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The Basilica Mosaic on Asar Island at Myndos

Myndos Asar Adası Bazilika Mozaiği

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Abstract

The first time that a church's ruins have been discovered with three naves under the base of an architectural ruin of a watchtower is happened in 2009 in Myndos' Asar Island, when the archeological excavations had started at the top of the island.The ground of the church had been made by using the technique of opus tesselatum, and covered by an geometrical patterned mosaic. However that mosaic had been only protected one piece at the North nave and mostly in the middle nave. Most of the floor pavement of North nave had been ruined because of multiple reasons and had been found at the lower terrace with pieces by the reason of fall down. At the South nave none of mosaic ruins had been found. The mosaic floor dated late 5th - early 6th A.D. by the style and the ruins that have been found with it. In that article information's will be given about that mosaic's floor and consolidation.

Keywords: *mosaic, Myndos, Asar Island, opus tesselatum.*

Öz

İlk defa 2009 yılında Myndos Asar Adası'nda arkeolojik kazıların başlaması ile birlikte Ada'nın en üst noktasında, gözetleme kulesi olarak sonradan kullanılan mimari kalıntının temelleri altında 3 nefli bir kilise kalıntısı gün ışığına çıkartılmaya başlamıştır. Kilisenin zemini opus tesselatum tekniğinde yapılmış geometrik desenli bir mozikle kaplanmıştır. Ancak bu mozaik orta nefte oldukça, kuzey nefte ise bir parça şeklinde korunduğu görülmüştür. Kuzey nefe ait olan zemin döşemesinin büyük bir bölümü çeşitli nedenlerle tahrip olarak alt teraslara parçalar halinde akmış olarak bulunmuştur. Güney nefte ise herhangi bir mozaik kalıntısına rastlanamamıştır. Mozaik zemin, stili ve birlikte bulunan buluntulara göre İ.S. geç 5. – erken 6. yüzyıla tarihlenmektedir.

Bu makalede söz konusu mozaik zemin ve sağlamlaştırma çalışmaları hakkında bilgi verilecektir.

Anahtar Kelimeler: *mozaik, Myndos, Asar Adası, opus tesselatum.*

Geographical Location of Myndos

Myndos is located in the Turkish province of Muğla in the district of Bodrum, and it lies in the current city of Gümüşlük (Fig. 1). Myndos was one of the Carian cities[1], according to Strabon, and was situated near Halikarnassos, opposite the Cape Scandaria of Cos and above Cape Termerium.

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[1] Caria was a region of western Anatolia extending along the coast from mid-Ionia (Mycale) south to Lycia and east to Phrygia. The eponymous inhabitants of Caria were known as Carians, and they had arrived in Caria before the Greeks. They were described by Herodotos as being of Minoan descent, while the Carians themselves maintained that they were Anatolian mainlanders intensely engaged in seafaring and were akin to the Mysians and the Lydians. The Carians did speak an Anatolian language, which does not necessarily reflect their geographic origin, as Anatolian once may have been widespread. Also closely associated with the Carians were the Leleges, which could be an earlier name for Carians.

Figure 1
The Map of Halicarnassus
(Myndos Excavation Archive)

Gümüşlük is a peninsula with a small mountain pass that connects it to the mainland. The valleys that connect Myndos with Halicarnassus are rich and fertile. These valleys contain windmills and settlements. This area is known as the country of the black grapes.

History

In the 2nd millennium B.C., the Lelegs settled the Carian coast, displacing the original inhabitants of Myndos. Myndos remained occupied and was settled to the coast, where Gümüşlük is today (Figs. 2-3). The old city later was called Palaimindos. The city, built by Mausolos, was constructed according to a traditional Greek city plan, and the whole city was surrounded by a wall. The ruins of the city, which have been preserved to the present, belong to the period of Mausolos. In the Christian period, the city was called Amyndos and was a cathedral town connected to Caria Eparchiasi. The fact that the Myndos was part of Caria Eparchiasi makes it possible for us to obtain information about the city from the consul lists created by Hierokles after the year 375 A.D.

The city was abandoned after a major earthquake, and because of the difficulties in the Middle Ages of defending its coast, the city was not resettled until recent times. The traces of the earthquake that marked the end of the city can be seen both in the harbor, where buildings sank into the water, and on the city walls, which are preserved today.

Current Myndos research began with a survey in 2004. The survey on the mainland was conducted in three different places: the mainland, East Necropolis and the Northwest. The survey started at the acropolis, which is the on the highest point in the city and thus was chosen as a triangulation spot, and ended on the next highest point in the city, on the top of the hill of the peninsula. The best-preserved parts of the city walls are on the acropolis (Fig. 4). The surveys of the mainland showed that the city of the classical period, built by Maussolos,

Figure 2
The air photo of Myndos (Myndos Excavation Archive)

Figure 3
The air photo of Myndos (Myndos Excavation Archive)

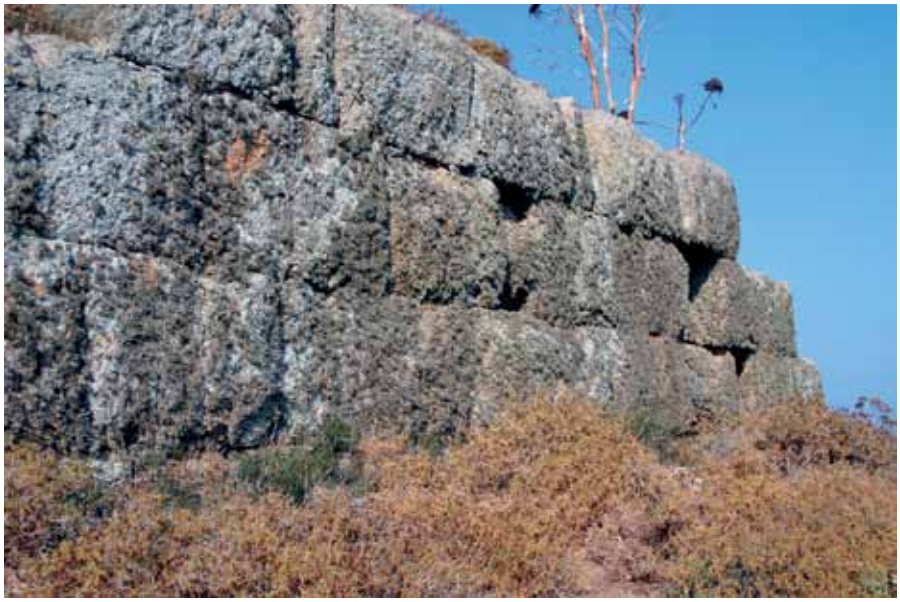

Figure 4
Myndos city wall from 4th century
(Myndos Excavation Archive)

Figure 5
Lelegian Walls
(Myndos Excavation Archive)

was spread over a wide area. Myndos could have been a defense station for the capital city Halikarnassos against enemies, who could come from the west. The strategic location could be the reason that the city continued to develop in even the Roman period. Myndos and its harbor were protected by a city wall 5 km in length (Fig. 3). The city wall was designed in such a way that the harbor was preserved. The harbors were built so that they would protect against the northwest wind. The little island (Tavşan Adası / Rabbit Island), where the west city walls meet, is at the beginning of the connection with the mainland (Fig. 3). The traces of the preserved city walls confirm this. The city fortifications, which surround the city and are made of granite, were made with a pseudo-isodomic technique.

In the city is a second city wall, which only surrounds the peninsula and is not connected to the other walls (Fig. 5). Larger stone blocks are used in the wall, and thus, it is called the "Leleges wall". The technique and the gray stone distinguish it from the other walls. The stones are rectangular and polygonal. In some parts the thickness of the wall is 1,20 m. The appearance and technique of the

Figure 6
The Bath
(Myndos Excavation Archive)

wall is similar to the city walls of Tiryns, which are dated to the second half of the 2nd millennium B.C.. This dating corresponds with Strabon's account and confirms that the foundation of the city has to predate Mausolos.

In the western harbor, on the south end of the valley, is a ruin of a church. The Bodrum Museum of Underwater Archaeology excavated the church in 2004 to assist with the site's preservation, and an in-situ preserved mosaic base was found on the its floor.

Another preserved building could be an imperial bath and lies 20 m northeast of the church (Fig. 6). The preserved length is 38 m and the width 12 m. Only the caldarium with the apse is still standing. According to local inhabitants, many marble bath basins were taken out of a cistern 100 m to the south; the owner of the land eventually stopped this practice and covered the well. Another interesting discovery was the artifacts in the mouth of the artificial harbor, which would have protected the eastern harbor. Here, we found two rooms, which lie upright on the foot of the slope and parallel to the artificial harbor, with a girdled cover. Traces of a mosaic pavement remain on the floor. The threshold of the southern door leads us to believe that this place was.-

In 2009, excavations started on the highest point on Asar Island, which we named the Tower trench (Fig. 7). From here, fallen remnants of the surrounding wall can be seen surrounding the hilltop. The initial goal of the work was cleaning the watchtower. The foundations of the wall were made from stone blocks. The surface of the upper sections was made from rubble and bricks, and the middle was filled with rubble composed of broken bricks and lime mortar. The bricks on the wall surface are in a rectangular shape that creates a geometric pattern, a technique used since the 11th century A.D. The excavation was continued on Asar Island in 2010-2013.

The building is located on the highest point of Asar island in the ancient city of Myndos at the opening of the tower structure. Here, the remnants on the surface consist of ramparts surrounding the hill, which is why the watchtower was unearthed before any other structures. On the tower building, the wall bricks create a square geometrical form and date the wall back to the 12th century A.D.

Figure 7
General view of Asar Island
(Myndos Excavation Archive)

Figure 8
General view of the Mosaic
from Asar Island
(Myndos Excavation Archive)

Figure 9
General view of the Mosaic
from Asar Island
(Myndos Excavation Archive)

Excavations began with a 4x3 m drill into the middle of the tower building; because the finds exceeded our estimations, the excavation spread to the entire zone within the ramparts. During the excavations, the whole building was unearthed. There is a mosaic base on the floor (Şahin 2009). The mosaic floor is partially destroyed, most likely from later settlement phases (Figs. 8-10). The mosaic floor here points to the existence of a building other than a watchtower.

On the northwest side of the excavation area, there are remnants of a three-step stairway. During surface cleaning on the upper steps, square terracotta tiles and a floor of rubble stones were revealed. These finds show that a second floor is located approximately 60 cm above the mosaic floor. Another stair line is located on the northwest corner. To the west of the stairs, there is a terracotta jar that is fixed in place with plaster and has a broken lip. The most notable findings of the excavations are a relief on a thin white marble tile depicting a lion chasing a horse, a four-line epigraph with very primitive writing on another marble tile, and a coin.

The purple marble tile in front of the stairs in the atrium is a sign of Imperial patronage for the building of the church because, according to tradition, only the imperial family or their close relatives could use this color. The church was devastated in the second half of the 7th century A.D. due to an unknown reason and was abandoned without being repaired. Total destruction of the northeast corner of building and the diffusion of the mosaic base to the terrace below demonstrate the severity of the site's degradation.

This space, a rectangle 5 m wide and 10 m long on a north-south axis, is 0.5 m above the main chamber. Steps on the northwest corner lead into the space. The stairwell north of the stepped passage indicates this may have been the main entrance; however, this section is directly in front of the western corner of the bastion. The corner of the bastion closed the entrance and shows the tower was built at a different time. The entrance gate being closed off suggests that the building had lost its past importance when the tower was built.

The remaining walls of the structure are not parallel with the tower. On the north, in a part of the floor of a triangle-shaped protected zone between the building and the tower wall, there are remnants of a striking in situ mosaic pavement. This area is paved with 10x10 cm stones. The function of this pavement, of which only a small part is preserved, is revealed by a nearby structure. The space outside and approximately 4 m below the tower walls contains the partial remains of a rectangular building 4 m wide and 9.5 m long. The eastern, narrow side of the building ends in the form of an apse. Massive blocks stand out on the wall, especially on the northeast corner. These foundations indicate heavy stonework above. The western wall of the space continues into the tower wall, which the southern wall also intersects. Both walls continuing into the tower wall are noticeably in line with the walls of the building located at the base of the tower. These aligned walls show that both buildings are sections of the same structure, despite the elevation difference. The most interesting findings here consist of graves extending in east-west direction (Şahin 2011: 158 et seq. drawing 2). A total of 12 graves have been unearthed[2]. The golden sconces on a grave adjacent to the south wall and distinguished with its brickwork are visually striking (Şahin 2011: 159 et seq).

The graves on the terrace beneath the tower are not restricted to those within the vaulted space of the apse. There are other graves just to the north of the space. Some of them extend in a north-south direction but diverge. In one of the graves unearthed during excavations in 2010, only 8 skulls were found. There are bone remnants on two nails found with the skulls, indicating that once the heads were severed, they were nailed and exhibited. Punishment in the Late Antiquity and Middle Ages involved decapitation followed by exhibition of the head in a public place.

In 2010, during excavations on the terrace beneath the tower, a ramped road, which proceeded from the middle of the island up to the building at the tower, was unearthed. The width of the road is approximately 3 meters. The road was built of flagstones, and the ramp disappears beneath the bastion of the tower. We unfortunately were unable to find any further remnants of the road. During the construction of the bastion, the traces of road from an earlier period likely were destroyed. The solemnity of the ramped road again indicates the great importance of the tower structure.

We may try to determine the function of the building at the end of the ramp. The building is divided in half by tower walls, and its east-west direction, the mosaic floor and many cross motifs indicate that it may be a church. If it is a church, the function of the two connected spaces becomes more apparent. The remaining apse on the lateral façade of the space on the north, which is narrower than the southern space, suggests the presence of a nave arrangement specific to basilica churches. The unearthed building thus may have been a three-nave

[2] Data on these graves and their contents prepared as a postgraduate thesis by our student M. Ufuk Gürdal.

basilica. Nevertheless, the third nave, which should be to the south, has not yet been discovered. Towards the end of the excavation campaign, however, we found clues during the process of cleaning that may be interpreted as the presence of a mosaic pavement on the floor. In addition, excavations on the southern part of the church in 2011 unearthed the walls of a south nave. It was concluded that the church is a 3-naved basilica.

Consequently, the graves on the northern space – believed to be a nave – become more important. When they were first discovered in 2009, they led to confusion because ancient necropolises are rarely located within settlements. Now, the evidence indicates that they most likely belong to a crypt of the basilica. This arrangement would explain the difference of elevation between the two levels. In all probability, the section with the graves was used as crypt of the basilica.

During the 2010 excavation season, we drilled next to the northern sidewall at the main nave of the tower to determine the construction date of the basilica. A few ceramic fragments from Late Antiquity were found at the upper levels, and both Late Antique and Hellenistic ceramics were found at lower levels. The ceramics of varying periods made it impossible to determine an exact date.

We believe the Late Antique settlement on the island began only after Christianity was officially embraced. The area of the basilica and surrounding annexes acquired a new meaning and took the form of a monastery. Through the conversion to Christianity, the island retained but shifted its sacred identity.

The presence of a monastery on the island is perhaps best supported by water cisterns on various parts of the terrace (Şahin 2011: 156 et seq. fig. 11). On the terrace beneath the tower, there are a total of 5 water cisterns: two on the east section, two on the west section and one on the middle section. The rainwater is carried to the cisterns through terracotta pipes. Water pipes emerge from the tower; thus, rainwater was collected at the tower before being distributed to cisterns on the island. The floor of one of the cisterns, unlike the others, is paved with even-cut stone tiles. We believe that this pavement points to an earlier settlement phase on the island. There are no similarities between the locations and forms of the holes on the floor of the cisterns. We are still searching for evidence to explain this difference, which may be caused by different construction dates. The purpose of including these holes is, as it is today, related to cleaning the cisterns. Plaster made of sand and fragmented tile is a common feature of all of the cisterns, and it serves to prevent leaks.

The medieval wall is best preserved at the tower. Considering the extent of preserved wall remnants across the island, these walls must have surrounded the entire island. The wall is constructed of plaster and rubble stones, and the surface is comprised of tiles that are placed in a square pattern for decorative purposes (Şahin 2010: 229 fig. 9). Such dynamism on the face of a wall was a popular fashion in medieval settlements as of the 11th century A.D., which is why we believe the rampart walls surrounding the island were constructed at a later date.

For the very first time in its history, the island was entirely surrounded by guard walls. In other words, the settlement borders within the city of Myndos were restricted to fit on the island. Thus, it may be more appropriate to consider Myndos in those days as a village, rather than a city.

According to Hierokles, who prepared consul lists in 375 A.D., the city was an episcopate center during the Christian era under the Eparchy of Caria, and it was called Amyndos (Parthey 1866: 365). At the Council of Ephesus in 431 A.D., Bishop Arhelaos of Amyndos was a participant representing the peninsula

(*Kraatz* 1904: 114). Additionally, the ampullae suggest that the basilica was viewed as a sacred pilgrimage site. Both facts indicate Myndos maintained its importance during the Early Christian era. As the temple on the island gave way to the basilica, the island preserved its sacredness in the wake of conversion to Christianity.

Mosaic Technique: Opus Tesselatum

Mosaic Discovery Site: Myndos Asar Island, inside the tower.

Protection Site: In-situ; following the conservation work, it was covered with a geotextile and covered with a thick layer of stream sand.

Architectural Context: Mosaic 4 covers the middle nave within the basilica structure. Only a tiny area of 1 m^2 on the north nave is preserved; the south nave is totally devastated, and a later watchtower is built over it. Nevertheless, the mosaic pavement on the protected section of the northern nave includes the remnants of a contemporaneous area with mosaics. The watchtower was most likely built on a terrace just below the north nave, and the numerous palm-sized mosaic fragments unearthed seem to support this argument.

Measurement of the Mosaic: Protected size: 7.36 x 5 m

Materials: Limestone and marble.

Density of Tesserae per dm^2: The tesserae dimensions are 1.5 x 1.5 cm, and the density is 44.4 dm^2

Color of Tesserae or Pebbles: The tesserae are produced by cutting thin layers from limestone and marble, and the colors are white (marble), cream (limestone), black (limestone), grey-blue (marble), ochre yellow (limestone), and burgundy (limestone).

Current State of the Protected Mosaic

Mosaic Restoration (Figs. 11-30)

Introduction

In 2009, due to urgent need, the mosaic was strengthened by a conservator, and at the end of the excavation, the mosaic was coated with a temporary cover consisting of layers of geotextile cloth and a mix of sand and soil to protect it against deterioration from environmental elements.

In 2010, the floor mosaic was cleaned and strengthened. The conservation/ preservation activities involved assessing the existing situation, photo documenting, surface cleaning, local strengthening in tessellatum, and partial lifting and leveling of the collapsed floor near the north side. The work that began with three intern conservation students under the control of conservation technician Deniz Yeşilkaya starting 6 July 2010 and that mostly involved surface cleaning was continued as Assoc. Dr. Selçuk Şener and two workers joined in 14-24 August 2010. In this period, conservation technician Turgay Arıkan also assisted for two days.

General Characteristics of the Church Mosaic

The structural layers in the mosaic are, in ascending order, the “Statumen” (hard core), “Rudus” (mortar with large particles, a mixture of stone and lime), “Nucleus” (thin mortar with smaller particles, of stone dust and brick

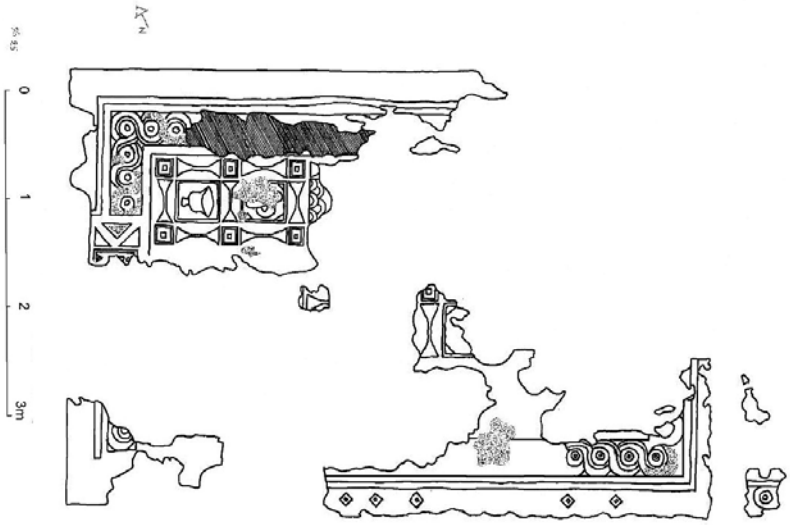

Fig. 10
Drawing of the Mosaic from Asar Island
(Myndos Excavation Archive)

Fig. 11
Restoration Work on the Mosaic from Asar
Island (Myndos Excavation Archive)

Fig. 12
Restoration Work on the Mosaic from
Asar Island (Myndos Excavation
Archive)

Fig. 13
Restoration Work on the
Mosaic from Asar Island
(Myndos Excavation Archive)

dust/pieces), “Setting Bed” (thin mortar with a high proportion of lime) and “Tessellatum” (tesserae) layer. The structural layers range from 8-10 cm in the statumen, 3-4 cm in the rudus, 2-3 cm in the nucleus, approximately 1-2 mm in the setting bed and 10-15 mm in the tessellatum.

Current Condition of the Mosaic

The church mosaic on Tavşan Island was discovered in the excavations in 2009. After the excavation, the surviving remains of the building include its mosaic floor and several wall pieces.

As a result of the analyses of the building, it was recognized that temporary covering precautions were needed on the floor mosaic as an urgent intervention after the excavation. The remains were preserved in the condition in which they were originally found during and after the excavation, and detected deformations occurred before the excavation.

There are significant losses to the mosaic especially in the tessellatum because it was damaged through neglect and exposure to rain and uncontrolled planting, which caused the layers to split and created bloating, blistering and cracking. In addition, the nearby burial environment caused a build-up of limestone on the mosaic during the period it was buried.

The distortions seen on the mosaics can be grouped into two types based on their modes of formation: the distortions that occurred with changes in the building layers, namely structural deterioration, and those that occurred with the changes on the surface, namely surface deterioration.

STRUCTURAL DETERIORATIONS

1. Depression

There is a depression 2.5 m long and 40-50 cm wide near the north side of the existing mosaics, most likely caused by heavy falling objects from the collapse of the original structure. The formation of a depression and the existing mortar layers and suggest that the base of the mosaic softened from exposure to dampness and was subsequently significantly deteriorated. The deterioration, in addition to changing the mosaic’s structure, led to further deterioration because the weakening in the depressed and surrounding area enabled plants to root easily. The roots observed growing in the depression; the resulting large crevices, cracks, and tesserae losses; and the disintegration, pulverizing, and splitting in the lower layer of mortar support this idea.

2. Cracking

Cracking appears at the deterioration of the unity of the surface and the layer, which is about the tessellatum layer with the nucleus and rudus mortar layers below. Cracks, although they can be as wide as 1 cm, are mostly 1-2 mm wide and are localized.

There are two means by which the cracks have formed.

The first mechanism that causes cracks is the pressure of the depressed areas.

The second mechanism of deterioration is the pressure of growing roots that extend under the tessellatum, nucleus and/or rudus, mostly in the areas where bulging is seen.

Fig.14
Restoration Work on the
Mosaic from Asar Island
(Myndos Excavation Archive)

Fig.15
Restoration Work on the
Mosaic from Asar Island
(Myndos Excavation Archive)

Fig.16
Detail of the Mosaic
from Asar Island
(Myndos Excavation Archive)

Cracks formed from both mechanisms lead to weakening in the cracked area and lead to further deterioration from water absorption, root growth, separation between layers and loss of lacunae and tesserae.

3. Disintegration of the layers

Delamination has occurred between the nucleus and/or rudus layers and Tessellatum. We observed that the mosaic's surface, which visually appears intact, is disintegrated in many places, but mostly between the Tessellatum and Rudus or Rudus and Nucleus layers. A layer of earth accumulated between the layers from muddy water that settled in the spaces between layers, and root growth also deteriorated the connection between these layers.

4. Lacunae

Lacunae are missing areas in the tessellatum that constitutes the surface of the mosaic and/or in the supporting layers. Lacunae vary according to the cause of deterioration and may be only a single tessera, a few tesserae or broader areas.

The first type of lacuna occurs in the tessellatum and is a result of tesserae disintegrating from the setting bed.

The second type of lacuna is the loss of tessellatum in wide areas, generally involving disintegration to the statumen, and in some localized areas until the rudus on the statumen. The losses are caused by the building's lack of use, the nearby burial environment, and environmental factors such as rain and flooding.

5. Bulging

Bulging of a mosaic floor generally occurs in local areas but is a widespread problem. Deterioration is detected as the tessellatum splits from the nucleus on its own, and sometimes, the split occurs from the rudus layer together with the nucleus, causing local areas to bulge just like a carpet. These types of deteriorations become areas that are prone to disintegration because of the splitting layers and the in-between space formed by the growing roots becoming filled with muddy water.

6. Tessera ruptures

Tesserae have ruptured from the setting bed and from the nucleus layer with the setting bed. The tesserae separated from the mortar below individually or in groups and led to lacuna formation and/or they had mixed with each other.

SURFACE DETERIORATIONS

1. Corrosion

Corrosion is found in reintegration areas, especially in areas with ochre yellow-colored sedimentary stones. The corrosion is a result of the stone becoming softened from contact with water and causes losses of varying degrees from the tesserae surface to the underlying layers. The deterioration occurred extensively in the knotted edges on the tesserae located in the areas where the stone reintegration was applied. Deterioration is also seen in other sedimentary stone areas as partial losses of sides and corners or on surface layers, although sometimes the deterioration is not advanced.

Fig.17
Restoration Work on the
Mosaic from Asar Island
(Myndos Excavation Archive)

Fig.18
Restoration Work on
the Mosaic from Asar Island
(Myndos Excavation Archive)

Fig.19
Detail of the Mosaic
from Asar Island
(Myndos Excavation Archive)

2. Superficial limestone deposits

Limestone formation caused by their long burial was observed on the mosaic surfaces. The limestone's thickness varies, but most areas are 1 mm or less. Deterioration also caused salinization, and a clay layer adhered to surfaces with the help of the water and intense humidity during burial.

3. Crumbling

The tesserae have crumbled as a result of disintegration in the mineral structure and in crystal scale. Interestingly, the crumbling was seen pervasively in the marble and limestone types in localized areas. We believe the crumbling was caused by salinization and its effect on the composition of the soil.

I. Preservation and Restoration Work

In the conservation and preservation work on the church mosaics in Tavşan Island, we wanted the mosaic to be conserved in situ with minimal intervention. As this work progressed, short-term and middle-term operations were also planned, which are listed below.

1. The work that began with consolidation in 2009 continued in 2010 with leveling by partial lifting, locating the depression in front of the north edge and cleaning and consolidating weak areas with filling and reintegration. It is estimated that in 2011, the consolidation and interventions to the missing parts will continue and that the restoration work likely will be completed.
2. In addition to the current in situ conservation and restoration, there are plans to conserve the architectural remains in which the mosaics are located. We hope to improve the longevity of coverings applied to prevent the wall sections unearthed in 2009 from disintegrating and consolidate the wall fragments with procedures such as interstice filling and partial reintegration. Conservation will also be performed to prevent the penetration of rain and plant roots by applying coverings on the mosaic. This planned site conservation will preserve the entire environment around the mosaic through an exhaustive intervention.
3. Even if all the planned conservation is completed, it will not be sufficient to conserve the floor mosaics and the architecture. Because of the fragility of the remains, the mosaic and architectural ruins, if possible, will be covered with a temporary or permanent cover.
4. After the completion of all of the conservation and preservation work, the future plan is for the building to be opened to visitors. To allow for visitation, a walkway will be built with the cover system, which will both facilitate visits and preserve the structures that remain by limiting contact.

The conservation and preservation work carried out in 2010 on the floor mosaic included cleaning, consolidation and reintegration to preserve the general aesthetic appearance. The work can be categorized as follows according to the phase of work:

Fig.20
Detail of the Mosaic
from Asar Island
(Myndos Excavation Archive)

Fig.21
Restoration Work on the
Mosaic from Asar Island
(Myndos Excavation Archive)

Fig.22
Restoration Work on the
Mosaic from Asar Island
(Myndos Excavation Archive)

1. CLEANING

a) The removal of the temporary surface cover:

Cleaning started with the removal of the covers that were created for temporary protection after the excavation and continued with unearthing and cleaning away soil and dust from the mosaic's surface, lacunae and interstices.

First, the geotextile cloth and covering of sifted sand and soil (approximately 15 cm thick) preserving the mosaic needed to be removed.

b) The removal of hard adhering deposits on the mosaic's surface:

The hard adhering deposits on the mosaic's surface were cleaned mechanically. The dense layers of limestone were cleaned using narrow-thin scalpels that gave good control, brushes of medium softness and corrosive tips attached to dental machines. This cleaning method removed the limestone layer and allowed the mosaic decoration to be seen in its entirety.

c) The removal of surface dust:

Water was applied using hard and medium soft nylon brushes[3]. Dirty surfaces were first washed with wet brushes, and immediately following that, the dirty water was removed with a sponge[4]. This procedure was repeated several times until the dusty residues were completely eliminated.

2. CONSOLIDATION

Consolidation included different procedures to repair and/or improve the poor condition of the mosaic's layers.

a) Edge consolidation

All of the mortar filling was carried out in the 2009 summer season. The mortar filling served to consolidate and stabilize the mosaic by preventing the disintegration of tessellatum, nucleus and rudus edges and preventing further deterioration in the lacunae. The activity in the 2010 summer season was limited to the sections where the partially dispersed tesserae were consolidated and reset.

A lime-based mortar similar to the supporting mortar layers (the nucleus and rudus) was prepared by combining hydraulic lime, finely sifted sand, marble powder and a mixture of brick powder and water to achieve a "cream-like pinkish color" for the edge consolidation.

The mortar was applied to the tessellatum layer to prevent tesserae on the edges of the mosaic and around the lacunae from disintegrating, as some losses had already occurred. First, the edge surfaces where the mortar was to be applied were cleaned and moistened with water. Next, the edge mortar was applied with spatulas, beginning at the lacuna base and ending in the upper edge in the pattern of a triangle. Finally, the mortar surface was wiped with a damp sponge to level the filling mortar on the surface and produce a homogenous look and texture on the edges.

Mortar was applied both on the edges of the existing mortar layer and on the existing lacuna edges in the nucleus and rudus layers. This method conserves

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3 Different types of brushes were used during the procedure depending on the condition of the tesserae.

4 Water on the brushed surface was wiped with a sponge before it was absorbed by the mortar between the tesserae to prevent the mortar from softening.

Fig.23
Detail of the Mosaic
from Asar Island (Myndos
Excavation Archive)

Fig.24
Detail of the Mosaic
from Asar Island
(Myndos Excavation Archive)

Fig.25
Detail of the Mosaic
from Asar Island
(Myndos Excavation Archive)

the existing layer by holding it on the edges and integrating it with the mortar layer below, which prevents the edges of the weaker parts of the mortar layer from disaggregating.

Interventions on the tessellatum layer ensure the stabilization of the mosaic edges in the initial stages of conservation; however, they also constitute a type of concealed consolidation because mortar fills were applied in the next stage. The consolidation of the nucleus and rudus is sufficient to hold and preserve the existing layers and the edges of lacunae and can be seen from without.

b) Restoration of the setting beds

The area between the tessellatum and the mortar layers was restored in the areas that were wholly or partially disintegrated and on a 254 x 103 cm section of the north edge to level the depressed area. The goal was to locally lift the depressed portion, renovating the setting bed and reintegrating the tessellatum with the mortar (mostly the nucleus but sometimes the rudus and nucleus) layer below.

This procedure involved facing the tessellatum by binding the layer from above with cotton cloth adhered with acrylic resin solution (Paraloid B-72 in 20% acetone). Then, the tessellatum, which was partially lifted off the level of the setting bed using slender wedges, was partially raised on temporary supports. The middle pieces that split from each other were removed and laid upside-down on the wooden plane. Any remaining soil, mud or other contaminants and the setting bed residue were removed using a brush, spatula and thin cuts, and the dust on the mortar was removed with a vacuum cleaner. The prepared setting bed restoration mortar was spread on the same level as the lifted section. After the mortar was laid, the tessellatum sections with one side lifted were replaced on the new mortar; the sections were then leveled by gently hammering through small blocks of wood. After the desired evenness was achieved, the area was left to dry. Next, smaller mosaic pieces that were lifted in small sections were replaced. These pieces were also removed from their back mortars, which were no longer functional, as much as possible before being set and then leveled by placing on the new setting bed and left to dry.

The last phase of the procedure involved cleaning the facing after the mortar was dry. The resin that adhered the cloth to the surface was dissolved with acetone absorbed cotton pads, then the softened layer of cloth was lifted from the surface. Finally, any cloth or resin residue was removed by applying pure acetone over a paper towel laid on the surface, causing the paper towel to absorb the solubilized resin.

c) Consolidation with liquid mortar filling between the mortar layers

This consolidation was undertaken to reintegrate the mortar layers that had become disconnected by filling the resulting spaces with a liquid mortar.

In the procedure, the soil and roots that filled the spaces between the layers were removed with sharp tools and a vacuum cleaner. The spaces were washed with water to allow the mortar to fill the spaces completely. The filling mortar, which was similar to the existing mortar and prepared with finely sifted sand, stone powder and hydraulic lime mixture, was liquefied with water and inserted into the spaces. After the filling mortar dried, the edges were covered with edge mortar.

Fig.26
Restoration Work on the Mosaic from Asar Island (Myndos Excavation Archive)

Fig.27
General View of the Mosaic from Asar Island (Myndos Excavation Archive)

3. FILLING AND FINISHING

a) Reintegration of the tessellatum with tesserae

Tesserae that were detached from the mortar bed were reset with lime mortar with the same composition as the original mortar.

Detached tesserae and the small lacuna areas[5] formed by a few tessera losses were reintegrated by using tesserae collected during the excavation. The tesserae were classified based on their color and type before the reintegration. The soil on the tesserae was washed away, and the mortar residue was removed mechanically with a scalpel. Tesserae patterns and locations in the decoration were considered when reusing them for reintegration. The creamy pink lime mortar made of hydraulic lime, finely sifted sand, marble powder and brick powder described above was used to cement the tesserae. The tesserae were placed on mortar spread on the lacuna base and set in place by hammering through blocks of soft wood to attach them to the mosaic floor. In the final stage of the process, the reintegrated areas were cleaned of possible mortar residue and prepared for interstice filling.

b) Tessellatum interstice filling

Tessellatum interstices connected to each other and to the nucleus below were filled to reinforce the tessellatum layer, which had lost its integrity due to disaggregation in the setting bed. Soil, mud and other accumulations were first removed from the tessellatum interstices, which were then reinforced with a new mortar mix (used in finishing) prepared with hydraulic lime. The mortar mix was used in the interstice fillings. This mortar was chosen because of its difference from the original mortar material. The difference in mortars serves to mark the restoration and visually indicates all of the restored areas with a singular mortar type.

Interstice filling occurred in the areas of the mosaics with cracking to prevent plant growth in the interstices where the mosaic joins the original adjacent wall sections.

Conclusion

The conservation and restoration procedures applied during the 2010 season mostly consisted of cleaning and consolidation procedures carried out on the Asar Island church mosaics.

The mosaic that was conserved was the floor mosaic in the naos section of the church with a surviving area of 35 m^2. The mosaic has stylized plant, text and geometric decoration, and the individual tesserae are generally 10-15 mm. Tesserae are produced by cutting sedimentary stones and marble, and the mosaic incorporates white (marble), cream (limestone), black (limestone), grey-blue (marble), ochre yellow (limestone) and burgundy (limestone) colors. The structural layers range from 8-10 cm in the statumen, 3-4 cm in the rudus, 2-3 cm in the nucleus, approximately 1-2 mm in the setting bed and 10-15 mm in the tessellatum. Sand and lime are used as mortar in the rudus and nucleus layers, brick powder and

5 This process was used on small lacunae that have a distinct tessera color, pattern and location on resetting and that do not necessitate creating a design during reintegration. The procedure is mainly used to provide visual unity.

Fig.28
Detail of the Mosaic
from Asar Island
(Myndos Excavation Archive)

Fig. 29
Conservation Work on
the Mosaic from Asar Island
(Myndos Excavation Archive)

Fig. 30
Conservation Work on
the Mosaic from Asar Island
(Myndos Excavation Archive)

particles give a pink color to the mortar of the rudus and reduce its permeability, and a white or cream-colored lime is commonly used in the setting bed, which improves adherence in the layer.

The deteriorations seen on the mosaics falls into two groups: structural and surface deterioration. Deterioration was caused mostly by the weakening and splitting of the carrying mortars due to the effects of the pressure associated with water (dampness) and plant growth in the burial environment.

Conservation of the mosaics was performed on location conforming to the principle of in situ conservation. Multiple procedures were partially undertaken. During conservation and restoration, the mosaics underwent surface cleaning, removal of the limestone layers that had formed on the surface, and surface and structural layer consolidation by partial lifting and filling of losses. The fundamental principle guiding all procedures was to ameliorate problems and improve the mosaic's current condition. Accordingly, care was taken to preserve the work's original state and to avoid unnecessary and extreme procedures.

In the coming season, we hope to continue strengthening, filling and finishing work that could not be completed due to time limitations in 2010 and to complete the conservation/restoration work. Our wish is that a permanent covering system will be designed and implemented; a controlled visitor walking path will be built for viewing the mosaic, the island and the remains unearthed during the excavation; better interpretive materials will be installed to describe the area and the mosaic; and that Asar Island will be operated as a protected tourist area with preservation strategies.

Description of the Figure and Design on the Mosaic:

1- **Outer Frame:** On the long, southern side of the mosaic, there is a row of spaced squares at the outer part of the border (Décor I: pl. 5a).

2- **Border:** The mosaic is surrounded by interlaced bands of tightly braided, shaded simple guilloche opened to form eyelets (Décor I: pl. 71e).

3- **Style, Design, Iconography And Comparative Material:** In the middle of the narrow part in the west side of the mosaic, the border is interrupted by a tabula ansata bearing an inscription. The inscription is in poor condition. In the pavement, there is a single goblet within a square frame that is situated above the tabula ansata, and adjacent to it, there is a motif that is most likely Solomon's knot, surrounded by a bobbin motif of squares within squares (Décor I: like pl. 144e). Next to this, there are partial remains of an orthogonal pattern of adjacent scales. Bobbin motifs can be seen in various sections of the mosaic. As understood from the remaining parts, this pavement is formed of two different collateral designs of three rows of bobbins and a perpendicular orthogonal pattern of adjacent scales. The section thought to have contained the apse contains partially remaining interlacing band motifs. In the lower parts of the castle walls, numerous mosaic pieces thought to have been from the same pavement were found.

   We found similar designs with sandglass or bobbin motifs that enclose the square from the inside, placed vertically or horizontally, in Cos (Brouscari 1997: 73 fig. 10)

Date: Most of the unearthed finds are ceramics. Nevertheless, across the entire site, there are almost no ceramic finds from Late Antiquity. The earlier finds

mostly date back to 4th-2nd century B.C.. On the other hand, ceramics from the Roman period are too common to overlook. Apart from thin ceramics, coarse ceramics for daily use stand out. The high number of amphorae in this group of ceramics is worth noting.

Coins constitute the most common group of finds from Late Antiquity. The coins, mostly of the follis type, date back to the 5th and 6th centuries A.D.. Another prominent group among the finds are terracotta works called "ampullae". Their identification is mostly from their small size and cross motifs. These bottles, brought as souvenirs by pilgrims who visited Jerusalem, were buried with them as grave goods. The ampullae indicate that some of the graves on the island belonged to pilgrims. The presence of pilgrim graves and the basilica suggests Myndos may be a sacred pilgrimage site from the Early Christian era. The mosaic dates to the 5th century A.D.

Bibliography: Şahin 2011: 161; Şahin 2012: 349-352

Conclusions About the Pavement

We are able to discuss "Opus Tesellatum" pavements in Myndos based on the information in the examples that have been found. The tesserae forming the mosaic are made from local koyunbaba stones, colorful marbles and terracotta. The tesserae range from 1.5 cm to 2 cm in almost all the pavements. On the mosaic, mostly black, white, yellow, blue, brown, green and cream colors are used.

We find similar designs in Kos, such as the sandglass or bobbin motifs that enclose the square from the inside and that are placed vertically or horizontally on the mosaic from Tavşan Island (Brouscari 1997: 73 fig. 10)[6]. In both designs, squares are arranged among bobbin motifs enclosing the square from the inside placed vertically and horizontally.

Because of the limited floor mosaics, we cannot identify a mosaic workshop. We have found connections between Myndos, the surrounding area and some islands (such as Cos). If there were a mosaic workshop in the area, however, it must be located on the mainland, not the islands.

In conclusion, we have discovered that the motifs of the Kos-Torba-Myndos mosaics belong to the same repertoire. The similarities indicate that the mosaics, especially those from Torba and Myndos, may have been produced by the same workshop in late 5th or early 6th centuries.

6 One of the inner parts of the eight squares surrounding Tyche is very similar to the design of the mosaic from Tavşan Island.

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