2006–2007 Excavations of the Mycenaean Cemetery at Ayia Sotira, Ancient Nemea

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During the summers of 2006 and 2007 the Canadian Institute in Greece sponsored the excavation of a Mycenaean chamber tomb cemetery at Ayia Sotira near Koutsomodi in the Nemea valley. The cemetery was discovered in 2002, when the 4th Ephorate of Prehistoric and Classical Antiquities discovered illegal digging in an olive grove above the small church of Ayia Sotira, and immediately conducted salvage excavations of one of the chamber tombs. Our team returned in 2006 and 2007 and carried out geophysical survey, surface pickup, test trenching, and the excavation of another four tombs with material dating from LH IIIA1 to LH IIIB2. These tombs almost certainly belong to the nearby settlement of Tsoungiza. The location and alignment of these tombs suggest that there are others yet to be discovered in fields to the north and west of our original excavation area, and we are in the process of purchasing this land in order to continue excavations in 2008.

In 2006 and 2007, excavations were conducted at a Late Bronze Age chamber tomb cemetery on the hillside of Ayia Sotira, outside the village of Koutsomodi near Ancient Nemea (Figs. 1, 2). This project operates under the auspices of the Canadian Institute in Greece with permission of the Greek Ministry of Culture and oversight by the 37th Ephoria of Prehistoric and Classical Antiquities. Currently, the project is co-directed by Prof. R. Angus K. Smith of Brock University, Prof. James C. Wright of Bryn Mawr College, and Dr. Mary K. Dabney of Bryn Mawr College. This essay reports on work so far accomplished. The setting is one where illicit searching and excavation of tombs is a constant threat to the scientific
recovery of information about human activities in the region. As a consequence we have developed methods to recover as much information as possible, even of the most thoroughly ransacked remains. Our goal is to identify, excavate and protect the remains and to understand them as components of the history of Late Bronze Age settlement known primarily from excavations of the nearby settlement of Tsoungiza, to which these tombs undoubtedly belong.3

In 2002, archaeologists excavating at the nearby tomb at Barnavos discovered illegal digging in the olive grove of Panagiotis Tombros.4 On behalf of the 4th Ephoreia, Evangelia Pappi then salvaged a tomb (Tomb 1) that was in the process of being looted. Analysis of this tomb revealed it to date to the early Late Helladic IIIB1 period (Fig. 3).5 Our team returned in 2006 and 2007, in collaboration with Pappi, and carried out geophysical survey, surface pickup, and test trenching. During our first two seasons, we excavated four tombs (Tombs 2, 3, 4, and 5) with material dating from LH IIIA1 to LH IIIB2. The location and alignment of the tombs discovered in 2006 and 2007 suggest that there are others yet to be discovered in fields...
to the north and west of our original excavation area, and we are in the process of purchasing this land in order to continue excavations in 2008.

Our work began in 2006 with geophysical prospecting. A survey of the area with ground penetrating radar (GPR) was conducted, with transects taken across areas we deemed likely to reveal anomalies (Fig. 4). A total of fourteen transects were taken with a view to testing as much of the area as possible. In addition, a transect was taken across a tomb that had been previously robbed (Tomb 2) in order to get a typical signature for comparison with anomalies registered in the transects.

As the geophysical work was being conducted, our team also carried out an intensive surface survey of the field, which was gridded into 2×2 m squares oriented to the Greek Cartographic Service Grid. Surface remains were picked up as a separate unit for each square. The purpose of this work was to learn what the distribution of artifacts was on the surface, to assess the range of material available, and to try to relate Late Bronze Age (LBA) material to the location of tombs in the field. Most of the remains belong to the Middle Byzantine Period (late 12th through 14th c.), although some LBA pottery was identifiable.

Over the course of our two excavation seasons we have systematically test trenched the entire field (Fig. 3). In 2006, fifteen trenches spaced 4 m. apart and 0.5 m. wide were excavated by hand following the E–W grid. Each test trench was excavated to bedrock or sterile soil (marl), which was scraped in an attempt to identify the dromoi (entrance corridors) of chamber tombs. After several weeks two dromoi were identified at which time test trenching was suspended in order to concentrate on the excavation of the two tombs. In 2007 we took a different approach to test trenching and hired a backhoe. This approach allowed us to quickly trench those areas we had not explored in 2006. The most significant result of this method was the quick discovery of Tomb 5. In the trenches, as in the surface survey, some LBA pottery was found but the vast majority of finds were Byzantine pottery of the 13th century in surface levels disturbed by modern plowing: these included a representative range of glazed ware, coarse, cooking and storage jar, roof tile fragments, and Frankish coins.

While test trenching was being conducted in 2006, and before any new tombs had been discovered, three Excavation Units (EU) were opened. One (EU 32) excavated the robbed chamber tomb (Tomb 2) and a nearby dump used by its looters. To the west of this a second (EU 33) explored a dump from adjacent digging into what the tomb robbers thought was a chamber tomb dromos, but which turned out to be a fault through the marl near the ravine. The third (EU 34) explored the ground around the lower end of the dromos of Tomb 1. This was done in the hopes of finding further tombs nearby.
of finding evidence for activities that took place outside the tombs during funerary ceremonies. Modern plowing, however, had eradicated the LBA surface.

The excavation of Tomb 2 (EU 32) and its dump revealed a thoroughly looted tomb. Digging within the chamber produced nothing of note, and little evidence of debris from the looters was found in any area of the tomb or its dump. It therefore remains unclear whether the tomb was robbed in the distant past, or during more recent agricultural activity in the area, such as terracing and deep plowing. It was apparent, however, that bulldozing sometime in the 1980s had cut away most of the dromos of the tomb. The near total lack of finds in this area or in wash down into the nearby ravine, leads us to the suspicion that most of the robbing occurred when the tomb was first disturbed.

Excavation of Tomb 2’s dump and dromos, however, did reveal cultural material. The dump produced a few bone fragments that appear to be human, as well as pottery. With regard to the bone material, the anthropological study produced 23 identified skeletal elements – only 2 cranial and 21 post-cranial elements – and 29 unidentified post-cranial bone fragments. All skeletal remains give evidence of severe weathering and post-mortem changes resulting from long exposure of the material to physical conditions, e.g. sunlight and rainwater. The identified skeletal elements yielded the minimum number of one adult individual of indeterminate sex. In the dump and the dromos were found

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Fig. 3. Map of Ayia Sotira showing trenches and tombs (map: Johanna Best)

7 J.E. BUIKSTRA and D.H. UBELAKER, Standards for data collection from human skeletal remains (Arkansas 1994), 98f.
fragments of Late Helladic IIIA2–IIIB1 unpainted carinated kylikes and an LH IIIB1 unpainted shallow angular bowl. In addition, the dromos contained enough undisturbed strata to document at least three episodes of opening and refilling. Micromorphological samples were taken from a baulk left along the east side of the dromos and should allow us to refine our interpretation of the use and reuse of this tomb.8

The tombs discovered in the test trenches were designated Tomb 3 (EU 35), Tomb 4 (EU 36), and Tomb 5 (EU 38). In order to excavate these, we laid out a 1 m. square grid (Square Meter Unit = SMU) and excavation of the dromoi and chambers was recorded by Stratigraphic Unit (SU). Finds were therefore recovered separately by SMU within each SU. Baulks were left running the length of each dromos, and one or two separate baulks were left across the dromoi, or in the chamber. We were thus able to make a detailed study of the stratigraphy of the dromos and chambers in the revealed scarps, and samples were taken for micromorphological analysis. All soil from the tomb excavations was dry sieved and 40-liter samples from every SU were water sieved. In addition, soil samples for phytolith analysis were gathered from floor surfaces around the burials and in the dromos.

Tomb 3 (EU 35)

The first tomb discovered through test trenching in 2006 was Tomb 3. This chamber tomb is situated directly south and in line with Tomb 1 (Fig. 5). The tomb was intact except for an opening in the chamber just inside the stomion (doorway) through which plow soil had flowed. Preliminary analysis of the stratigraphy of Tomb 3’s dromos indicates five possible openings and refillings.

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8 Dr. Panagiotis Karkanas (Ephoria of Speleology and Palaeoanthropology) is carrying out our micromorphological analysis. To understand how the micromorphological examination is important for documenting the history of the use of chamber tombs, see Karkanas’ contribution to WRIGHT et al. (n. 4).
Excavation of the dromos revealed a number of slabs set upright above the upper area near the stomion. Because of modern disturbance these slabs were not well preserved, but the existence of additional slabs underneath the upper ones indicated that their placement was likely purposeful, and they may have served as tomb markers. Finds from this area included an obsidian flake, as well as pottery, and some organic remains.

At the bottom of the dromos and near the stomion, a long pit covered with slabs was cut into the floor. Removal of the slabs disclosed an empty pit, with the exception of two badly preserved teeth that suggest the burial of a single adult.

The strata of the dromos indicate five possible openings and refillings of Tomb 3. LH IIIA1 fragments from a piriform jar painted with ivy and an unpainted goblet, are the earliest remains found in the dromos. The latest are fragments of a LH IIIB1 cup/kylix with dotted concentric semicircles pendant from the rim. Most of the pottery, however, belongs to the LH IIIA2 late period, including fragments of conical bowls, cups, kylikes, and a krater. Of particular interest were the remains of an LH IIIA2 pattern-painted conical rhyton, a shape that may be indicative of the presence of a person of special status in the tomb (Fig. 6). Among the organic remains are grape pips; additional organic remains await analysis.

Inside the chamber humus had percolated through a hole in the palaeosol above the stomion. After removal the chamber was about half full of sterile marl, which presumably had fallen from the roof. The boundaries of the chamber were difficult to ascertain, due to their similarity to the fill, but near the floor traces of the interior line of the stomion were identified. These traces showed that the interior stomion wall was straight while the chamber was curved. A rectangular pit carefully covered with stone slabs lay at the center of the chamber and perpendicular to the entrance (oriented east-west). At the pit’s southeast corner just above the slabs was an unpainted small amphora (FS 67) dated to LH IIIB1. Removal of the slabs disclosed no remains other than two LBA sherds. No remains were found elsewhere in the chamber.

Overall, the stratigraphy of Tomb 3, its two slab covered pits, and finds in the chamber and dromos, indicate that the tomb was used for successive burials.
from as early as LH IIIA1 until LH IIIB1. The stratigraphy of the dromos was very disturbed in the areas close to the stomion, from high up where the stone markers were identified to deep down where the slab-covered cist was located, while the rest of the dromos preserved strata of earlier use. This, together with the almost total absence of human bone remains and of grave offerings in and around the pits suggests that the tomb was robbed from above and carefully cleaned of its contents. It is possible that its location was known because of the stone markers. The careful placement of the stone slabs over the two pits and deposition of a single vessel above the one in the chamber are signs that this was done purposely and with respect. Although little was recovered from Tomb 3, the fragments of the conical rhyton may indicate that originally a person of special status was buried here.11

11 KOEHL (n. 9).

Tomb 4 (EU 36)

The second tomb discovered as a result of our test trenching was Tomb 4 (Fig. 7). This chamber tomb was located about 12 meters east and parallel to Tomb 1. Its chamber had collapsed but was undisturbed, as was its dromos.
The Dromos

Excavation of the dromos revealed six strata. The finds include fragments of many unpainted LH IIIA2 carinated and rounded kylikes and other small open vessels and a few pattern-painted stirrup jars.

In addition, a side chamber was closed by large upright stone slabs. It contained a Late Helladic IIIB feeding bottle and over 90 miniscule drilled stone beads, each about 1.5 mm. in diameter. These finds and the absence of bone may indicate the burial of a neonate, since soil conditions in this cemetery in general do not favor preservation of human skeletal remains.

The Stomion

The stomion was entirely preserved, with the door blocked by dry wall. Unfortunately, despite the precaution of hiring a night guard for the fall, winter, and spring months, we arrived in the summer of 2007 to find that this blocking wall had been partially destroyed by illicit diggers. The excavation of the rest of this blocking wall provided no new artifactual material for Tomb 4.

The Chamber

Excavation of the chamber of Tomb 4 revealed that it had collapsed, but was otherwise undisturbed. The upper fill of the chamber contained layers of humus alternating with decayed marl palaeosol. A few Byzantine sherds were found in this fill. Below was compact marl without finds. This rested on two separate burial strata that contained a total of eight individuals: an upper group was buried on the floor of the chamber, and below were others in pits cut into the chamber’s floor (Fig. 8).

On the floor of the chamber were two pairs of adult burials in extended positions, with skulls at the north and heads facing east. Preservation of these skeletons was very poor due to unfavorable soil conditions and microenvironmental factors such as the detrimental effects of insects that favored the roots of the olive trees standing above the tomb.12 Also, collapse especially of the east and north sides of the chamber, contributed to smashing of the skeletal material and the associated artifacts. Analysis of the human skeletal remains, based on the macroscopic examination of preserved anatomical features, indicates the presence of three men and one woman.

The easternmost pair of burials included an adult male on the east side with an adult female to the west. A LH IIIA1 pattern-painted hydria was found just north of the male skeleton’s skull. Scattered from his left elbow across his thorax were fragments of a LH IIIB miniature handmade jug. Two LH IIIB1 narrow-necked jugs painted with paneled patterns and a pattern-painted jug with a cutaway neck were placed north-south from his pelvis to its feet.

The skull of the female skeleton rested on a stone. Near her right elbow were a conical stone bead and a stirrup jar. A Late Helladic IIIB2 rosette deep bowl, another stirrup jar decorated with Mycenaean flowers, and a jug with a cutaway neck were placed north-south from her pelvis to her feet.

The western pair of burials included two adult males. An LH IIIB pattern-painted, straight-sided alabaster was found just north of the skull of the easternmost of this pair, and a large pattern-painted jug was found in between the legs of these two skeletons. In addition, a LH IIIB1 stirrup jar decorated with dot rosettes was found above the pelvis of the westernmost. Carbonized wood fragments of an unidentifiable object were found in the northwest corner of the chamber.

Beneath these burials three pits were cut into the chamber floor; these contained a lower level of earlier burials (Fig. 8). These skeletons were better preserved than those in the upper level because of the soil conditions protecting them right after their burial.

The northernmost of these lower-level burials was in a stone-covered pit oriented east-west, with a skeleton of a young woman aged 16–17. She was placed on her left side with her legs flexed and her head to the east. No grave goods were found with this burial.

The easternmost was also placed in a slab-covered pit. The pit was oriented north-south and contained an extended skeleton lying on its left side looking east, with legs slightly flexed. The skeleton was of a man in his late 30’s. Only a straight conical stone bead was found with this skeleton.

To the southwest a smaller pit (measuring c. 0.78 × 0.4 m.) contained the secondary burial of two adult men, the topmost of which was in his late 30’s. In contrast to the others, these burials show excellent bone preservation, but no articulation, which suggests that

12 The authors would like to thank Dr. P. Karkanas, Ephoreia of Speleology and Palaeoanthropology for suggesting the contributing effects of the microenvironment in the poor preservation of the human skeletal remains lying underneath.
they were redeposited not long after the complete decomposition of the bodies. The skeletonized remains of both men were placed in successive depositions in the pit without any layer of soil to interfere between the two individuals suggesting that the secondary burial of the two men represents a single episode. Care was taken to ensure that both skulls were placed to the north and at a slightly higher level than the post-cranial skeleton of each individual. No grave goods were associated with either of these individuals.

**Interpretation**

While micromorphological samples taken from the dromos of Tomb 4 should eventually allow a more precise interpretation of the tomb’s use, it is possible to suggest that the six strata revealed by the dromos represent a minimum of six openings of the tomb for separate burial events. This number accords well with the presence of eight individuals in the chamber, as well as the possible neonate interred in the side niche of the dromos. Each of these might represent a separate opening event, for a total of nine. On the other hand, we might also suggest that each of the pairs in the upper level of burials represented a single act of interment, thereby reducing the necessary total to seven. The burial in the side niche, in addition, was made very close to the end of the dromos, and therefore would not have required a full opening of the dromos. This is significant since the interpretation of the dromos stratigraphy relied on strata observed closer to the stomion than to the area of the side niche at the southern end of the dromos.

**Tomb 5 (EU 38)**

The tomb excavated in 2007, Tomb 5, was undisturbed and yielded evidence of multiple reuses (Fig. 9). Sherd material and wholly preserved pottery indicate that this tomb was in use from LH IIIA2 until LH IIIB. Because of the extremely poor preservation of skeletal material only four tiny bone fragments – less than five grams from the fourth episode of use, and another two bone fragments from the second episode of use – were identified suggesting the disposal of two perhaps adult individuals. The stratigraphy of the dromos and blocking wall of the stomion, however, were remarkably well preserved, giving us a clear but complicated picture of a long history of use.

The initial discovery of Tomb 5 was hindered by the similarity in color, texture, and compactness of the soil and bedrock in the area. Previous agricultural activity had removed the hard caliche crust of the
bedrock so that only the softer marl remained. Nevertheless, test trenching revealed both the cut of the dromos and an area of darker soil to the north that corresponded to the identification of a geophysical anomaly detected by ground penetrating radar in 2006.

The Dromos

Excavations of the dromos and chamber of Tomb 5 were conducted simultaneously but separately. This was possible because the chamber of Tomb 5 collapsed in antiquity. Excavations in the dromos were carried out in sections, which left both an eastern and a northern baulk for the recording and interpretation of stratigraphy. In all, six separate fills and four distinct floor surfaces were recorded in the dromos. Multiple sections for micromorphology were removed from the dromos’ baulks, and will eventually allow an accurate and detailed picture of the use and reuse of Tomb 5’s dromos. Datable pottery from the dromos corresponded to the LH IIIA2 phase, and included kylix rims and a large piriform jar decorated with concentric arcs.

In addition to the stratigraphy observed in the dromos of Tomb 5, a side chamber was discovered along the western wall near the stomion. This chamber was carefully covered with three vertically placed flat limestone slabs, which upon removal revealed a niche entirely filled with soil. The initial removal of this soil yielded no skeletal or artifactual material, but subsequent water sieving of 100% of the soil resulted in the recovery of 462 tiny stone beads, which probably belonged to one or more necklaces, and may indicate the presence of one or more child burials in this side chamber (Fig. 10).

The Stomion

The excavation of the drywall blocking Tomb 5’s stomion was carried out after the excavations of the dromos and chamber and after removal of baulks used to study strata and provide micromorphological samples (Fig. 11). Its multiple phases of construction, however, clarified the more complex stratigraphy in the dromos and chamber, as well as provided a link between the two. Four clearly defined phases of construction were evident in the blocking wall and excavation revealed floor levels beneath each. These phases correspond to the four certain floor levels in the dromos and represent a minimum number of openings for Tomb 5.

The Chamber

Excavation of the chamber of Tomb 5 revealed a complex history of use, and presented interpretive
difficulties. During excavation, a small baulk was left along the southern wall of the chamber in the area of the stomion. We hope that micromorphological samples from this baulk will eventually enable a more detailed and accurate interpretation of the stratigraphy. Overall, excavation revealed as many as ten episodes of natural and human activity that affected the chamber, including three episodes of collapse, six episodes of use and reuse, and modern agricultural activity.

Among the episodes of human activity are the initial construction and use of the chamber, to which the first phase of the stomion’s blocking wall belongs. No burials or artifacts were associated with this phase, and it is probable that these were cleared out during subsequent reuse.

The second observed use of the chamber correlates to the second phase of the stomion’s blocking wall. During this opening an adult or young adult was placed in an extended position in the southwestern area of the tomb with the head facing south towards the stomion. The skeletal material was very poorly preserved. Unfortunately, despite posting a guard, illicit activity on site during the excavation of this burial resulted in its destruction. A jug found near the head of the skeleton dated the burial to LH IIIA2 (Fig. 12); two additional jugs near the stomion also date to LH IIIA2 and are probably to be associated with this burial.

A third episode of use is associated with an assemblage of artifacts located in the western portion of the chamber, and corresponds with the third phase of the blocking of the stomion. These included a stirrup jar, an alabastron dating from LH IIIA2 to IIIB, and two conical beads. No skeletal material was associated with this assemblage.

A fourth episode of use, but one which does not correspond to a particular phase in the stomion’s blocking wall, included skeletal and artifactual material located against the north wall of the chamber. The skeletal material was fragmentary and poorly preserved, and together with the jumbled nature of the artifactual evidence, indicated secondary deposition. It seems that this burial and its associated artifacts were pushed against the north wall of the chamber in a cleaning operation. The associated artifacts included two stemmed bowls, one datable to LH IIIA2 late – IIIB, and a LH IIIB stirrup jar (Fig. 13).
It is possible that the cleaning operation described above was associated with the opening of the chamber that resulted in the creation of a small chamber-shaped pit in the western side of the chamber. As with the above-described cleaning operation, this fifth episode cannot be connected with certainty to a particular phase of the stomion’s blocking wall. The creation of this pit required the extension of the existing chamber to the west, effectively creating a side-niche in the chamber. The pit was then dug into bedrock within this niche, and flat slabs were placed over the top. Although no skeletal material was found in the pit, it provided the most extensive artifactual evidence of any assemblage in the tomb. This included a LH IIIB Late Psi female figurine, a LH IIIB1 feeding bottle, a LH IIIA2 late – IIIB deep bowl, and at least two separate necklaces of faience, glass, and agate beads. The lack of bones, and the presence of the feeding bottle, leads us to suggest the existence of another child burial in this pit.

A final, sixth episode of human activity in Tomb 5’s chamber can be associated with the final phase of the stomion’s blocking wall. It is clear that this episode occurred after there had already been extensive collapse within the chamber itself. A tunnel seems to have been excavated from the top of the stomion into the southeastern portion of the chamber. A lack of skeletal material and the presence of pottery fragments and a jug suggests that this tunnel was used for the placement in the chamber of an offering, instead of a burial.

Interpretation

Evidence for these multiple episodes of tomb use and reuse were identified based on stratigraphical and artifactual information from the chamber, dromos, and blocking wall of the stomion. Included among these are adult and probable child burials in the chamber and the dromos, as well as an offering made by tunneling into the tomb after the chamber had collapsed. All in all, there are six recognizable episodes of human activity in the chamber, as well as the creation of a side niche in the dromos. Tomb 5 fits well our overall picture of the cemetery’s use from LH IIIA1 to LH IIIB2, which corresponds to the major periods of occupation at nearby Tsoungiza.

The exceptionally poor preservation of the skeletal remains may be a result of the repeated use of the tomb, exposing them to human and natural agents of decay, but it is the highly alkaline nature of the calcium carbonate composition of the marl that, when mixed with water, that leaches the skeletal remains to the point where they can dissolve almost totally. This situation is exacerbated in all of the tombs excavated so far because of the extent to which they have been disturbed by plowing and the preparation of terraces.
using a bulldozer. The fact that the chambers of Tombs 2 and 3 were still intact leads us to hope that any chamber tombs located upslope in the fields to the west will be better preserved, since no bulldozing and subsequent cultivation has taken place there.

Prospects for a Stable Isotope Analysis of the Human Remains

During the 2007 season, twenty human and twenty-five animal bone samples were selected from Ayia Sotira and Tsoungiza, respectively, and application was made to the 37th Ephoreia of Prehistoric and Classical Antiquities for a permit to conduct stable isotope analysis.\(^\text{13}\) The analysis will be carried by Professor M.P. Richards, Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology in Germany. Human bone samples include skeletal material from the robbed Tomb 1 at Barnavos as well as from Tombs 1, 2 and 4 at Ayia Sotira.

The reconstruction of past peoples’ diet has been the frequent focus of human bone studies in the last few years.\(^\text{14}\) In addition to the macroscopic evidence of dental lesions, more elaborate analytical methods such as stable isotope analysis have been widely adopted for the identification of dietary patterns.\(^\text{15}\) Stable isotope analysis of the protein extracted from human and animal bones provides direct information on their lifetime diets. As foods consumed by humans and animals are broken down in the body, carbon and nitrogen atoms from the food are redeposited in body tissues. For bone collagen, the $\delta^{13}C$ and $\delta^{15}N$ values indicate the sources of dietary protein eaten over many years.\(^\text{16}\) It is therefore possible to measure the $\delta^{13}C$ and $\delta^{15}N$ values of archaeological human and animal bone collagen and infer what kind of food was eaten.

Stable isotope analysis was introduced to Greek archaeology fairly recently, but is already quite widely used. Analyses have been carried out on samples originating from many different areas, from both northern and southern Greece, Crete, and other islands. The material sampled covers a long time span, ranging from the Neolithic, the Bronze and Iron Ages through to the Classical and Byzantine periods.\(^\text{17}\)

The application of stable isotope analysis on faunal remains from Ayia Sotira and nearby sites will contribute to the reconstruction of the LBA diet of the local population, since the faunal isotope values from Tsoungiza will provide a reliable baseline of the food chain consumed by humans.\(^\text{18}\) Overall, the aims of the

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\(^{13}\) Sevi Triantaphyllou would like to thank warmly Dr. Paul Halstead, University of Sheffield, UK for the identification and selection of the animal species from the archaeozoological material of the nearby site of LBA Tsoungiza.

\(^{14}\) C.S. Larsen, Bioarchaeology: interpreting behaviour from the human skeleton (Cambridge 1997).


\(^{16}\) The isotopic ratio of two isotopes of carbon (12 and 13) is reported as $\delta^{13}C$ value while the ratio of two isotopes of nitrogen (15 and 14) is given as a $\delta^{15}N$ value. See N.J. Van Der Merwe, Carbon isotopes, photosynthesis and archaeology, American Scientist 70 (1982), 596–606; M.P. Richards and G.J. Van Klkenen, A survey of European human bone stable carbon and nitrogen isotope values, in A. Sinclair, E. States and J. Goulett (eds.), Archaeological Sciences 1995. Proceedings of a conference on the application of scientific techniques to the study of archaeology, Liverpool, July 1995 (Oxford 1997), 363–368.


\(^{18}\) K.L. Privat and C. O’Connel, Stable isotope analysis of human and fauna remains from the Anglo-Saxon cemetery at Berrinsfield, Oxfordshire: dietary and social implications, JAS (2002),
stable isotope analysis will be: 1) the definition of broad dietary patterns such as the distinction of C3 and C4 plants, the distinction of terrestrial (either plant or animal protein) versus marine foodstuffs; 2) the investigation of possible differences of the isotopic signals between population subgroups (e.g. age and/or sex groups); and 3) the investigation of possible differences at the intra and inter-cemetery level (e.g. Barnavos versus the Ayia Sotira cemetery population).

Site Preservation

After excavation and removal of all of the finds to the Nemea Museum, and after consultation with the 37th Ephoria of Prehistoric and Classical Antiquities, various measures have been taken to conserve and consolidate the tombs at Ayia Sotira. All of the test trenches were backfilled, and excavation dumps leveled in order to return the olive grove as much as possible to its original state. The chamber of Tomb 1 was backfilled at the beginning of the 2006 season due to the danger of collapse. In addition, a fence was placed around its exposed dromos. The chamber of Tomb 2 was reinforced by steel scaffolding supporting wooden cross beams. Around Tombs 3 and 4 we erected low, welded steel frames that were anchored into the marl. Onto these frames was bolted corrugated metal roofing that rises 0.3–0.4 m. above the ground surface and completely covers the excavation areas (Fig. 14). Additionally, around the sides of each tomb soil was heaped up and trenches were excavated to drain water away and down from the tombs. Tomb 5, on the other hand, was backfilled and a layer of gravel was placed over the area of the dromos and chamber. This was done primarily because of the topography in the area of Tomb 5; a steep scarp exists just to its north and we could not be confident that any system of roofing and drainage channels would prevent collapse during the winter months.

Conclusions

We are confident that no further tombs exist to be looted in the field of Panagiotis Tombros, but we continue to be worried about looting in the area because...
of the almost certain presence of additional tombs in adjacent fields to the north (where evidence for illicit digging is already present). The location of the discovered tombs along the northern border of the Panagiotis Tombros property, in addition to the illicit digging, suggests to us that there are very likely other chamber tombs in this area. Any tombs in this area may have suffered fewer disturbances than those in the terraced olive grove of Panagiotis Tombros because agricultural work was apparently never seriously undertaken in these fields and, so far as we are able to make out, they have not been plowed except in the early 1980s when the entire slope was deep plowed. We have already begun the process of purchasing the land in these fields in order to continue excavations in 2008.

The discovery of five chamber tombs in the Panagiotis Tombros field makes it clear that this is an important cemetery, almost certainly belonging to the LBA settlement on nearby Tsoungiza. From the cemetery the view to the east looks directly at the settlement, 1,214 m. distant. To the south, at a distance of 1,462 m, one can also see the ravine at Barnavos where a single chamber tomb was excavated in 2002 (1,002 m distant from Tsoungiza). Both places of burial are at about the same elevation as the settlement on the crown of Tsoungiza.19

Preliminary study of the pottery suggests the cemetery’s earliest use may have been during LH IIIA1 and the latest in LH IIIB2; in other words the cemetery may have been in use between 75 and 150 years (1375/1330–1250/1200 B.C.). These dates correspond well to the major period of late Mycenaean occupation at Tsoungiza. In order to better understand the function of these vessels within their funerary contexts, we have applied for permission to conduct organic residue analysis on seven vessels from Tombs 3 and 4.20 Analysis of the extant human bone material makes clear that the tombs with human remains contained infants, children and adults interred over several generations. The discovery of additional tombs in 2008 would increase our demographic sample of the people who lived in the area of Tsoungiza during as many as two centuries of its habitation. This will be invaluable for comparison not only with the habitation remains from the settlement but also with the remains from the much larger cemetery at nearby Aidonia.21 This research will fill out the picture of human settlement in the LBA Nemea Valley and the wider region comprising the Asopus (Phliasian) Valley to the west. It will, therefore, allow both comparison to its wider immediate region, and an assessment of its relationship to Mycenae, its powerful neighbor to the south.

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19 See WRIGHT et al. (n. 4).
20 This analysis will be carried out by Dr. Maria Roumpou.