping with the architectural evidence within the two Southern Terrace buildings, whereby Layer 3 rooms included cooking spaces and possible stone work platforms, and collectively suggest more utilitarian or at least mixed-use space.



Figure 30. Jug, hydria, and cooking pot from Building 2 West  
(Photo by A. Krohn)

In Building 2 West, the doorway into Room 12 was sealed with mud and stone, and a narrow cobble and fieldstone partition wall A1 Unit 9 (Fig. 24a) was built roughly north-south in the room, its southern edge abutting Wall A1 Unit 1. To the west of this wall, in a fill above the earth floor were large sections of three vessels: fragments of a strap-handled cooking pot, a plainware hydria, and plainware jug (Fig. 30). These were unusual in that they were the largest deposits of pottery encountered in any of the

excavated spaces, and yet were still not complete, showing signs of breakage in antiquity, perhaps the last remnants of the building's inhabitants at the end of LH IIIC. In Building 2 East, a circular stone-ringed hearth C2 Unit 7 (Fig. 31) with packed clay edges was constructed abutting the north edge of the pier C2 unit 9, with thick ash deposits that showed heavy use. Nearby, the crushed base of a cooking pot (RP2) sat atop two raised stones - an impromptu cooking stand next to the hearth (Fig. 31).



Figure 31. Circular stone-ringed hearth with cooking stand (Photo by A. Krohn)

At some point later in Layer 3, the inhabitants blocked off the alley that had originally separated the two buildings with a crudely constructed fieldstone wall, B2 Unit 11. The stones used in this construction were smaller than those used in any of the other contemporary walls, and its alignment was slightly askew from the line of the earlier "Cyclopean" walls that closed their southern end. The foundation trench into which this fieldstone wall had been placed was cut from levels just under topsoil, making it one of the latest features on the Southern Terrace. Given the degree of agricultural disturbance at upper elevations across the area, it is possible that the actual elevation from which the trench was cut could have been plowed away. This makes it quite possible the construction of this wall and the closing off of the alley could have occurred at the close of LH IIIC Late or even afterwards in Layer 2 (Submycenaean/Protogeometric), when the urban character of the Southern Terrace, and presumably across the citadel, changes in accordance with what is seen

across many sites in Greece - another clarification point for future seasons.

#### 4.3.3. Layer 2: Submycenaean/Protogeometric

The last day of sweeping and clearing in preparation for final photos revealed the outline of a rectangular structure in Trench A2, which may be a cist tomb (Figs. 20-21). It has not been fully uncovered, but its southern edge, running along a roughly northwest to southeast line of carved square blocks, and some of the stones in its eastern edge and western edge have begun to emerge. Small cobbles run along the interior edge of the southern wall, which is also known to be a feature of these tombs. Its current dimensions are estimated at roughly 1.6m x 2.4m.

Unfortunately, this structure lies immediately under the plow zone, which cut away virtually all of the stratigraphic layers, which would have allowed us to determine its depositional relationships from ground level, or connect its use with the original buildings to the north. Possible plough marks along one of the stones in the southern wall, coupled with the fact that additional cobbles appear to have been

pushed over beyond the far northern edge of the structure, suggest that it was disturbed in the agricultural use of the area. Fallen stones extend beyond it to the east and south, in uncertain arrangement. These are a mix of sizes and so cannot only reflect tomb superstructure. It is possible that they may belong to LH IIIC or earlier constructions that were interrupted by this feature, as was the case at other sites. A similar structure may also be emerging in Trench C3, but its outlines are yet uncertain.

Cist tombs of similar size and construction, placed also in the remains of earlier Mycenaean sites in relation to existing architecture, are known from Mitrou (LH IIIC Late - Protogeometric, cf. Van de Moortel, 2009) and Mycenae (Desborough, 1973) among many others. It remains possible that the Kastrouli features could outline another contemporary room in the area south of the platform. That these structures survived within the plow zone, however, suggests that they were deeply founded, at levels more in keeping with a much earlier occupation or a later intrusive tomb structure, though its elevation with respect to the SRW suggests the latter. A major goal of future seasons will be the clarification of these features.

#### 4.3.4. Layer 1: Modern Agricultural Use

One of the anticipated challenges was the fact that the area of the Southern Terrace, being relatively accessible and flat, had been utilized for modern agriculture. Local sources reported that grains - wheat and barley - had been grown on the site during the mid-20th century. The impact of this use was imme-

diately detected during excavation. Some 30-35cm of agricultural fill was clearly evident below topsoil in the ca. 12m expanse between Wall A1 Unit 1 and the SRW. At least three separate strata were evident within this fill showing multiple depositions and seasonal ploughing activities. Ploughing had displaced higher course rocks on several walls, and clearly clipped earlier structures. Below this ca. 35cm fill deposit the soil composition changed and the ceramic material recovered was no longer water-worn.

## 5. DISCUSSION

The 2018 work in southern Phokis has offered three key insights into the nature and scale of Mycenaean occupation in the Desfina Plain. First, it has shown that LH IIIC presence at the Kastrouli citadel, rather than reflecting the tail end of occupation, is instead a robust phase in its own right, one that likely reflects the continued occupation of earlier LH III spaces. Indeed, the discovery of a unique clay fragment (Fig. 32a)<sup>xvii</sup> incised with what is possibly the Linear B logogram for cloth (Nosch, 2012), but not yet definitively identified with any known example, coupled with evidence for locally-made fine ware from the tombs and the ambitious engineering works at Aghia Eirini and Meteles all point to the importance of the site during the peak stages of Mycenaean Phokis, and suggest the possibility of close network connections with other sites (e.g. Orchomenos) as seen in post-Bronze Age Phokis (McInerney, 2011).



Figure 32. (a) Inscribed clay fragment, (b) Findspot of inscribed clay fragment (starred)  
(a. Photo by A. Koh, b. Photo by I. Roy and K. Birney)

Second, initial excavations in the Southern Terrace area have broadened our understanding of the full chronological range of occupation in the Desfina Plain potentially to include the Submycenaean/Protogeometric periods. Previous work at the site had suggested an occupational horizon of LH IIIA2 - IIIC Early in both the tomb and residential areas (Sideris *et al.*, 2017: 283). The Southern Terrace

an/Protogeometric periods. Previous work at the site had suggested an occupational horizon of LH IIIA2 - IIIC Early in both the tomb and residential areas (Sideris *et al.*, 2017: 283). The Southern Terrace

has provided systematic evidence for occupation in later LH IIIC and the continued use of the site into the Protogeometric period. While the preliminary pottery reading offered here is still insufficient to offer a more nuanced picture, the presence in the Southern Terrace assemblage of strap-handled handmade cooking pots, ledge rim kraters, the wide prevalence of monochrome decoration on jug and amphora necks as well as on the open cup and skyphos forms, and two coarse ware cylindrical bases – too small to be alabastra – whose shape and diameter correspond well to Submycenaean/Early Protogeometric cylindrical lekythoi are all late indicators. The Southern Terrace work may thus offer better context for the Geometric sherd recovered earlier from the site, which both typology and thermoluminescence placed in the Middle Geometric period (Liritzis et al., 2016). Beyond this, the site's broader sequence and preservation suggests that the Kastrouli material has the capacity to contribute to the development of local, regional, and supra-regional LH IIIC ceramic typologies.

Finally, the discovery of at least one handmade burnished ware sherd suggests that the Desfina Plain has the potential to offer key insights into the Bronze-Iron Age transition in Phokis and speaks to the degree to which Kastrouli may have been part of a larger network of sites affected by population movements across the Mediterranean (Jung, 2017; Jung, 2018). It is clear that southern Phokis must be considered in light of regional connections in central Greece, but also with interregional connections to Achaea, the Ionian Islands, and beyond to the southern Aegean and greater Mediterranean (Murray, 2017; Hitchcock and Maier, 2018; Koh and Birney 2017).

These recent discoveries underscore the great potential of Desfina and southern Phokis to add another

voice to the Delphi-focused narrative that has predominated discussions of the region by contributing an altogether new facet to the history of ancient central Greece and beyond. In future seasons, work will be needed to refine the ceramic sequence and site chronology through a blend of intensive study and additional excavation. More work needs to be done as well to understand the topography and use-life of organization of the citadel mound itself<sup>xviii</sup> along with its relationship to extra-urban features such as the Kastrouli lower terraces, Meteles hydrological works, Xenovos terrace walls, and Aghia Eirini potters quarter. Through the expanded transdisciplinary approach of SPRP, additional survey and archaeometric studies will be leveraged to acquire a better understanding of the region's natural and cultural landscape in order to build a more nuanced, *longue durée* picture of the natural and strategic resources upon which the ancient residents of the region relied upon over many centuries, and how this dynamic influenced their interactions with those farther afield.

## 6. CONCLUSION

The Desfina region is undoubtedly a varied cultural and natural landscape with a rich history that stretches back millennia. Located in the same ephorate as nearby Delphi, the Desfina Plain has largely escaped notice by archaeologists and historians. Based on topography, location, and material culture, the Kastrouli Citadel and its supporting facilities around the plain seem to have been strategically established during the Late Bronze Age to facilitate the Kopais Basin's access to the Corinthian Gulf - in conjunction with the contemporaneous LH III harbor site at Stenos - and ultimately control access to points farther west and south via the sea.



Figure 33. (a) 2018 international field school team (b) Children of Desfina on the Southern Terrace of Kastrouli (Photos by I. Roy)



With this framework in mind, the Southern Phokis Regional Project in the coming years plans to actualize the great potential first recognized in the region decades ago by Liritzis, which the project has now put into motion as an international team of collaborators (Fig. 33). This new chapter has changed the scale and scope of the project and has inspired a reimagining of the project's goals with excavations at Kastrouli just one component of a holistic, large-scale regional project that brings in southern Phokis from the margins of recorded history. What remains

the same is the project's commitment to a seamless transdisciplinary approach where scientific techniques fundamentally define and drive research design rather than serving as an adjunct. The 2018 season has underscored the Desfina Plain's abundant potential to make a unique and lasting contribution to better understanding both the structure and networks of Mycenaean Greece at its peak and the dramatic Pan-Mediterranean changes coinciding with the Late Bronze Age Collapse that had profound ramifications for centuries.

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## ENDNOTES

<sup>i</sup> On August 14 of 2017, an interview was conducted with two elderly shepherds, Efstathios Boris (89 years old) and Konstantinos Leontopoulos (88 years old), who both passed away a year later. They reported the total number of sheep and goats during 1900-1925 held by 53 families in large quantities - 9840 sheep and 6050 goats. Every other family also had livestock, but in smaller quantities for their personal needs. The 53 families supplied Delphi, Itea, Arachova, Galaxidi, Loutraki (eastern Corinthian Gulf), Chalkis in Euboea, and Patras (western Corinthian Gulf), in return for money.

<sup>ii</sup> “But the very centrality of Delphi’s position marginalized the rest of Phokis.” McNerney, 1999: 63.

<sup>iii</sup> A perfect example is the 1993 discovery of three rupestral inscriptions at Panopeus by John Camp and students of the American Schools of Classical Studies in Athens, motivated in their search by a well-known 4<sup>th</sup> century B.C.E. Delphic inscription found in the 19<sup>th</sup> century by the French, an ancient copy of one of the two Late Archaic inscriptions subsequently discovered at Panopeus (Rousset et al., 2015).

<sup>iv</sup> One noteworthy exception is Pausanias’ account (9.40.11-12) of the myth surrounding the Scepter of Agamemnon, when the Phokian town of Panopeus is cast as a counterpoint to its Boiotian rival Chaironeia, a passage recently mused upon by Gregory Nagy (2020).

<sup>v</sup> The alternative site of Arachova has neither any noteworthy Mycenaean remains nor a significant plain attached to it. See McNerney, 1999: 307-308 for further discussion concerning these serious problems of attribution, which are clearly overcome by Desfina-Kastrouli’s substantial plain, robust Mycenaean remains, and more southerly location that would explain Anemoreia’s exclusion as an intermediate topographical marker for a treaty between Delphi and Ambrysos. See Faraklas 1978 for an earlier identification of Desfina-Kastrouli as Anemoreia, though apparently based purely on a speculative interpretation of Strabo.

<sup>vi</sup> SPRP defines transdisciplinarity as the seamless integration, or fusion, of disciplinary approaches to create a new unified approach in a given context in order to produce newly attainable results. It is greater than the sum of its parts and distinct from disciplinary approaches working in parallel (multidisciplinarity) or even in dialogue with each other (interdisciplinarity), thereby producing the transdisciplinary multiplier effect.

<sup>vii</sup> See supra note vi.

<sup>viii</sup> For chromatic analysis of local clay sources see Bratitsi et al., 2018; for characterization, provenance, and statistical analysis of ceramics from local clays see Liritzis et al., 2020.

<sup>ix</sup> We are using the preliminary term “layers” (*Schichten*, cf. Jung, 2003) to describe the local strata, until we are better able to refine our chronological parameters and definitively connect the Southern Terrace sequence with the rest of the mound.

<sup>x</sup> “Submycenaean” as typologically defined by pottery at nearby sites such as Kalapodi (Felsch, 1996) as it remains to be clearly seen at Kastrouli how the transitional period between LH IIIC and Early Protoegeometric will be represented stratigraphically with clear pottery sequences (cf. Rutter, 2007).

<sup>xi</sup> The southern closing wall of Building 2 East spanned three trenches: B2 Unit 5 = C2 Unit 2 = C3 Unit 4.

<sup>xii</sup> Where possible, these southern closing walls had been constructed directly on bedrock; where bedrock dipped, small fieldstone or rectangular cut fieldstones served as foundations. In particularly low points of bedrock, sections of the wall were bedded in shallow trenches as needed, such as that seen in Unit 4 of Trench C3 (Fig. 27a).

<sup>xiii</sup> While the northern closing wall was beyond the excavated area, certain indicators in the topography, and the presence of a circular stone feature in the northeastern corner of the room using Wall B1 Unit 5 suggest that the closing wall may be only slightly past the northern limits of our excavations, where it remains to be seen whether a second doorway exists.

<sup>xiv</sup> Cf. Fig. 28. These materials, most quite burnt, appeared in quantity in construction fills for the later Layer 3 (LH IIIC Late) occupation of this room (see below).

<sup>xv</sup> The entire area south of the platform attached to Building 2 West (Trench A2), and south of Building 2 East (in Trenches B2, C3), as the flattest and most accessible plot of land on the citadel, had been plowed, removing most evidence for occupation in this area.

<sup>xvi</sup> Ca. 1m long and 0.70m wide, this was built perpendicular to the major wall C3 Unit 4. This was a well-built structure, utilizing at least one row of large (“Cyclopean”-style) stones on its eastern edge, and a row of square cut stones along its western edge, however, it does not continue into the room.

<sup>xvii</sup> Found to the north of Wall B2 Unit 5, so inside the sizable Building 2 East that is over 10m wide (Fig. 32b). It was found lower in elevation than the top of Wall B2 Unit 5, but nevertheless in topsoil so churned up by plowing from a lower/earlier stratum that likely dates between LH IIIA2 and LH IIIB2, a hypothetical Layer 5 we anticipate finding in future seasons to the north where plows did not reach. See supra note xiii.

<sup>xviii</sup> We noted, for example, that LH III material is concentrated closer to the citadel center within the excavated lower layers inside the buildings and in the platform area of Trench A, while the Submycenaean/Early Protoegeometric and potentially even later material occurs in highest concentrations as one shifts towards the periphery of the site. This gradient may merely be the result of the plowing disturbances along the edge of the terrace, but could also reflect something of the original site topography and use and requires further study.