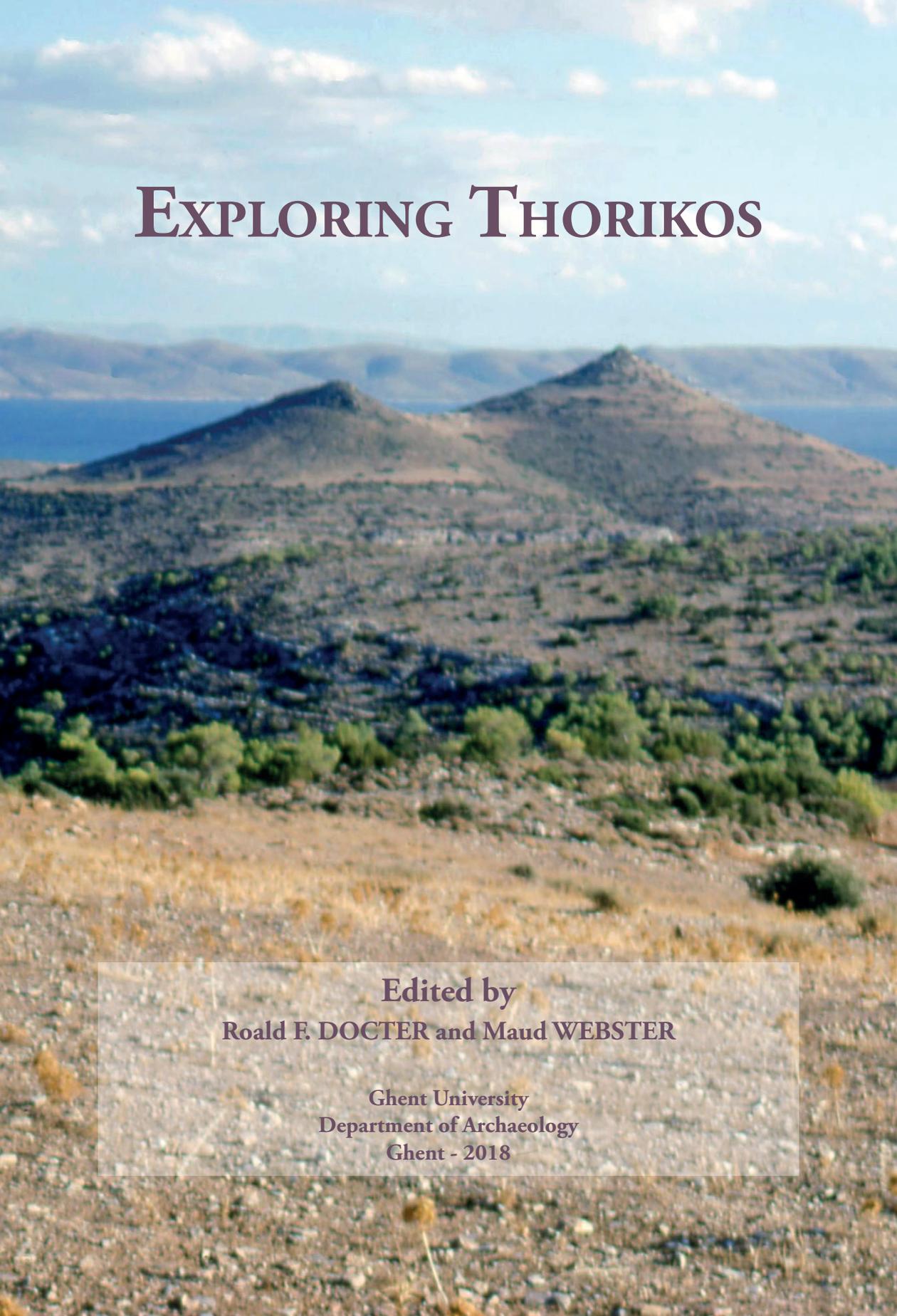


# EXPLORING THORIKOS



Edited by  
**Roald F. DOCTER and Maud WEBSTER**

Ghent University  
Department of Archaeology  
Ghent - 2018



# *Exploring Thorikos*

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Ghent  
2018

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Cover illustrations: (front): The double-peaked Velatouri hill seen from the west; the island of Makronisos in the background, 1974 (photo: Thorikos archive). (back): Drawing architecture in the field, West Necropolis 2014 (photo: T. Pieters). The site map, prepared by C. Stal, A. Deruyck, A. De Wulf and R.F. Docter, is to be found on pages 6-7.

Illustration on pages 5, 12, 16, 18, 20, 34, 52, 57, 69, 71 and 72: Ceramic pomegranate, 735-720 BC (TC65.598, Thorikos archive/KVG).

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Roald F. Docter and Maud Webster, eds.

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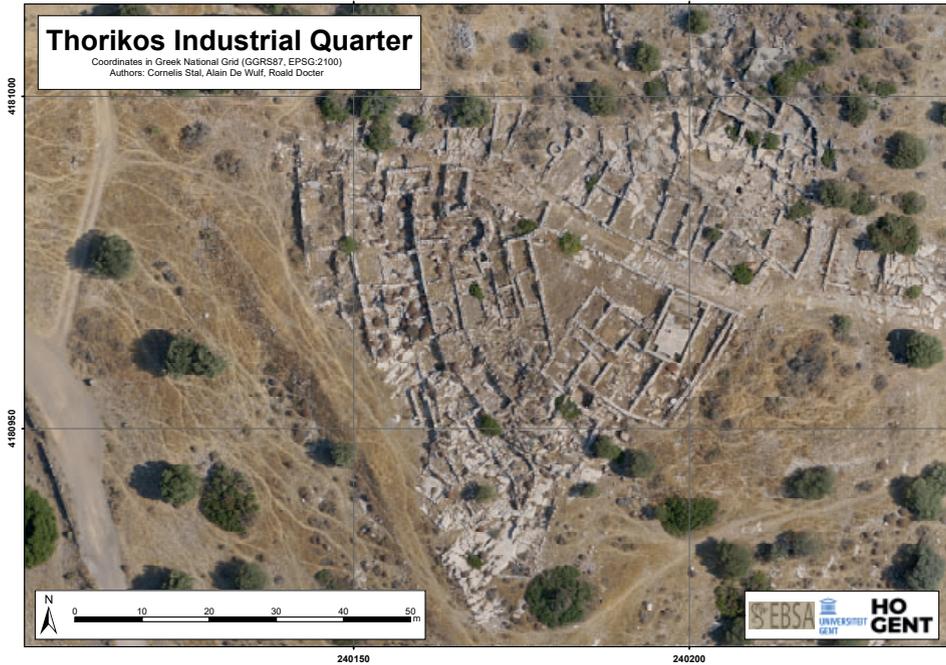
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*Orthophotograph of the Industrial Quarter  
(Photo: CS)*



# Thorikos - Velatouri

Coordinates in Greek National Grid (GGRS87, EPSG:2100)  
Authors: Cornelis Stal, Arne Deruyck, Alain De Wulf, Roald Docter  
Compilation of various data sources (2018)

## Legend

-  19th century furnaces
-  Cistern
-  Geodetic point
-  Mine
-  Mine shaft
-  Mycenaean tomb
-  Tower
-  Washery
-  Reference poles
-  Fortification wall
-  Historic road
-  Modern road
-  Ridge
-  Terrace
-  Zones

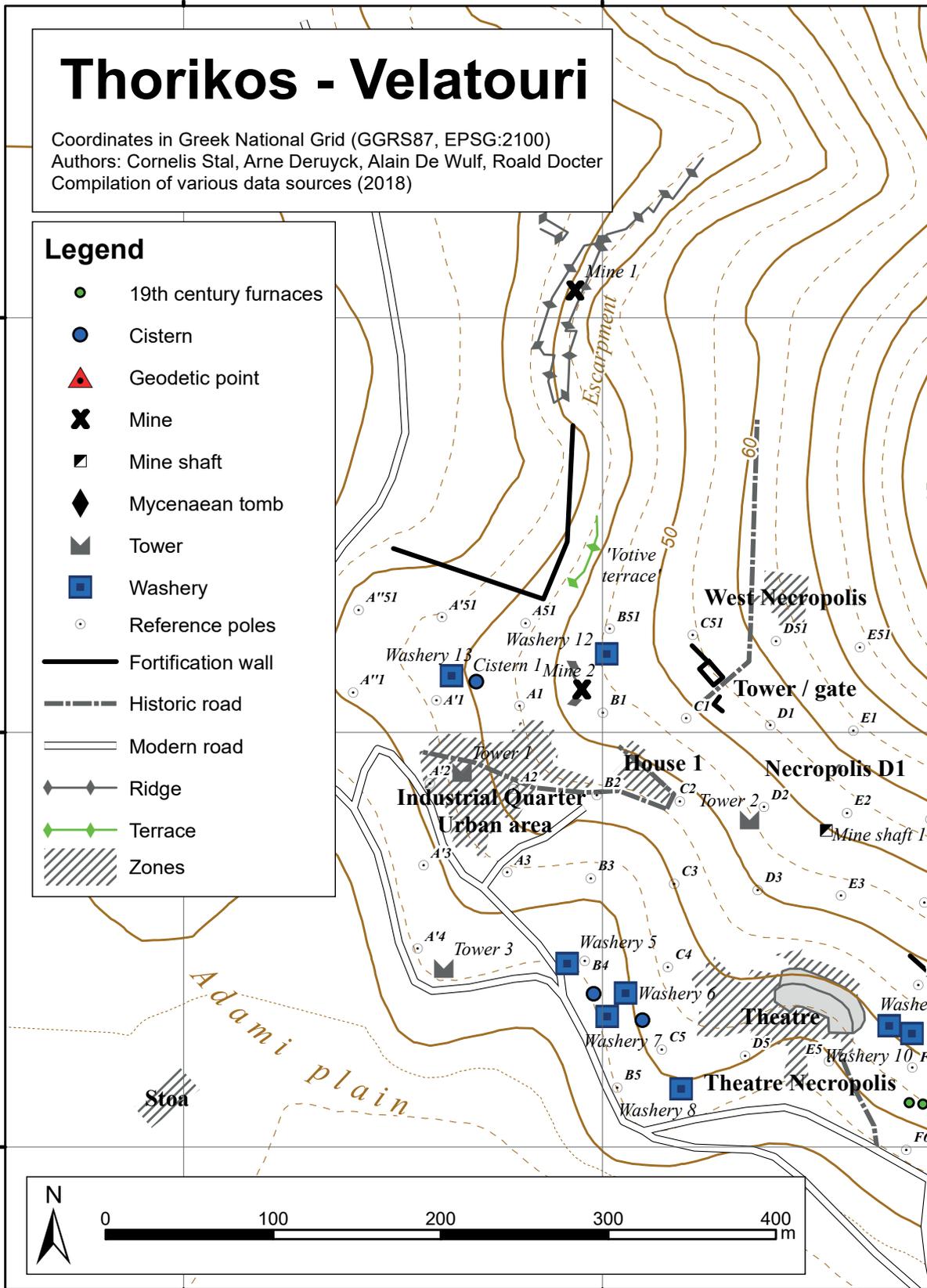
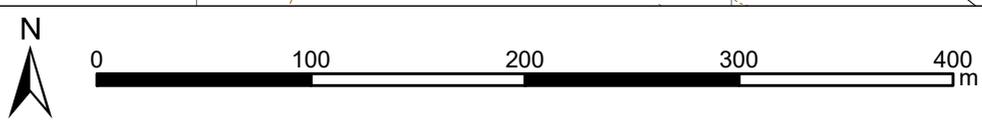
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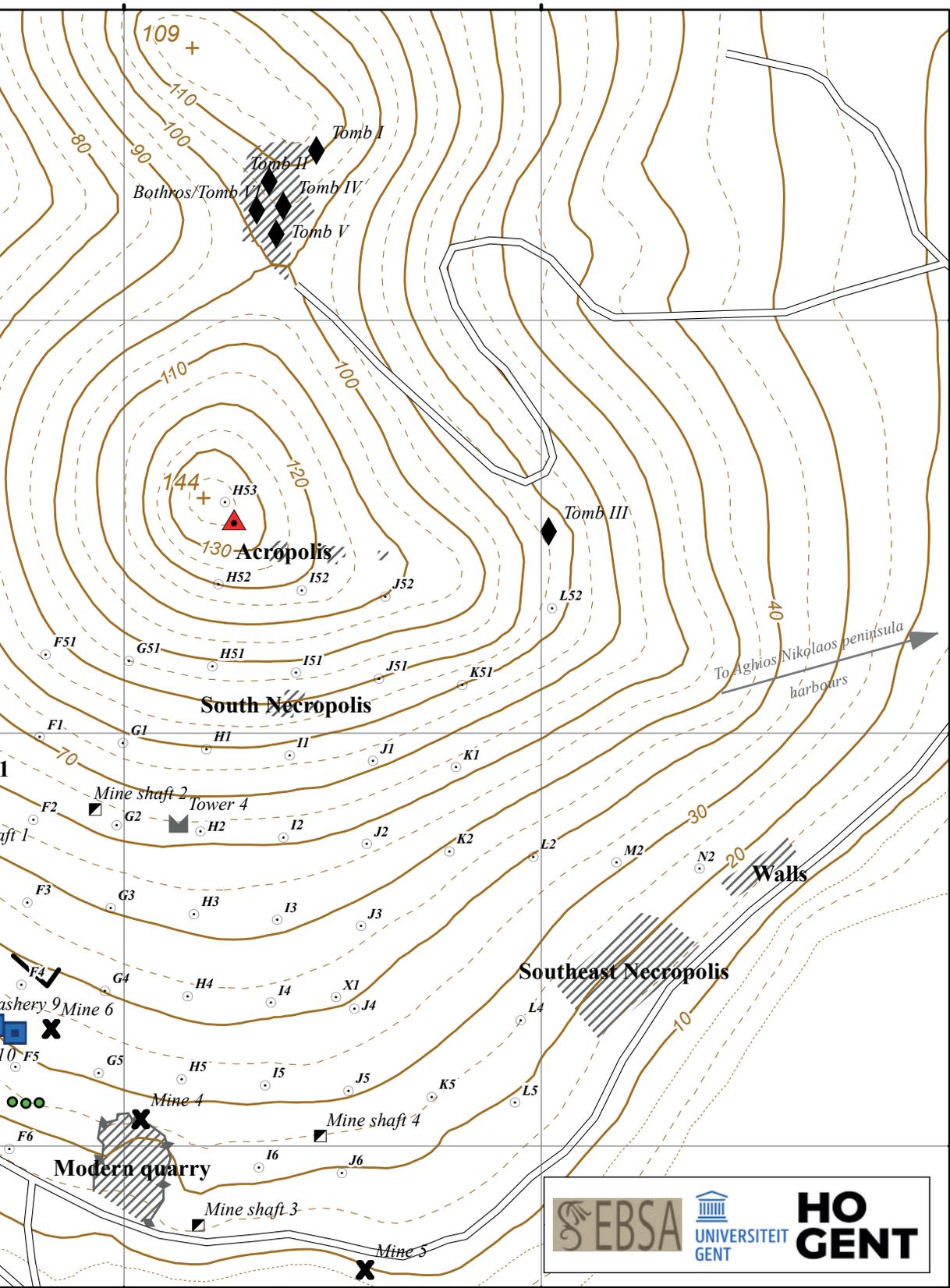
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## Foreword

This publication has been conceived as a comprehensive guide to the archaeology and excavation history of the site of Thorikos, and at the same time a presentation of ongoing work and a preview of new undertakings – a mission statement of sorts for the five-year fieldwork project currently under way (2018–2022). Growing out of a strictly Belgian initiative led by the universities of Ghent and Liège, the Thorikos Project has become a truly international research program, involving more than 40 scholars affiliated to 12 universities and other institutions, as well as countless students and volunteers. Rather than having one or two authors covering the many aspects of this complex site and its exploration, we are therefore happy to have the specialists themselves present their work in a multi-authored collection of texts, highlighting both the coherence of the project and the collaborative spirit that underlies it. The resulting book is intended for the general, interested public as well as for specialists.

The monograph written by the project's previous director Herman Mussche in 1998 remains indispensable for a more in-depth account of the archaeology of Thorikos before c. 1990, but previous general guides to the site date to the -70s and -80s of the last century and are both out of print and outdated at this point (Mussche 1974; 1978; 1986). In the years since, the site has been briefly treated in a guide to the Lavreotiki and the Lavrion Museum published by the Hellenic Ministry of Culture (Salliora-Oikonomakou 2007) and in a book accompanying an exhibition held at the Numismatic Museum of Athens (Iossif, ed. 2010). A local publication has also been dedicated to the ancient theatre at Thorikos and its partial restoration (Dermatis and Manthos 2010). For other relevant and scholarly literature, the academic readership will find an extensive reference section at the end of this book.

We are sincerely grateful to the contributing authors for agreeing to participate in this venture so swiftly, and to Victor Martínez Hahn Müller for taking on the layout in the same enthusiastic manner. Many preliminary and comprehensive publications on both old and recent fieldwork are currently in advanced stages of preparation, and it is hoped that the spirit of rapid publication informing the present book will have a favourable influence on the scholarly venues as well.

Roald F. Docter and Maud Webster, 30 November 2018



*View of the Velatouri hill with surroundings seen from the west, the island of Makronisos in the background (Thorikos archive).*

## **1. Introduction: Thorikos Through Time**

The site of Thorikos occupies the coastal northeast of the Lavrion area or Lavreotiki, a metalliferous region of Attica, Greece. The ancient town or deme comprised three areas: a double-bay harbour by the Aghios Nikolaos peninsula, the Adami plain with the lower reaches of the Potami valley, and the double-peaked Velatouri hill, c. 144 m asl, which has seen human activity since the Final Neolithic period (c. 4100-3100 BC). The Velatouri is also the focus for the archaeological research briefly surveyed here, and presented more fully in the following sections.

The presence of a defensible hill, a viable seaport and a valley plain were all sufficient reasons for human settlement here, but there was more to Thorikos than this: its bedrock consists of layered marble and mica-schist bearing lead ores rich in silver. Mining began on the Velatouri in the Final Neolithic or Early Bronze Age, probably around 3200 BC. From the Middle and Late Helladic periods of the Bronze Age (c. 2000-1050 BC), architectural remains are extant as well as pottery and stone tools, and several significant tombs have been explored,

one of which is a monumental *tholos* or beehive-shaped, dry-laid masonry tomb – a rare Attic example of the elite tradition known as Mycenaean. From the Iron Age, the remains unearthed so far consist mainly of graves, buildings and pottery, some of which features the characteristic decoration which gives its name to the so-called Geometric period. The subsequent Archaic period has left little behind in terms of architectural or metallurgical data, but a considerable number of tombs are extant from this time, and the pottery repertory is rich and variegated.

In the early 5<sup>th</sup> century BC, a stone theatre was built at Thorikos, and its approximate date of construction makes it one of the oldest known in the ancient world. It has an unusual, elliptical-angular shape and, like the deme of which it became an integral part, it was altered over time – monumentalized before the Peloponnesian War (431-404 BC), enlarged afterwards, and associated to assembly halls and a small temple for Dionysos. Overall, the complex archaeological record encountered at Thorikos reflects, in particular, intensified activities during the Classical period: in the 5<sup>th</sup> and 4<sup>th</sup> centuries BC, this became a remarkably multifaceted town where houses, graves, roads and shrines were juxtaposed to industrial installations such as mines, ore washeries, cisterns and towers. Sacred features, aside from the several cemeteries, include a shrine in *Insula* 10 and a hill terrace with carved sockets for *stelai* uprights – perhaps votive, perhaps funerary. Ore furnaces, however, were located off-site, near the harbour and in the hinterland. In the Adami plain, a monumental Doric stoa was built, perhaps as part of a sanctuary for Demeter. This *floruit* can be related generally to an increased use of silver (coin). The mines were owned by the Athenian state, and concessions for their exploitation were leased to entrepreneurs with workforces consisting of slaves and labourers, many of whom came to live on-site.

Less archaeological data has so far come from the Hellenistic period, and an important coin hoard stashed in a house in the urban area around 295 BC is commonly taken to signal an abandonment, connected to the Macedonian presence in Attica. This impression is tempered, however, by a fair amount of Hellenistic pottery and evidence of contemporary activity in some mines. In the early Roman imperial period, Thorikos was probably only sparsely occupied, but there was a new surge including prospecting and probably habitation in the 6<sup>th</sup>-8<sup>th</sup> centuries AD, before the vivacious settlement around the Velatouri fell silent.

It came to life again in the 19<sup>th</sup> century AD, when mining was resumed – and archaeological interest took hold.

MW

References: Mussche 1998; Salliora-Oikonomakou 2007.

## 2. A History of Archaeology at Thorikos

Several topographical studies were undertaken in the Lavreotiki in the 18<sup>th</sup> and 19<sup>th</sup> centuries AD, and the outstanding features of Thorikos were explored: the stoa in the Adami plain by French architect J.D. Le Roy in 1754, the British Society of Dilettanti in 1813 and the Greek Archaeological Service in 1893; the theatre by the American School of Classical Studies in the 1880s, and Mycenaean tombs III and IV and their surroundings by Valerios Staïs for the Greek Archaeological Service in 1888-93. The Aghios Nikolaos harbour (and more) was documented by German scholars Arthur Milchhöfer and Johann Kaupert.

The harbour was also the starting point for the more recent history of archaeology here, beginning in 1960 with Herman Mussche. Between 1963 and 1989, he directed 23 campaigns at Thorikos for the Committee for Belgian

*Exploration of the stoa in the Adami plain in the 1890s  
(photo: courtesy of DAI Athen, No. D-DAI-ATH-Attika-0011).*



excavations in Greece. The work, co-directed by Jean Servais, Guy Donnay, Tony Hackens, Paule Spitaels and Doris Vanhove, included re-examinations of the stoa (long thought to represent a temple), the theatre and the Mycenaean tombs, as well as extensive excavation of the urban area on the Velatouri and its manifold installations – the so-called Industrial Quarter. There followed two decades of intermittent surveys and soundings, and organization of the growing database; meanwhile, the stoa was excavated by Vasileios Petrakos and Maria Oikonomakou for the Greek Archaeological Service.

In 2004, new fieldwork by the Belgian School at Athens began with Robert Laffineur of Liège University and in 2006 with Roald F. Docter of Ghent University, initiatives which expanded into a multicollegial, interdisciplinary project under the auspices of the Greek Ministry of Culture and the Ephorate of Antiquities of East Attica. In 2010-12, industrial cistern no. 1 was excavated, and in 2012-17, a surface survey of the Velatouri was carried out by the universities of Ghent and Utrecht (Roald F. Docter and Floris van den Eijnde), while Denis Morin and his team from the University of Lorraine further explored the mines.

In 2018, new excavations began under the direction of Docter and van den Eijnde, and a survey of the northern part of the Velatouri was undertaken by Laffineur and Sylviane Déderix of Heidelberg University. Andreas Kapetanios of the Ionian University and Roald F. Docter are currently re-assessing the theatre excavation results for comprehensive publication, and Johannes Bergemann and his team from Göttingen University are preparing the results from House 5 in the Industrial Quarter. A range of other contexts and assemblages is also under study and below, members of the international team present themes of current interest and aspects of their recent work.

MW

References: Le Roy 1758, I: 3-4; The Society of Dilettanti 1817/1833; Staïs 1893 and 1895; Miller 1885-86; Cushing 1885-86; Curtius and Kaupert 1887/1895-1903; Mussche 1961 and 1998; *Thorikos I-XI*; Miles 2015; Petrakos 1995; 1996; 1997; 1998.



### 3. The Site and its Topography

Archaeological fieldwork at Thorikos is heavily supported by topographic measurements. Since 1963, three periods of exploration can be determined, corresponding with three very important phases in surveying engineering. The first (1963-88) represents classical land surveying. Optical instruments like a theodolite in combination with a horizontal invar staff and a compass were used. An important legacy of this period is the local system, materialized in a 50x50 m grid with concrete markers. The second period (1989-2005) was characterized by the introduction of electronic surveying and digital data registration. So-called total stations and personal computers significantly improved the acquisition



*Topographic measuring on the acropolis: the summit of the Velatouri in the background; geodetic point to the left (photo: RFD).*

and processing of data, and another essential development was the introduction of the Global Navigation Satellite System (GNSS). Since 1997, Real Time Kinematic GPS (Global Positioning System) has been deployed as a portable system for fast, point-wise mobile and static data acquisition. Most important, using GNSS, accurate absolute coordinates (georeferencing) could now be assigned to all topographic measurements, and to the materialized grid system in particular. The third and last period (2006–) sees the continuation of digitally acquired spatial data. Various high-tech sensors are deployed in the field, ranging from Ground-Penetrating Radar (GPR) to robotic total station



*Concrete pole marking the northwest corner of Macrosquare E3  
(Photo: RFD).*

measurements and terrestrial and aerial-based (UAV) 3D modelling. The high degree of data integration and the introduction of geomatics as a combination of surveying engineering and geo-information sciences constitute significant contributions to the archaeological research.

ADW, CS

References: Van Liefferinge *et al.* 2011; De Wulf *et al.* 2000; Stal *et al.* 2014; Stal and De Wulf, forthcoming.

#### **4. Geophysical Investigations**

Geophysical investigations encompass a broad range of non-invasive techniques that measure contrasts in the properties of the soil (*e.g.* electrical resistance or magnetic susceptibility) in order to map the subsurface. They are frequently used on archaeological



*Magnetometry on the acropolis  
(photo: RFD).*



*Soil resistance testing on the acropolis  
(photo: SyD).*

southeast slope, the West Necropolis and the acropolis in 2014, and again on the acropolis in 2018. Ground-Penetrating Radar (GPR) was used on the lower south slope in 2009, on the Aghios Nikolaos Peninsula in 2013, and on the acropolis in 2018, when soil resistance was tested again as well. Soil resistance techniques investigate the propagation of

sites to document the nature and extent of buried remains of past human activities, without or prior to excavation. At Thorikos, several different techniques have been applied in various sectors of the Velatouri and beyond, starting with a geo-electric resistivity survey around the stoa in 1968. More recently, magnetometry was employed on the lower south slope in 2010, on the

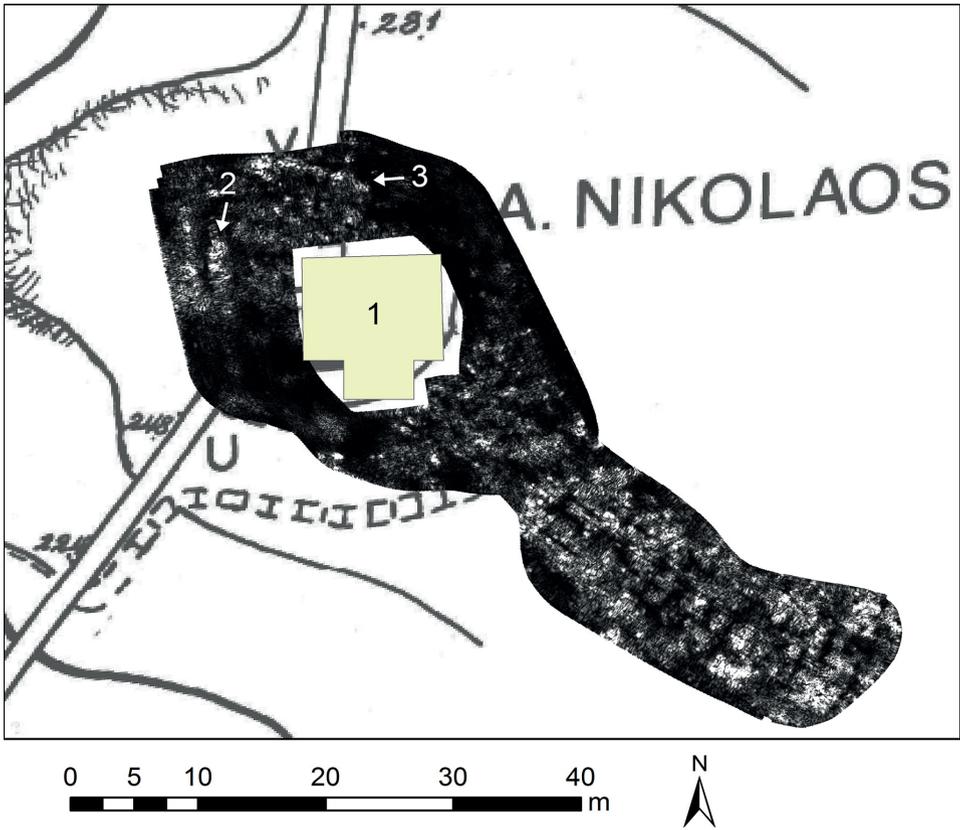


*GPR on the acropolis  
(photo: M. Manataki).*



*GPR with quad traction on the  
Aghios Nikolaos peninsula  
(photo: RFD).*

electrical current into the ground, enabling detection of features that contrast with the surrounding soils in porosity, density and water content (*e.g.* walls, cavities). Magnetometry measures anomalies in the earth's magnetic field caused by the presence of buried features, the magnetic properties of which differ from the natural background. It is best suited to identify magnetically enhanced remains and deposits such



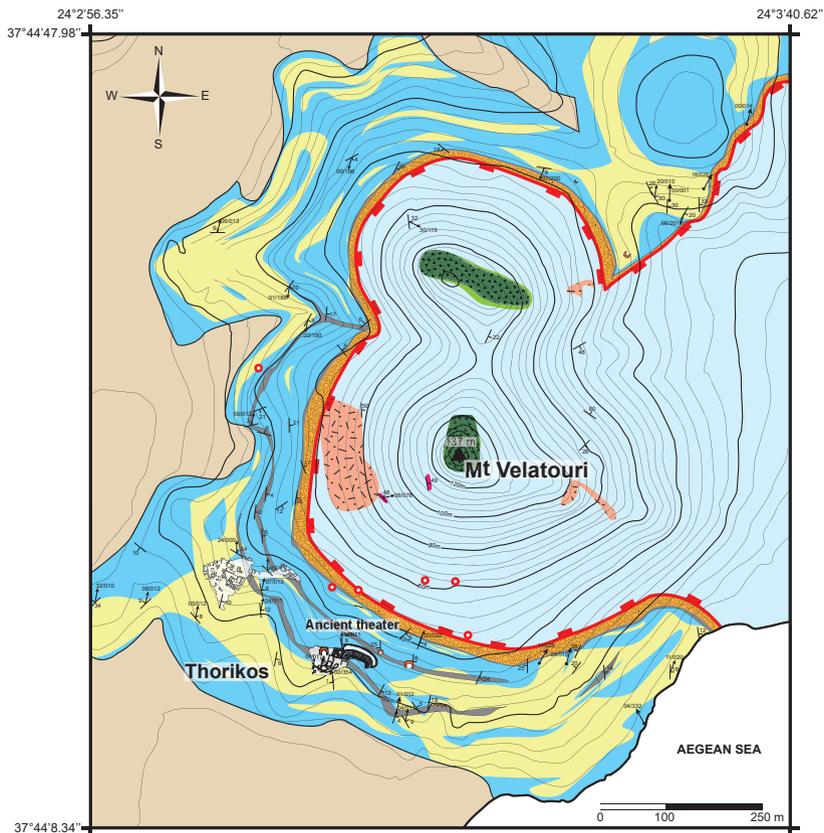
*GPR depth-slice (depth: 70-75 cm) of the Aghios Nikolaos peninsula:  
 1. church; 2. possible terrace wall; 3. pre-modern structure annex, probable tower of the late 5th century BC (image: LV).*

as pits, ditches, hearths, kilns and structures destroyed by fire. Finally, GPR, which measures the reflections of electromagnetic waves by subsurface targets, is ideal to map f.ex. buried stone structures, voids, ditches and pits.

MPR, AS, SyD, LV

References: Paepe 1971; Posselt & Zickgraf 2010, 2-4; Sarris (ed.) 2015; Sarris 2017.





**Legend**



*Geological map of Thorikos  
(drawing: ChS).*

## 5. The Geology of Thorikos

The Lavrion area corresponds to the exposed western part of the Attico-Cycladic complex of Cenozoic metamorphic rocks. Between Eocene and Miocene time, metamorphic rocks (mainly of marble and schist alternations) recorded successive stages of deformation-metamorphism reflecting construction and collapse of the Hellenic-Aegean belt. In the Lavrion area, Miocene exhumation is marked by the development of the West-Cycladic Detachment System, associated with the emplacement of magmatic dykes and sills with calc-alkaline affinities, leading to the formation of several base metal deposits (Pb-Zn-Ag-Au-Cu). The Velatouri hill is well known for its Pb-Zn-Ag mines, exploited since prehistory,

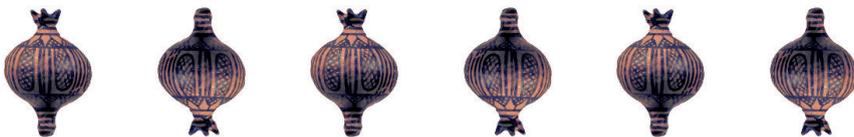


*Argentiferous galena with cerrusite from Kamariza, Lavrion  
(photo: PV).*

and illustrates perfectly the nappe stack organization of the entire area: the base of the Velatouri exposes the so-called Lower Unit, consisting of a pure, white, mylonitic (fine-grained) marble, transposed into an almost horizontal foliation and alternating with impure, blue marble. Toward the top, the marble loses its mylonitic fabric and grades into a fractured, so-called cataclastic fabric, evincing intense fluid circulation and fluid rock interaction during the development of the low-angle detachment fault which marks the transition to the Upper Unit, mainly made of Lavrion schists overlain by deformed, basic oceanic green rocks. Ore deposits rich in Pb-Zn-Ag and breccia are mainly localized within the marble and cataclastic rocks in the Lower Unit, below or within the low-angle detachment. Sulfide ore is mainly of galena, sphalerite, bournonite, perroudite, acanthite and native silver cemented by fluorite, carbonate, barite and quartz gangue minerals. The silver content exceeds 200 ppm (g/t).

ChS, PV, AT, OV, AP

References: Scheffer *et al.* 2016; Voudouris *et al.* 2008; Conophagos 1980; Scheffer *et al.* 2017.





*Archaeological survey on the southeast slopes of the Velatouri  
(photo: RFD).*

## **6. The Thorikos Survey Project (TSP)**

Between 2012 and 2015, a Ghent-Utrecht team conducted an intensive survey on the south slopes of the Velatouri, covering the area of the lower town of Thorikos as well as parts of the acropolis. In 2018, a team from Louvain-la-Neuve and Liège resumed the survey, extending it to the north, with the aim of completing the surface investigation of the whole hill. The project has several aims. The main goal is to connect the records of the various, dispersed excavations within a unified documentation to allow for a better understanding of the site's historical development and shifts in settlement pattern. Secondly, the comprehensive approach will shed light also on remains from understudied periods, most notably the Neolithic through Early Bronze Age and the post-classical period. Finally, the results are expected to increase our understanding of the socio-economic relationships between Thorikos and the wider region.



*Counting and checking finds in the field  
(photo: FvdE).*

The survey was carried out by field-walking. First, the pre-existing 50x50 m macrosquares were divided in four. Four students then walked each resulting mesosquare for 20 minutes, which enabled the team to scan the entire surface for finds and features, paying equal attention to each square while avoiding dangerous areas – shafts, cliffs, dense maquis etc. Aside from observing the artefact-scatter, close attention was paid to architectural remains, mine shafts and entrances, and rock graffiti. The 2012-15 field-campaigns were followed up by material processing campaigns until 2017, as students and professionals from several European universities joined to classify and document the 56,898 finds. These include metallurgical residues such as slags and litharge, lithics such as grinding stones and obsidian, and

ceramics. The pottery chronology is very extensive, spanning the Final Neolithic to the Early Modern period.

FvdE, AB, SyD, RFD

References: Nazou *et al.* 2018; van den Eijnde *et al.*, forthcoming.

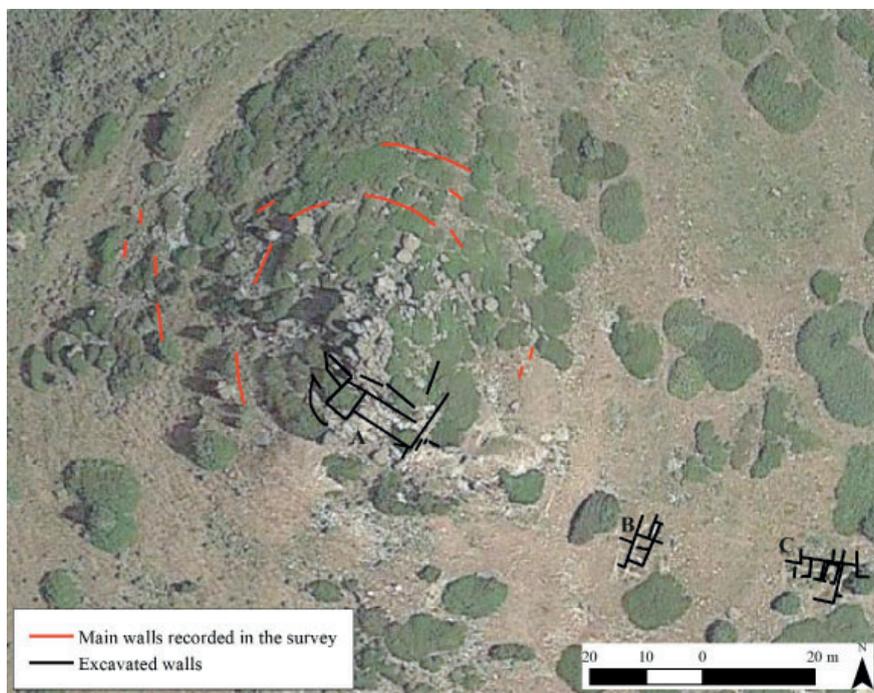




*Sector of the settlement excavated by V. Staïs south of the Velatouri summit  
(photos: SyD).*

## **7. The Final Neolithic and Bronze Age Occupation**

The first traces of human occupation at Thorikos are rooted in prehistory, and seem to relate to the beginnings of mining and metallurgy in the Lavreotiki. Final Neolithic sherds collected near the entrance of Mine no. 3 on the lower south slope of the Velatouri suggest that the ore available as natural outcrops on the surface may have been exploited already during the 4<sup>th</sup> millennium BC. Such a discovery finds resonance at other sites in eastern Attica (*e.g.* Koropi, Merenda), where evidence suggests silver processing at an early date. At Thorikos, the extraction of argentiferous lead ores increased in the Bronze Age (Early Helladic II, c. 2650-2200 BC), when the gallery of Mine no. 3 started to be dug into the hillside, and the local community was involved in regional networks of exchange that included Siphnos, the Saronic Gulf and the Mesogaia plain. Pottery data indicate that the acropolis of the Velatouri was inhabited during the Final Neolithic and Early Helladic III periods, but Early Helladic I and II evidence is currently lacking from the upper slopes. In contrast, a possible Early Helladic



*Location of some of the ancient walls identified in 2018, in relation to excavated buildings.  
A: settlement excavated by V. Stais; B-C: trenches opened by J. Servais  
(image: SyD).*

II settlement has been identified to the northeast of the Velatouri, in the coastal area that is now occupied by a modern electrical plant.

Most buildings discovered on the acropolis so far belong to the Middle Bronze Age (19<sup>th</sup>-17<sup>th</sup> c. BC) and the early Mycenaean period (17<sup>th</sup>-15<sup>th</sup> c. BC), which represent the apex of prehistoric Thorikos. Impressive settlement remains were excavated in the 1880s by V. Stais immediately to the south of the rocky summit of the Velatouri, and J. Servais discovered final Middle Helladic and/or early Late Helladic material in the three trenches he opened on the plateau to the east in the 1960s. The survey conducted in 2018 moreover enabled the identification of potentially prehistoric walls on the west and north slopes, and the settlement data thus suggest quite an extensive occupation. Furthermore, the construction of monumental tombs to the east of the settlement (Tomb III) and on the saddle (Tombs I-II, IV-VI) demonstrates that Thorikos had become a major center ruled by an elite by the beginning of the Late Bronze Age.

The economic, social and political changes documented here at that time probably took place in relation to an increase in metallurgical activities in the Lavreotiki, which became a significant provider of metals in the Aegean and the wider East Mediterranean and turned Thorikos into a major economic partner. This scenario is corroborated by imported pottery from Aegina, the Cyclades, Boeotia, the Peloponnese and possibly Crete, showing that Thorikos participated in long-distance networks of interaction during the Middle Helladic and early Mycenaean periods. According to available data, the community of Thorikos thrived until the 15<sup>th</sup> century BC (Late Helladic IIA), after which the site may have declined, but later finds from Mine no. 3 (Late Helladic IIIC) demonstrate that ores continued to be exploited until the end of the Bronze Age (12<sup>th</sup> c. BC) – and beyond.

RL, SyD, NP, MN

References: Laffineur 2010a; Servais 1967 and 1968a; Servais and Gasche 1971; Servais and Servais-Soyez 1984; Spitaels 1982 and 1984; Mountjoy 1995; Nazou 2014; Papadimitriou, forthcoming; Andrikou, forthcoming; Nazou, forthcoming 1 and 2.

*Red burnished jar fragment, Mine no.  
3, c. 2650-2200 BC  
(cat. no. MI508, photo: ERA).*





*General view of Tomb V and Tomb IV seen from the south  
(photo: RL).*

## **8. The Mycenaean Tombs**

The Mycenaean graves at Thorikos illustrate perfectly the evolution of tomb types in mainland Greece in the 2<sup>nd</sup> millennium BC. Their monumental character and quality of construction testify to the existence of a local elite, and some of their features and finds indicate external contacts, with the Argolid and Messenia in particular. Although all had been looted before archaeological investigation, the evidence they provide is considerable.

The earliest burial is Tomb V, on the saddle between the two summits of the Velatouri: a cist grave enclosed by a rectangular construction (7.80 x 5.80 m), covered by a tumulus and surrounded with a circular retaining wall (17.50 m in diameter). Extant offerings point to a date at the beginning of the Mycenaean era (Late Helladic I, 16<sup>th</sup> century BC). An oblong shaft near the retaining wall of Tomb V was thought to be a cult place by V. Stais, its excavator, who called it a *bothros*, but it is probably a burial place. If so, it would be the third oblong



*Mycenaean Tomb IV, view of the chamber  
(photo: RL).*

tomb discovered on the Velatouri so far (see below), and I have proposed to call it Tomb VI. Middle Helladic sherds from its lower levels indicate an early date between the Middle and Late Bronze Age.

Tomb IV, immediately to the north, is oblong. The chamber plan and the structure of its covering are intriguing, and without parallels in the Aegean. But the main features of the later *tholos* (Tomb III, below) are already present here: a circular *peribolos* wall (30 m in diameter), functioning both as a retaining wall and as a symbolic enclosure, and an invisible relieving triangle (of limited efficacy). Excavations yielded repoussé gold sheet ornaments reminiscent of specimens from the acropolis shaft graves at Mycenae, and final Late Helladic I pottery, probably contemporary with the construction of the tomb just before 1500 BC.

Tomb III is the only true *tholos* on the site. It features an invisible relieving triangle (unlike the later, 13<sup>th</sup>-century BC *tholoi*, the Treasury of Atreus and the Tomb of Klytemnestra at Mycenae), and a circular *peribolos* wall (32.50 m in diameter). The chamber walls present an inward-tilting profile and the angle

value increases from bottom to top, like in tombs at Kakovatos in Triphylia and Prosymna in the Argolid. A date shortly after 1500 is indicated by grave-goods such as a Late Helladic IIA gold ornament in the shape of a figure-eight shield and an ivory *pyxis* or cylindrical box with running spirals in relief, with parallels at Ano Englianos (Pylos) and Routsis in Messenia.

Tombs I and II, to the east and west of Tomb IV respectively, are ‘built chamber tombs’. Tomb I is oblong, with access through a short corridor or *dromos*, and yielded a squat *alabastron* of Late Helladic IIA type, stone beads and some gold jewellery. Tomb II is L-shaped, like the ‘gamma tombs’ at Eleusis, with a short *dromos* and a partition wall closing off the rectangular chamber. The only significant find here was a *kylix* (stemmed drinking cup) of Late Helladic IIIA2/IIIB type (1350-1250 BC).

The Mycenaean tombs at Thorikos have also revealed significant evidence of practices of a mnemonic character in historical times. A low platform (altar?) leans against the external face of the retaining wall of Tomb V, and the Archaic and Classical painted pottery found in the upper layers of the tumulus is probably connected to some kind of cult honouring the deceased, who were evidently celebrated several centuries after their passing. The upper layers of Tomb I produced terracotta figurines and sherds from the 7<sup>th</sup> to the middle of the 4<sup>th</sup> century BC, and above the Mycenaean shaft, a rectangular stone plaque had been placed. Close to this, a circular shaft had been dug to receive offerings, and similar finds were made in Tomb VI (the ‘*bothros*’). Together with the construction skills and

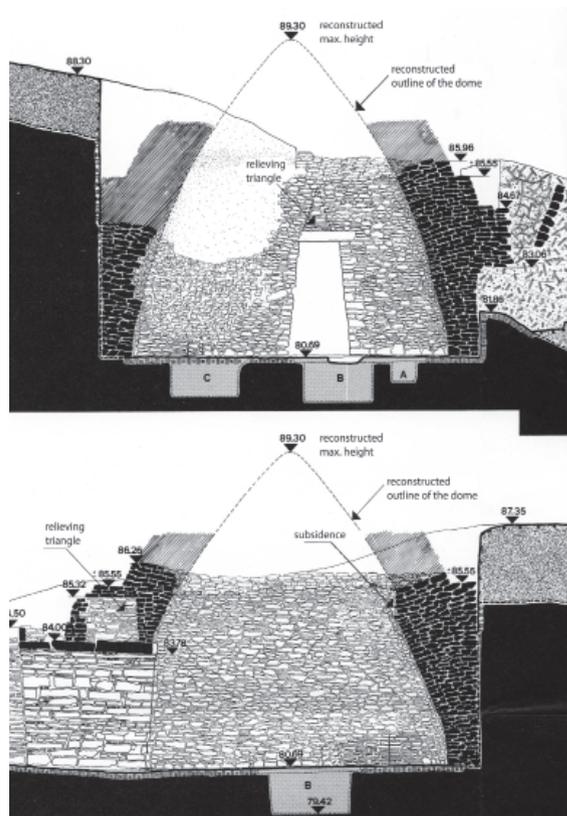
*Sheet gold pendant with a butterfly in repoussé (3.7 cm),  
Mycenaean Tomb IV  
(Archaeological Museum of Piraeus, photo by permission: RL).*



the external contacts evinced by the tombs themselves, such remembrance is an additional hint of the high status of the elite ruling Thorikos around the middle of the 2<sup>nd</sup> millennium BC. Their position and power probably originated from the exploitation and trade of the metal resources here.

RL

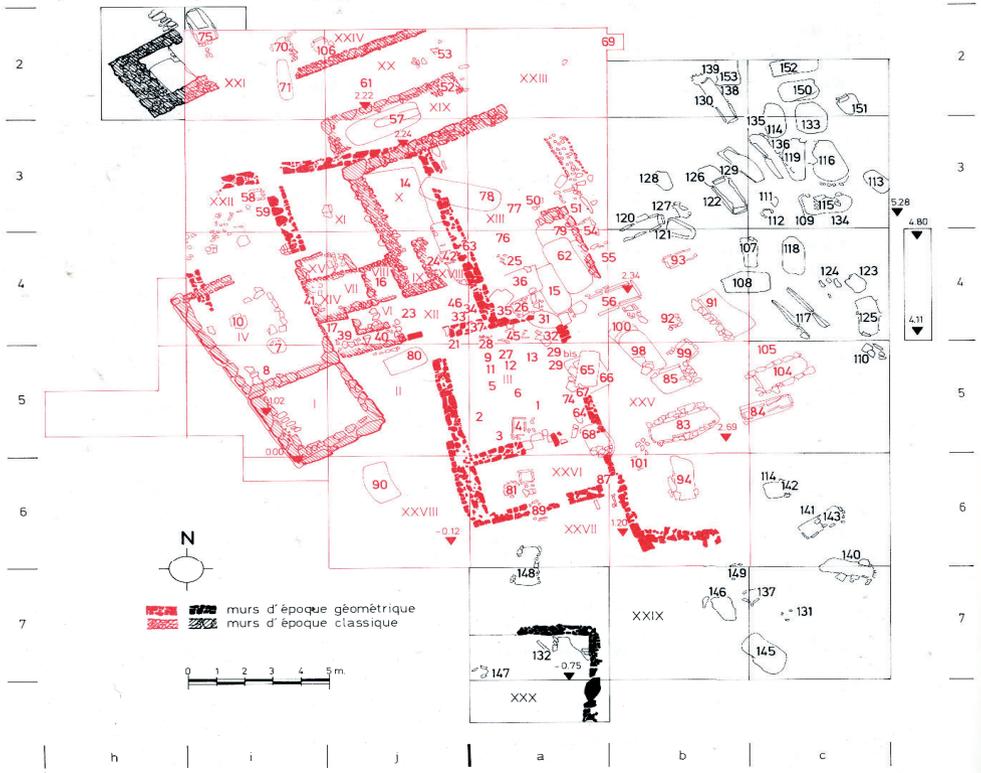
References: Servais 1968a; Servais and Gasche 1971; Pelon 1976, 223-28; Servais and Servais-Soyez 1984; Travlos 1988, 430-32, Fig. 547; Devillers 1988; Kilian-Dirlmeier 1997, 88-91; Cremasco and Laffineur 1999; Papadimitriou 2001, 91-100; Laffineur 2010a and 2010b; Phialon 2011, 217, 242 and 246-249; Privitera 2013, 132-40; Laffineur, forthcoming.



*Mycenaean Tomb III, sections  
(after Servais and Gasche 1971, pl. 4).*

## 9. The Early Iron Age Occupation

Early Iron Age evidence of habitation and industrial activities has been detected below the summit of the Velatouri and on its western slopes. A complex of rooms sharing a common porch near the summit (G-J-L-H) seems to have been founded in the late 9<sup>th</sup> century BC and saw a main period of use spanning the last decades of the 8<sup>th</sup> and the first of the 7<sup>th</sup> century BC. The rest of the Early Iron Age structures discovered so far are located in the West Necropolis. The earliest building, consisting of three rooms (XXI, X-XII and III), was probably built at the end of the 10<sup>th</sup> or in the early 9<sup>th</sup> century and destroyed around 850 BC. It has been assigned an industrial use related to silver production. Room III was rebuilt in the second half of the 8<sup>th</sup> century, when a closed porch (XXVI)



*Plan of the West Necropolis  
(after Bingen 1984, 72, fig. 34).*

was added, and remained in use for a limited period of time until the early 7<sup>th</sup> century, when an urn burial destroyed its southeast corner. The smaller Building XXX to the south seems to have been occupied from the end of the 10<sup>th</sup> until the late 8<sup>th</sup> century BC. Although situated in the cemetery, these buildings represent part of a habitation quarter which does not seem to have served any special ritual or funerary purposes. Building III/XXVI is slightly earlier or contemporary with the earliest burials in its vicinity, dating to the third quarter of the 8<sup>th</sup> century. A cluster of Late Geometric inhumations in close proximity may represent the remains of its occupants.

AA

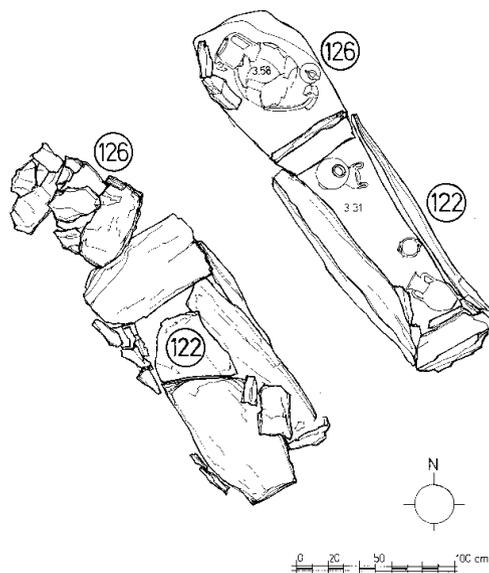
References: Bingen 1967a, 25-34; 1967b; 1969, 102-107; 1984, 144-46; Mazarakis Ainian 1997, 146-47 and 254; Van Gelder 2011; Alexandridou 2017; Van Gelder, forthcoming.

## 10. Early Iron Age Cemeteries

Since 1963, three cemeteries which include Iron Age graves with Geometric pottery, diagnostic of this period, have been excavated at Thorikos. The largest is the West Necropolis, which partly overlies a house from ca. 900-830 BC. In the 1950s, a grave had been discovered here by chance and dated to shortly after 850 BC, when the building was still in use; another had been dug not long after its

*Late Geometric pitcher with lid from grave 84  
in the West Necropolis, last quarter of the  
8<sup>th</sup> century BC, ht. pitcher 33 cm  
(TC66.184, photo: KVG).*



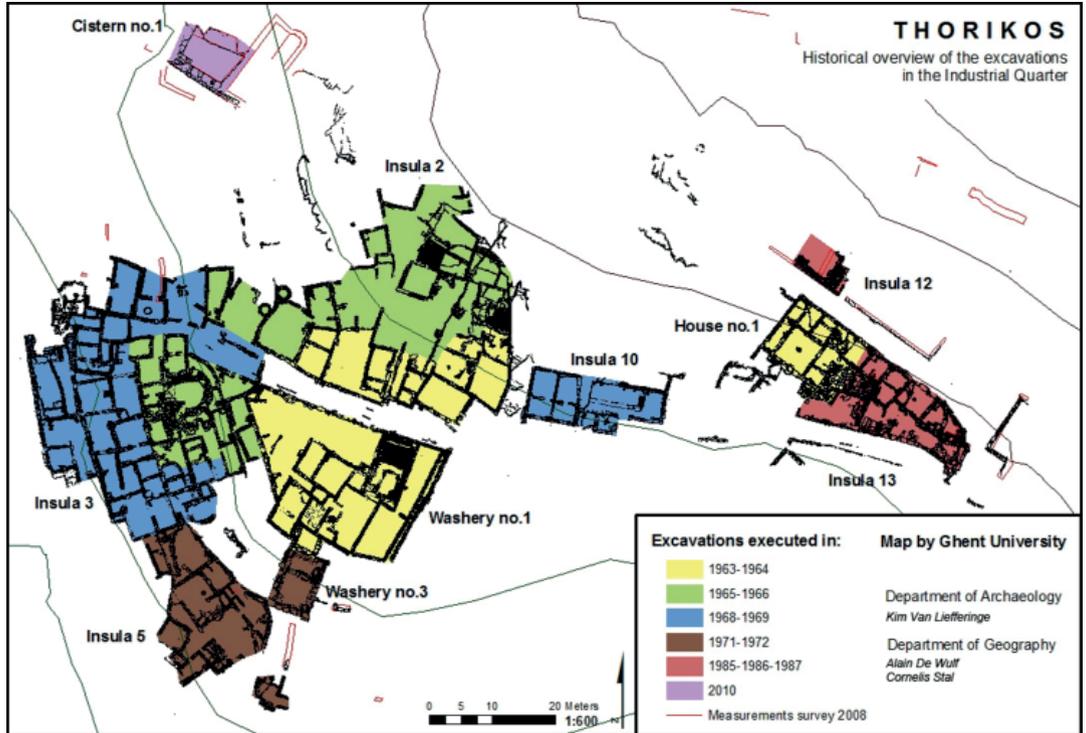


*West Necropolis: Late Geometric cist grave no. 122 (735-720 BC) and cremation grave in amphora (no. 126), early 7<sup>th</sup> century BC, left covered, right with contents (after Bingen 1984, 84, fig. 43).*

abandonment. But the oldest grave found during systematic excavations is dated to 740-735 BC, followed by Late Geometric and Subgeometric graves going into the 7<sup>th</sup> century BC. The tombs were diverse, including inhumations in cist graves and pit graves, jar burials of little children, and cremation graves in urns, sometimes partly protected by stone slabs. Also, some cremation areas or pyres were found. Very little true Protoattic pottery was recovered, but Protocorinthian pottery was present, and fragments of a monumental krater show that there were at least some above-ground grave-markers here, as in contemporary Athens. The West Necropolis, numbering some 140 graves, remained in use until the Classical period. Necropolis D1, a smaller cemetery with only a dozen or so tombs, contained one grave dating to the Late Geometric period; another can be dated near the transition from the Late Geometric to the early Archaic period; the remaining graves are Archaic and date to the 7<sup>th</sup> century BC. The South Necropolis contains ca. 20 graves of the Archaic period as well, but a Late Geometric cist grave was found some 10 meters away.

KVG

References: McDonald 1961, pl. 63-64; Bingen 1968; 1967a; 1967b; 1969; 1984; 1990a; Bingen and Bingen 1982, pl. IX-X; Mussche 1998, 22-29; Servais 1968b; Van Gelder, forthcoming.



*Overview of the excavations in the Industrial Quarter with indication of insulae and houses (after Van Liefferinge et al. 2011, 10, fig. 5).*

## 11. The Archaic-Classical Settlement

The Archaic settlement of Thorikos is almost invisible in architectural terms. Ceramics of the period have, however, been found in considerable densities, suggesting an extended inhabited area especially in the Industrial Quarter – where large-scale construction of houses in the later, 5<sup>th</sup> century BC may have obliterated or incorporated pre-existing house architecture. House/Insula 5, consisting of several rooms around an open courtyard, was excavated between 1971 and 1973 and has recently been studied with a view to comprehensive publication. It is exemplary for the local settlement sequence: some 10% of the 700 datable finds (recovered mostly from levelling fill layers), belong to the 6<sup>th</sup> century, while 12% date to the 6<sup>th</sup>/5<sup>th</sup> century, and 60% to the 5<sup>th</sup> century BC. Generally, the 5<sup>th</sup>-century assemblages consist of both common and fine household ceramics and vessels interpreted as utensils for ore-refining processes, such as wash-basins or



*Archaic and Classical ceramics from House/Insula 5.*

- TC71.1054: *lekane* rim, 5<sup>th</sup> century BC; TC71.1054a: spindle whorl;  
 TC71.374: amphora wall sherd, 2<sup>nd</sup> generation black-figure painters, 580-570 BC;  
 TC71.972: black-figure open vessel, 6<sup>th</sup> century BC;  
 TC72.207 and TC72.145: open vessels, 'Ragusa Group', early 6<sup>th</sup> century BC;  
 TC71.958: red-figure krater rim, 5<sup>th</sup>/4<sup>th</sup> century BC;  
 TC73.362: lamp, early 5<sup>th</sup> century BC  
 (plate: JB).

*lekanai*, found in seemingly disproportionate numbers: in House 5 alone, more than 290 such fragments have been found, 145 of them dated, mainly to the 5<sup>th</sup> century BC. The 4<sup>th</sup> century is also well represented in House 5, with c. 14% of the datable finds. This phase, following a temporary depopulation at the end of the Peloponnesian War (431-404 BC), is characterized by the implantation of metallurgical workshops within some of the pre-existing, 5<sup>th</sup>-century houses. The inhabited area seems now to have become confined to the lower Velatouri, where the mine entrances are also situated, while habitation on the acropolis appears to have come to a halt.

JB, RK, RFD

Reference: Mussche 1998, 52-53; Lüdorf 2000; van de Put, forthcoming.



*4<sup>th</sup>-century BC tomb precinct and stele base (left) in the West Necropolis seen from the southwest (photo: JB).*

## **12. Archaic-Classical Cemeteries**

The Archaic and Classical cemeteries of Thorikos are located to the north and, probably, to the southeast of the Industrial Quarter and the theatre, their designations deriving from their position vis-à-vis the acropolis (West, South and Southeast *necropoleis*) and the site's grid system (Necropolis D1). A fifth cemetery lies south of the theatre. Of the 227 graves found so far, only 94 contained datable material: of these, 45% belong to the Archaic period, 21% to the 5<sup>th</sup> century and 15% to the 4<sup>th</sup> century BC. The tomb monuments generally fit well into the established typology of late 5<sup>th</sup>- and 4<sup>th</sup>-century Attic grave architecture.



*White marble palmette stele of Charinos of Thorikos and his offspring from the West Necropolis, ht. 1.335 m, 370-350 BC (TE63.1, Thorikos archive /KVG).*

In the Early Iron Age- and Archaic West Necropolis, four Classical, terraced tomb precincts (*periboloi*) have been excavated next to a road. Their sculptures include an inscribed and probably painted *stele* belonging to a Charinos of Thorikos and his offspring, as well as fragments of marble vases, *lekythoi* and *loutrophoroi* – slender vessel forms traditionally associated with the funerary sphere. A *stele* base completes the picture, and in the area which we may now call the Southeast Necropolis, there is another. Nearby, geophysical research has revealed anomalies in the subsoil suggesting the presence of tomb precincts adjacent to the coastal road leading north. A trial excavation brought to light a grave of the Classical period, and the survey yielded a sculpture fragment of a horse’s leg, probably belonging to a 4<sup>th</sup>-century *naiskos* (small grave-temple). The fragment is carved from Agrileza marble, which occurs in the region. Further investigation of this area is scheduled.

JB

References: Bingen 1967b; Bingen 1968, 80-81, fig. 91; Labarbe 1977, 159; Bingen 1990a; Mussche 1998, 22-29 and 40-44; Servais 1968b; *SEG* XXIII, 134.



### 13. Thorikos in Myth

The picture offered by ancient texts and inscriptions regarding Thorikos remains fragmentary, but the town did have a role in mythology. Notably, in the Homeric Hymn to Demeter (123-128:16), the goddess is said to have come ashore at Thorikos while travelling from Crete to Eleusis. Hesychios, a 5<sup>th</sup>-century AD lexicographer, attributed the name of the deme to an eponymous hero of whom little is known, but who is listed for regular worship in the famous inscription known as the Sacrificial Calendar of Thorikos, a *stèle* from the late 5<sup>th</sup> or 4<sup>th</sup> century BC. Another myth, perhaps echoing a Bronze Age past, was recorded by Pherekydes in the 5<sup>th</sup> century BC: the story of Kephalos and Prokris, later told in different versions f.ex. by Apollodoros, Ovid and Antoninus Liberalis. Kephalos, king of Thorikos and known for his beauty, was married to Prokris, daughter of King Erechtheus of Athens, but the marriage was plagued by mutual mistrust. Prokris, whom King Minos of Crete had given a spear that never missed its target and a dog named

Laelaps, swift as an arrow, passed these gifts on to her husband. Once, when he went hunting on mount Hymettos, she followed him, suspecting him of having an affair. She hid in the bushes to observe him, but he thought he heard an animal rustling there, threw his spear and killed his wife. Erechtheus is said to have buried her, while Kephalos was exiled and eventually committed suicide.

RFD, MW

References: Labarbe 1977, 13-25; *SEG* XXXIII, 147 cfr. Lupu 2005, 113-49.



*Red-figure lekythos by the Pan Painter, c. 470 BC, showing Kephalos and Laelaps (inv. No. 13.198; Photograph © 2018 Museum of Fine Arts, Boston).*



*Cult building in Insula 10 seen from the southwest  
(photo: RFD).*

#### **14. Cults at Thorikos**

If the Sacrificial Calendar of Thorikos can be considered a trustworthy source for the cults here, we can conclude that ritual life in the ancient town was busy and vibrant. This long inscription, probably serving to manage the financial aspects of cult organization, paints the picture of recurring offerings to a variety of gods, goddesses, heroes and heroines. It is part of a group of Attic calendars, and is generally dated to the 5<sup>th</sup> or early 4<sup>th</sup> century BC. The archaeological record is limited by comparison, but some locations have yielded clear evidence of ritual activity: the Mycenaean tombs at the top of the Velatouri with remains of later cults and the monumental terrace on the western slope of the Velatouri are among them. The terrace features five carved sockets, presumably for *stelai*, and constituted a highly visible installation on the hillside. Excavations have yielded little data, however, and it is not known whether this was a votive or funerary *locus*. Other cult sites include the temple of Dionysos at the theatre and a shrine in *Insula* 10 in the Industrial Quarter. The latter has been connected to the healing goddess Hygieia on epigraphic grounds, but seems more likely to have been



*Marble head of kouros statue  
from the cult building in Insula 10,  
ht. 23.3 cm, 6<sup>th</sup> century BC  
(TP63.11, Thorikos archive/KVG).*

dedicated to Hera Teleia and Zeus Teleios. Another important site is the stoa in the Adami plain, perhaps part of a sanctuary dedicated to Demeter. As ancient cults commonly reflected group identity and informed social interactions, their study can be particularly rewarding on a local level, such as at Thorikos.

SDS

References: Ekroth 2002, 150-53; *SEG* XXX, 147 cfr. Lupu 2005, 65; Labarbe 1977, 56; Mussche 1998, 59; De Smet, forthcoming; van den Eijnde 2010, 15 and 50.

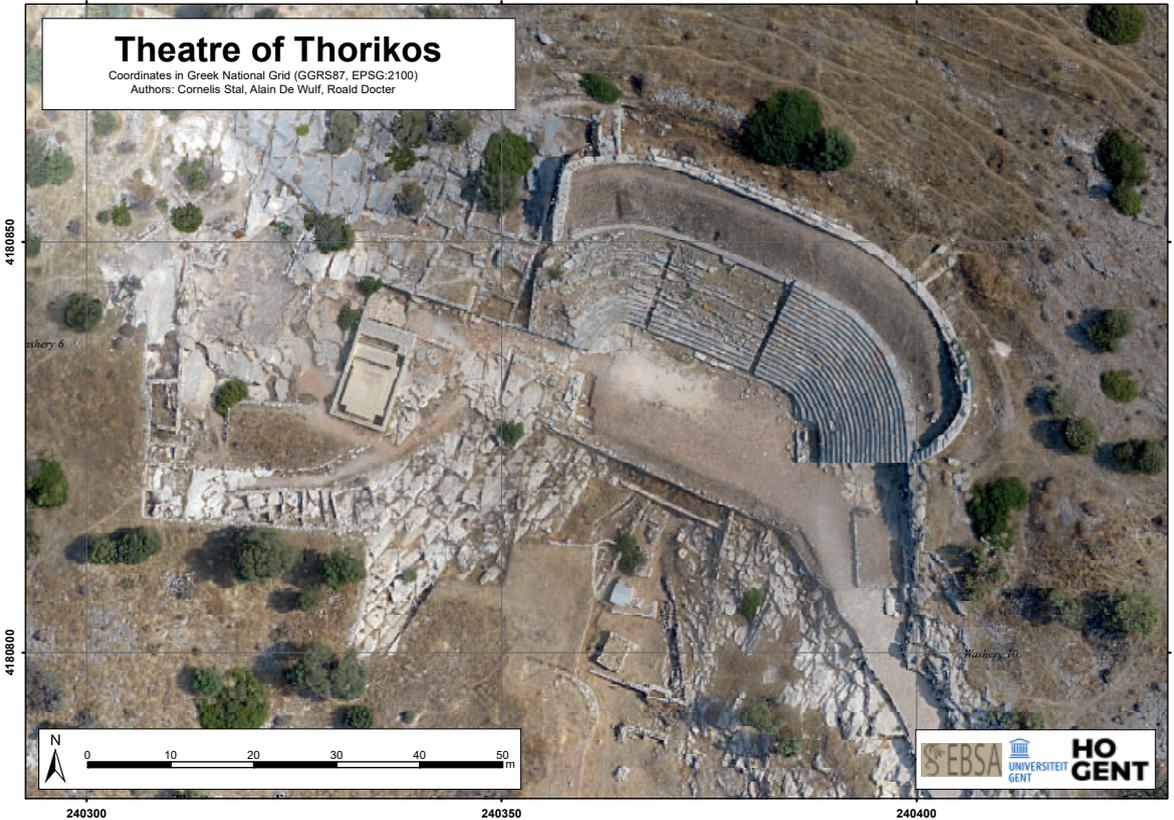
## 15. The Theatre

Thorikos' theatre is the most renowned, conspicuous and controversial monument of the site. Materially and visually imposing with its peculiar, ellipsoid shape (sometimes called primitive, archaic or simply irregular), it has struck locals and travelers alike through the centuries. Early 19<sup>th</sup>-century engravings and late 19<sup>th</sup>-century photos capture this unique landmark of the Lavrion landscape well.

Archaeological exploration of the theatre began in 1886 by the American School of Classical Studies at Athens. Investigations were resumed in 1963 and 1965 by the Committee for Belgian excavations in Greece, and in 2011-12 by the Greek Archaeological Service (Ephorate of Antiquities of East Attica). During these three campaigns, the theatre was partially excavated and the impressive retaining walls forming its idiosyncratic shape were revealed. The seating section

# Theatre of Thorikos

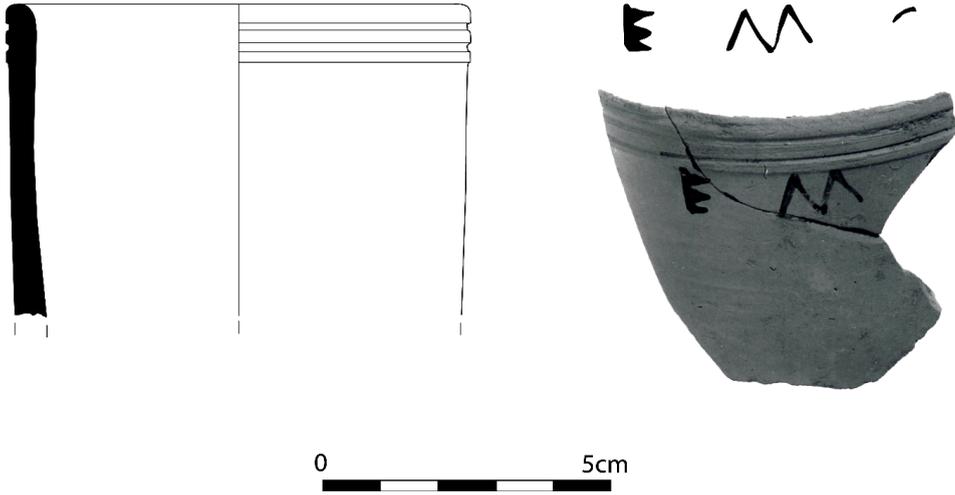
Coordinates in Greek National Grid (GGRS87, EPSG:2100)  
Authors: Cornelis Stai, Alain De Wulf, Roald Docter



*Orthophotograph of the theatre and its surroundings  
(photo: CS).*

(*cavea* or *koilon*) is divided in two – the lower (earlier) with rows of built bench-seats, a small temple of Dionysos and an altar flanking the oblong stage (*orchestra*), as well as an enigmatic room with a bench. All these were erected on the surface of an earlier marble- and limestone quarry between two long-lived mines (one dates to the 3<sup>rd</sup> millennium BC; both were active in Classical times) and a cemetery with conspicuous tombs from the 6<sup>th</sup>-4<sup>th</sup> centuries BC.

Frequently but controversially referred to as the earliest theatre in the Greek world, the Thorikos installation seems to be a product of repeated interventions undertaken in order to transform an aggregation area, conveniently shaped in steps by the quarry, into a theatre proper. The earliest built feature organizing this space has been dated to the first half of the 5<sup>th</sup> century BC, whereas what we see today was shaped by an extensive construction phase in the 4<sup>th</sup> century BC. Ancient theatres, especially those of the rural *chóra*, were inseparably linked to the sociopolitical organization of the Athenian polity, structured by Kleisthenes' demes-and-trittyes system, in place since the late 6<sup>th</sup> century BC. Aside from accommodating the staging of *dráma* in the context of festivals in honour of



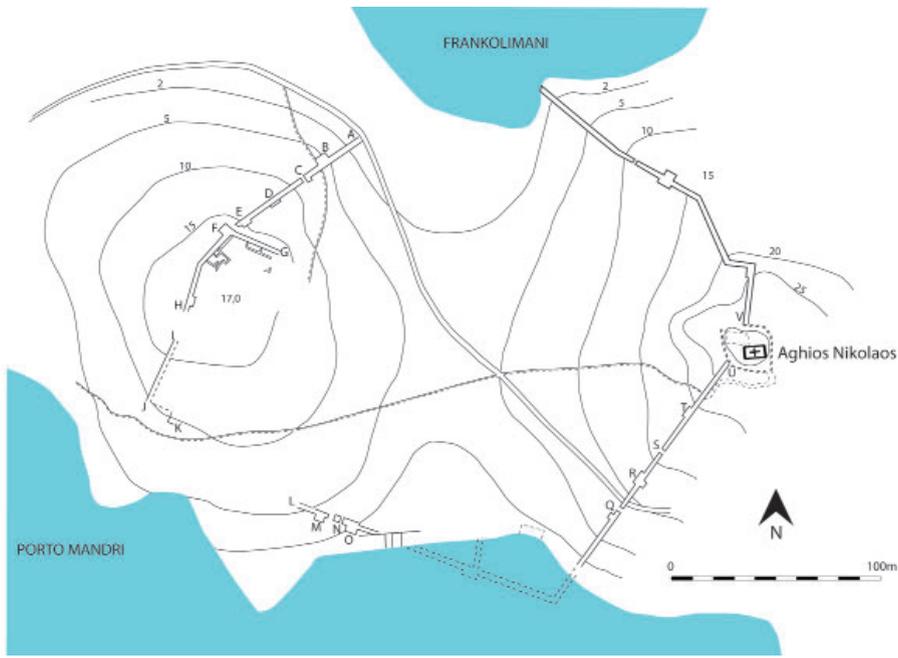
*Official standard dry measure with black dipinto 'DJEMO[SION]' (belonging to the demos) from the theatre orchestra, early 5<sup>th</sup> century BC (TC63.588; drawing J. Angenon; photo: Thorikos archive).*

Dionysos, theatres functioned as congregation *foci* for citizens contributing to the Athenian democratic institutions: debates, arbitration and appointments by allotment to the *Boule* council in the Athenian *agora* and other offices took place here. At Thorikos, the capacity of the theatre is estimated to 3184–3826 seats.

Excavating the soil covering the theatre at Thorikos entails coming to grips with an intriguing puzzle. Resolving it brings about an exciting immersion into a long process within which the transformation of a quarry space to a full-scale, stone-built theatre is entangled with the emergence of the ancient *polis* and its institutions. To advance this exploration, obtaining a deeper understanding of the process in the particular case of the mining town of Thorikos, a new Belgian-Greek project is currently revisiting the archives and finds of all excavations to date, as well as undertaking small-scale, targeted excavations and applying modern techniques such as 3D-scanning and reconstruction towards a comprehensive publication.

AnK, RFD

References: Miller 1885-86; Hackens 1963 and 1965; Palyvou 2001, 56; Vanhove 2006; Kapetanios, forthcoming.



*Plan of the harbour fortifications on the Aghios Nikolaos peninsula  
(drawing: J. Angenon after Mussche 1998, 105, fig. 24).*

## 16. The Fortifications

In his account of the Peloponnesian War, Xenophon (*Hellenica* I, 2, 1) related that the Athenians fortified Thorikos in the first year of the 93<sup>rd</sup> Olympiad (408/407 BC). This remark most likely refers to the maritime fortress on the Aghios Nikolaos peninsula, but other defensive structures are not to be excluded. In particular, the fortifications observed by both the American traveler Edward Dodwell in 1801 and the British colonel William Martin Leake in 1841 come to mind. These were described as walls with square, projecting towers surrounding the town with a circuit of over 4.5 km. Little appears to remain of these walls today, and it is possible that they were demolished for building material during later infrastructural works related to modern mining activities. But a stretch of a 0.80 m thick, double-faced wall with large boulders discovered in the western part of the site may be connected with the historical observations. To the south and southwest, ancient Thorikos would have been protected by an estuary in the now silted-up Adami plain and lower Potami valley, so a start of these fortifications in the southwest is plausible. In the prolongation of this wall, between the West Necropolis and the Industrial Quarter, a rectangular construction with walls of 0.80 m – perhaps a tower – was excavated in 2018, and is thought to mark a northern gate. Associated pottery suggests a date in the late 5<sup>th</sup> century BC. In a



*South corner of stairs (T) and ramp with Aghios Nikolaos in the background, seen from the west (Thorikos archive, photo: H. Mussche).*

second phase, its walls were reinforced to a thickness of two meters, and it was transformed into a cistern.

FvdE, AB, RFD

References: Dodwell 1819; Mussche 1961; McCredie 1966, 33-34; Mussche 1998, 6, 16-17, 60, 101, fig. 19; Labarbe 1977, 25; Apostolopoulos *et al.* 2014.



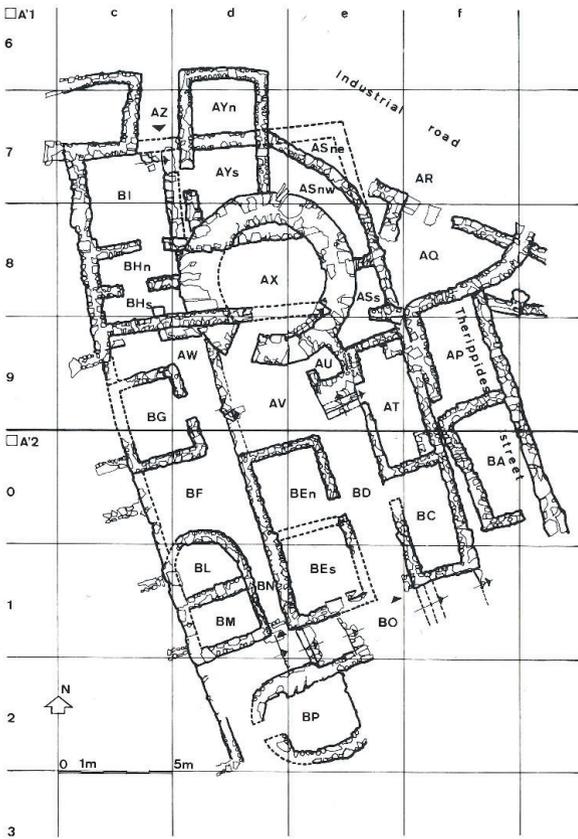
*Orthophotograph of rectangular structure of the late 5th century BC (image: CS *et al.*).*



*Tower 3 in the 1890s*  
(photo: courtesy of DAI Athen, No. D-DAI-ATH-Attika-055).

## 17. The Towers

Four towers of the 5<sup>th</sup> and 4<sup>th</sup> centuries BC are preserved in Thorikos (a fifth is hypothesized): one is a square edifice, and three are round. Only Tower 1 in the so-called Tower Compound has been excavated so far. With walls 1.25-1.5 m thick and a diameter of 7.50 m, it may originally have reached a height of 15 m, and preserves the remains of an interior stairway. Situated within *Insula* 3, it formed part of a living- and working area of c. 22.5x13 m around a courtyard. The square Tower 3, with sides of c. 6.40 m, still reaches 3.82 m in height and stood much taller even as late as the 19<sup>th</sup> century. Its masonry is best compared with that of the 4<sup>th</sup>-century retaining wall or *analemma* of the theatre. A study of ancient towers in the Greek world suggests that these features relate to the exploitation of the landscape, protecting specialized slaves working in mines, vineyards and stone quarries. Two questions on the Thorikos towers remain: their chronology in relation to the development of extensive mining on the Velatouri in the Classical period, and their precise function within the urban landscape. The construction of Tower 1 has been dated to 480/450 BC. If the function of the towers was indeed related to mining activities, this means that the start of Classical-period



mining at Thorikos may be dated earlier than commonly thought. The planned excavation of Tower 2 and re-examination of Tower Compound 1 may provide answers to these questions.

RFD

References: Spitaels 1978; Thielemans 1994; Morris and Papadopoulos 2005.

*Plan of Tower Compound 1 (after Spitaels 1978, 40, fig. 13).*

## 18. Mines and Mining

Five km of galleries have been explored and surveyed in Mine no. 6 and nearly one km in Mine no. 3 under the Velatouri hill. Neither has been fully prospected; the same goes for the opencast mines, some of which are still visible, but the recovered data are nevertheless considerable. The network is exceptional in its layout and extension, and several phases of activity have been observed. Archaeological data including pottery and stone



*Quadrangular shaft of the Classical period being explored: connecting shaft between two main levels of mineralizations/access to lower levels (photo: DM).*



*Prehistoric mining works. Flat bedded formation: the mineralization is located between two strata; on the floor, a heap of waste deposits abandoned by the miners (photo: DM).*

hammers point towards an early date for the first phase of mining in the Final Neolithic/Early Helladic period, c. 3200 BC. The Classical period (particularly the 4<sup>th</sup> century BC) has left the most perceptible remains, however: tool marks, working faces, oil lamps and an inscription on a wall testify to activities at this time. Shafts discovered inside connect two main levels of mineralizations, and some abandoned galleries have been entirely banked up during successive phases of mining and are now inaccessible. Recent investigations and dating evince the exploitation of ore resources also during the Late Roman period, particularly in

*Late Roman, Attic-type oil lamp in situ, Mine no. 6, 6<sup>th</sup> century AD (TC14.1311, photo: DM).*



the 4<sup>th</sup> and 6<sup>th</sup> centuries AD, using fire-setting technology. Underground, the stifling atmosphere and temperatures up to +21°C raise the crucial question of ventilation: the mining works evinced here suggest that the physical capabilities and skills of the ancient miners was quite considerable, as they were able to exploit such complex silver ore deposits and assure ore dressing in this taxing environment. In all, the evidence testifies to a deliberate strategy and a highly developed technological and spatial control over the process.

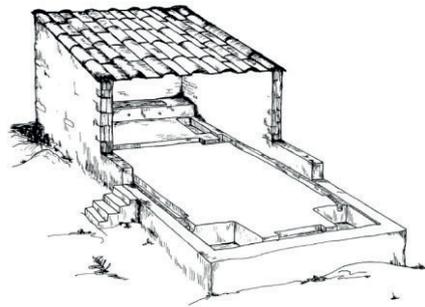
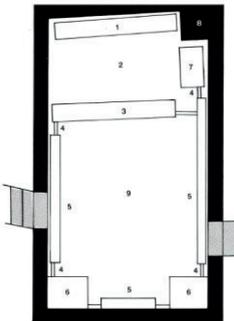
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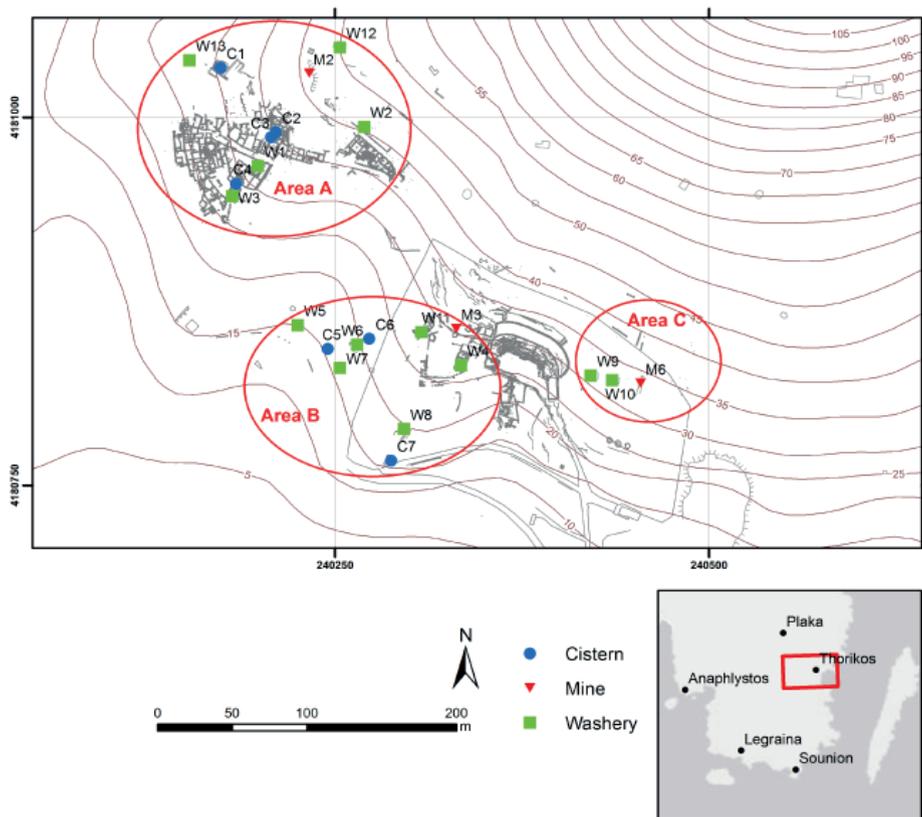
References: Morin (ed.), forthcoming; Morin, forthcoming; Nazou, forthcoming 1 and 2; Konstantinidou, forthcoming; Morin and Photiades 2012; Mountjoy 1995; Spitaels 1984; Waelkens 1990; Blondé 1983.

### 19. The Ore-Processing Workshops

Ore-processing workshops at Thorikos and in the Lavrion area played an important part in the production of silver during the 4<sup>th</sup> century BC. Silver was present as inclusions in local minerals such as galena and cerrusite. To liberate the silver particles, workers processed the ores in especially designed workshops where they were crushed, ground, washed and concentrated before being sent to the furnaces. This process was crucial because it significantly reduced the smelting

*A washery and its components. 1) water-tank; 2) washing-floor; 3) and 5) water-channels; 4) overflows; 6) sedimentation basins; 7) tank for recycled water; 8) draining board (after Mussche 1998, 102, fig. 20; cf. Jones 1984, 69-73).*

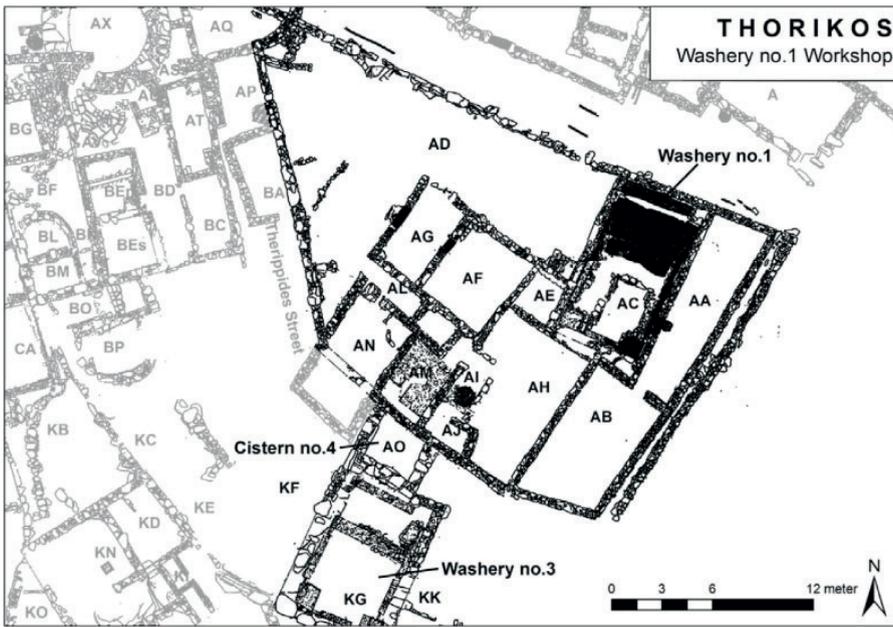




*Distribution map of the identified workshops and metallurgical complexes at Thorikos (Van Liefferinge 2014, 142, fig. 58).*

costs. The main feature of the workshops was the washery, where the ground ore was washed to separate the rock matrix or gangue from the denser lead ore. This characteristically rectangular structure consists of a water tank, washing floor and drying table, surrounded by a series of water channels and sedimentation basins to recycle the water. In addition, the workshops generally include a cistern to secure the water supply, as well as grinding stations, storage rooms and living quarters for workers and workshops owners. In total, 13 washeries have been identified at Thorikos, spread over three metallurgical complexes.

Complex A comprises five washeries organized around Mine no. 2. The fully excavated workshop of Washery no. 1, built over the remains of a 5<sup>th</sup>-century BC house, probably was in use between 430 and 400 BC and again in the 4<sup>th</sup> century BC. It consists of a washery, workspaces and living quarters forming a walled compound. The workshop's cistern is located immediately to the south, and seems to have provided both Washery no. 1 and Washery no. 3 with water. The latter was installed in the 4<sup>th</sup> century BC. Two other workshops have been partly excavated. Washery no. 2 was inserted into an earlier building north



*Workshop of Washery no. 1 in the Industrial Quarter, southeast of Tower Compound 1 (after Van Liefferinge et al. 2014, 278, fig. 7).*

of House 1 in the 4<sup>th</sup> century BC. Washery no. 13 is part of a workshop that stands out because of its large cistern (no. 1). With its 209 m<sup>3</sup>, this is by far the biggest cistern at Thorikos, and would have had a prominent place in the mining landscape.

Complex B includes Mine no. 3 and six washeries, two of which have been excavated: Washery no. 11, which was rather carelessly installed in an earlier building, and Washery no. 4, located next to the theatre. Both date to the 4<sup>th</sup> century BC. Less is known of Complex C, situated to the east of the theatre, because this area has been disrupted by modern mining activities. One mine entrance (no. 6) and two washeries have been identified (nos. 9 and 10).

Many questions about the washeries at Thorikos still need to be answered. Their dating is problematic, and the integration of most washeries in the urban and mining landscapes is not fully understood. As archaeological research is ongoing, it is hoped that future discoveries will shed more light on this innovative feature of ancient silver production.

SoD, KVL, MK

References: Conophagos 1980, 214; Rihll 2001, 118-26; Jones 1984, 69-72; Mussche 1998, 39-56; Van Liefferinge 2014, 141-43; Van Liefferinge et al. 2011; Nazou et al. 2018; Van Liefferinge, forthcoming.



*Thorikos coin hoard IGCH 134  
(photo: PPIV. Voutsas).*

## 20. Coinage

Thorikos is one of few Greek sites to be intimately connected with metal extraction and, presumably, coin production. Ancient authors mention the wealth of the Lavreotiki mines and their contribution to the Athenian empire, but the excavations at Thorikos have not provided any evidence of numismatic activity (flan preparation or striking of coins), and the location of the Athenian

mint remains unknown. Nevertheless, the site has offered two hoards, one with 25 bronze coins of 365-379 AD in a tomb in the Theatre Necropolis, and a very important hoard of the late 4<sup>th</sup> century BC: 292 coins probably buried in 295/294 BC and crucial for the dating of the so-called “pi-style” Athenian tetradrachms. Stray finds are also recorded, like the seven coins repatriated from Belgium in 2009: a silver tetradrachm of “pi-style V” (Lavriion Museum 1649), an Athenian silver drachm (Lavriion Museum 1645) and a rare silver triobol (Lavriion Museum 1646), all from the 4<sup>th</sup> century BC, as well as two Salaminian bronze issues of the same period and two Athenian bronzes of the late 4<sup>th</sup> and late 2<sup>nd</sup> centuries BC. The 2018 campaign yielded two issues extending the numismatic span of the site: a silver *akçe* of Sultan Mehmet III (1595-1603) and a two-cents copper coin of King Otto I of Greece issued in 1832. But up to this day, after more than 50 years of excavations of an area of 13.853 m<sup>2</sup> (c. 1.4 ha), only 16 coins have been found, aside from the hoards. This amounts to a low coin density and monetization of less than three coins per decade of exploration and one coin per 866 m<sup>2</sup>; a curiously scanty record for a site known as “rich in silver”. More systematic explorations focusing on coinage could, however, provide a different picture in the future.

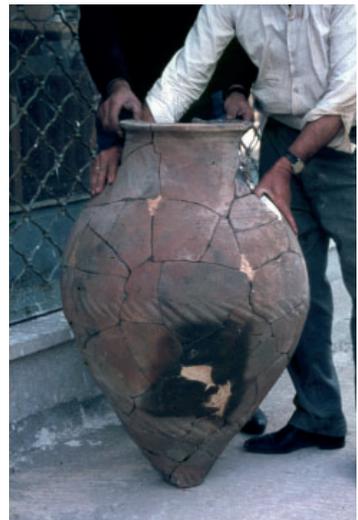
PPI

References: Apostolou and Iossif 2010; Bingen 1973; 1990b; 2010; Kakavoyiannis 2005; Laffineur 2010a.

## 21. Vessels for Storage and Consumption

The *pithos* and the amphora were the largest ceramic containers used for storage and consumption in antiquity. *Pithoi* were huge vessels designed to store food and other commodities in kitchens and store-rooms. At Thorikos, all *pithoi* so far discovered date to the Geometric, Archaic and Classical periods.

*Pithos with incised decoration  
from the building in the West Necropolis,  
late 10th – first half of the 9th century BC  
(TC65.882, Thorikos archive).*



They have rarely been found *in situ*, but numerous fragments have turned up in surveys and excavations, mainly on the acropolis, and complete specimens have been recovered from the cemeteries, where they were re-used as coffins for young children. Although regional production would seem more logical in the case of such bulky objects, ceramic fabric analysis shows that they could come from as far away as Corinth.

Amphoras, on the other hand, functioned as standard transport vessels, mostly for the wine trade. Their wide typology reveals origins in northern Greece, Corinth, Chios, Aeolia and several unidentified sites on the Asia Minor coast; some types from Corinth and Corfu may, moreover, have carried olive oil rather than wine. Archaeologically, amphoras occur in large quantities because they were systematically re-used. In the context of mining activities specifically, one can surmise that they were re-used for water, and perhaps oil for lamps. Interestingly, in the Hellenistic period, the amphora spectrum of Thorikos was completely replaced by new types. Knidos now dominated the market in Attica and the Cyclades, but Italic and Punic amphoras are also present, as well as specimens from Rhodos and Kos. Importantly, a remarkable amount of epigraphic evidence comes with transport amphoras, in the form of painted marks, graffiti and above all stamps.

PM, AnP

References: Bingen 1967a and 1967b; Cullen and Keller 1989; Monsieur 1990; Jöhrens 1999; Vanhove 2006; Docter *et al.* 2010; Docter *et al.* 2011.

*Hellenistic amphora stamp from Knidos with the names of the eponym Politas (civil servant) and the producer Theodoridas, and the producer's symbol, a heredra (ivy leaf), found in a dump on top of the Theatre Necropolis (TC88.131, Thorikos archive/KVG).*





*Flotation machine in operation 2018  
(photo: RFD).*

## **22. The Organic Remains**

The early excavators of Thorikos paid limited attention to organic materials, and only one set of ecological data has been published so far. In a compartment below a staircase southeast of Tower 3 (probably a toilet space), sealed by the broken blocks of the stairs, a deposit of pottery, charcoal, animal bones and shell dating to the late 5<sup>th</sup> century BC was investigated. Apart from two mollusks, some 40 bones of birds, pig and sheep or goat were identified and interpreted as the remains of meals. During recent excavations, more attention has been paid to the collection of organic remains that may provide insights regarding daily life and agricultural activities in ancient Thorikos. Shell material was collected during the surface survey as well – this cannot be dated very precisely, but it may indicate otherwise unexpected links. This is the case f.ex. with a large *tridacna* shell found on the acropolis: originating in the Red Sea, it was probably brought here during the Early Iron Age, as similar cases f.ex. on Samos, Rhodos, Aegina



*Tridacna shell from the Thorikos survey, width 20.3 cm  
(TF13.725, photo montage: KVG)*

and at Perachora and Olympia indicate. Currently, several reports on mollusks, plant remains and animal and human bones are being prepared for publication. Apart from dry-sieving, systematic sampling by flotation has been introduced: by stirring archaeological soil samples in water, seeds and charcoal will float while other organic materials (such as bones and teeth) can more easily be retrieved for study as well. A flotation machine has therefore been constructed, and is proving essential for the mechanized processing of large numbers of soil samples.

LK, EY, EM, FJ, RFD

References: Gautier 1967; Mussche 1967, 65-68; Reese and Sease 1993.





*Lamp imitating a North African model with decoration of a running regardant hare,  
Mine no. 3, 550-600 AD  
(TC76.106, Thorikos archive).*

### **23. Ceramics from Roman and Byzantine Thorikos**

There is scant evidence for the early Roman Imperial era at Thorikos, although Cretan and Cilician wine amphoras attest to some substantial activity in 50-125 AD. A tomb in the Theatre Necropolis yielded coins from 365-379 AD and a lamp, suggesting renewed occupation. Apart from amphoras and some cooking wares, lamps now became very common. Some can be assigned to the 5<sup>th</sup> century AD, but most date to the 6<sup>th</sup> century AD and follow Athenian models. Several fabrics indicate origins in East Attica and, aside from the few possible imports, lamps from Asia Minor and especially North Africa clearly inspired the productions. They feature a startling variety of decorations, from geometric motifs, plants and animals to Christian symbols.

Among the amphoras, three types are recognized. The predominant 'Late Roman 1' type stems from eastern Cilicia and adjacent regions and probably carried mainly wine. The 'Late Roman 2' type probably transported olive oil and was produced throughout the Greek provinces, including the Aegean islands. 'Late Roman 3' is regarded as a type from western Asia Minor; its primary contents, however, are still debated. At Thorikos, all this material occurs in the

mines as well as in the living quarters, a cistern and on the Velatouri, strongly suggesting resumed mining activities in late antiquity. Such a revival is supported by results from the excavation of a nearby basilica, yielding a wider ceramic repertory. Finally, even if the Slavic invasion of 582/583 AD doubtless had an impact on Thorikos, cooking wares and amphoras from the 7<sup>th</sup> century AD indicate continued occupation.

AK, PM, CH

References: Robinson 1959; Perlzweig 1961; Spitaels 1978; Butcher 1982; Bingen 1990b; Karivieri 1996; Pieri 2005; Monsieur 2008; Docter, Monsieur *et al.* 2010; Docter, Monsieur and van de Put 2011; Konstantinidou, forthcoming.



*Globular amphora of probable Cretan origin,  
Tower Compound 1, 7<sup>th</sup> century AD?  
(TC73.187, Thorikos archive).*

## **24. The Finds Laboratory**

All archaeological fieldwork yields enormous masses of finds, mainly ceramics, and the Thorikos Project is no exception. The finds are processed in a laboratory, which during the early Belgian excavations was situated near the site in a house known as the Kephalaou Melatron. Since the start of new fieldwork in 2004, however, materials are instead processed on the premises of the Lavrion Museum, where the laboratory is set up seasonally. It is staffed by both specialists and students, partly within the framework of a Fieldschool of Greek Material Culture

promoted by the U4 Network (universities of Ghent, Göttingen, Groningen and Uppsala). As finds come in from surveys or excavations, they are first washed, set to dry in sieves, and bagged. In a second stage, they are studied per archeological context, as a basic inventory of every sherd and other find is created, detailing f.ex. ceramic fabric, shape, decoration, likely provenance and chronology. A third phase consists of the description of select finds, and restoration if necessary, and the preparation of accurate line-drawings, photographs and macro-photographs of ceramic fabrics. An accurate photographic record allows us to share and compare the data, and the macro-images are relevant for studying how the vessels were made – and where, as clay can be regionally distinct. Finally, a last phase takes place in one of the institutions participating in the Thorikos Project and is in the hands of its more than 40 collaborators. This entails digitization of the line-drawings and further study of select finds and their contexts with a view to publication.

RFD, AnP, SoD, MN, SM, ERA, CH, SDS, AA, WvdP, AB

*Finds processing (above and below from left to right). Washing; drying (survey context T12-104-1-1); inventory; photographing; pencil drawing and object description of a rim fragment of a probably Laconian wash-basin or lekane (TC12.631, context T12-104-1-1); digitized drawing of item TC12.631 (drawing: J. Angenon; photos RFD).*





*Part of the Thorikos paper archive at Ghent University  
(photo: RFD).*

## **25. The Thorikos Archive**

Since the start of modern archaeological investigations at Thorikos in 1963, an immense archive has been built up consisting of administrative documents, excavation diaries, inventory books, maps, drawings, photos, negatives and even movies. As soon as PCs became available, all data regarding the finds (pottery, stone, terracotta, metal etc.) were entered in a digital database. Since the resumption of fieldwork in 2004, most finds have been recorded directly during the campaigns, and a new data-base has been created, based upon the structure of the initial one. Over the last five years, the paper archives based at Ghent University and at the Belgian School in Athens have been inventoried and almost completely scanned. This digitization process is intended to safeguard the data and guarantee accessibility for future generations of researchers – some of the old data carriers are in fact rapidly deteriorating, especially the photo negatives. To date, only large formats and 35 mm negatives still await digitization. The old and the new databases are currently being merged and updated with the inclusion of hitherto unprocessed finds in the store-rooms at the Lavrion Museum. The nearly



*The digitized Thorikos archive on Onedrive  
(photo: RFD).*

fully digitized archive is already available in a cloud environment for internal use by collaborators of the Thorikos project, and it is expected that all different types of data will soon be linked in an integrated digital environment, leading to a platform that can be consulted and used by all interested in the archaeology of Thorikos.

GD, KVG



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*SEG: Supplementum Epigraphicum Graecum*, A. Chaniotis, T. Corsten, N. Papazarkadas and R.A. Tybout (current eds.), Leiden (<https://referenceworks.brillonline.com/browse/supplementum-epigraphicum-graecum>).

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Belgische School te Athene - École belge d'Athènes - Βελγική Σχολή Αθηνών





Thorikos occupies the coastal northeast of the Lavrion area of Attica, Greece. The ancient town comprised the double-peaked Velatouri hill, which has seen human activity since the Final Neolithic period and been the focus of archaeological research for more than 50 years. This timely publication serves as a guide to ancient Thorikos, a presentation of ongoing work and a preview of new undertakings. Growing out of a Belgian initiative in the 1960s, the Thorikos Project is today an international program with a wide range of contexts and assemblages under study. Here, members of the international team present themes of current interest and aspects of recent work in a multi-authored collection of texts intended for the general public as well as for specialists.