

A Wine Press with Mosaic Pavement from Belentepe

Belentepe'den Mozaik Döşemeli bir Üzüm Presi

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Abstract

Remains of a structure paved with mosaics were discovered on the floor of one of the rooms during the excavations held in Belentepe settlement in the hinterland of the ancient city of Keramos. When the remains were analysed and compared with other examples, this structure was determined to have been a wine-pressing complex. The complex consists of the production area, the basin, and the pithoi to collect the grape juice, and storage for fermentation. The mechanical press system, large treading floors, storage areas for different processes, large storage basin and the connecting channel to this basin show that this is a full-capacity complex constructed to produce multiple types of wine. The mosaic pavement on the floor of Room A was made of local limestone tesserae. These tesserae are not regular but cut in rectangular, square or trapezoid forms. Sizes vary between 1,5 x 2 cm and 3 x 4 cm. Destroyed part in the middle of the complex made it possible for us to understand how the floor was constructed. Five different layers were found in this section.

Other examples similar to the mechanical equipment and the mosaic pavement were discovered in various ancient cities in Levant region dated to the 5th-7th centuries A.D. Coins found in Belentepe wine press indicate that the structure was used in the second half of the 6th century A.D. Fragments of pithoi and amphora also confirm this date.

Keywords: Belentepe, wine press, receiving basin, screw press, mosaic pavement.

Özet

Keramos antik kentinin hinterlandında yer alan Belentepe yerleşim alanında yapılan kurtarma kazılarında, mekanlarından birinin zemininde mozaik döşemin yer aldığı yapı kalıntısı açığa çıkmıştır. Mevcut kalıntılar irdelendiğinde ve benzer örneklerle karşılaştırıldığında bu yapının şarap atölyesi olarak kullanıldığı tespit edilmiştir. Atölye; üretim mekanı, şıranın toplandığı havuz ve pithoslar ile fermentasyon için bekletildiği depolama alanından oluşmaktadır. Atölyede tespit edilen mekanik pres sistemi, büyük boyutlu ezme zemini, farklı işlem aşamaları için oluşturulmuş toplama hazneleri, büyük boyutlu toplama havuzu ve bu havuza bağlantı sağlayan kanal, yapının farklı tipte şaraplar elde etmek için oluşturulmuş tam kapasiteli üretime sahip bir atölye olduğunu göstermektedir. A mekanının zemininde yer alan mozaik, kireçtaşı tesseralardan oluşmaktadır. Tesseralar düzenli kesilmemiş olup, dikdörtgen, kare ve yamuk formlardadır. Bu tesseraların boyutları ortalama 1,5 x 2 cm ile 3 x 4 cm arasında değişmektedir. Mekanın ortasının tahrip olması, zeminin nasıl inşa edildiği konusunda bilgi sahibi olmamıza olanak tanımıştır. Buradaki kesitte 5 farklı tabaka tespit edilmiştir.

Şarap atölyesinde tespit edilen mekanik düzenek ile mozaik döşemin benzerleri Levant bölgesindeki pek çok antik kentte bulunmuş ve M.S. 5.-7. yy arasına tarihlendirilmiştir. Belentepe şarap atölyesinde bulunan sikkeler ise yapının M.S. 6. yy'ın 2. yarısında kullanım gördüğüne işaret etmektedir. Mozaikli zemin üzerinde bulunan pithos ve amphora parçaları da bu tarihi desteklemektedir.

Anahtar Kelimeler: Belentepe, şarap atölyesi, toplama havuzu, vidalı pres, mozaik.

Situated in the northwest of Caria in the hinterland of the ancient city of Keramos, the settlement of Belentepe is in Çakıralan village in Milas, Muğla. This area is one of the coal mining areas of the Yeniköy Unit of the Directorate of Southern Aegean Lignite Enterprises (GELİ). In accordance with the protocol signed between the General Directorate of Monuments and Museums and the General Directorate of Turkish Coal Enterprises, we performed

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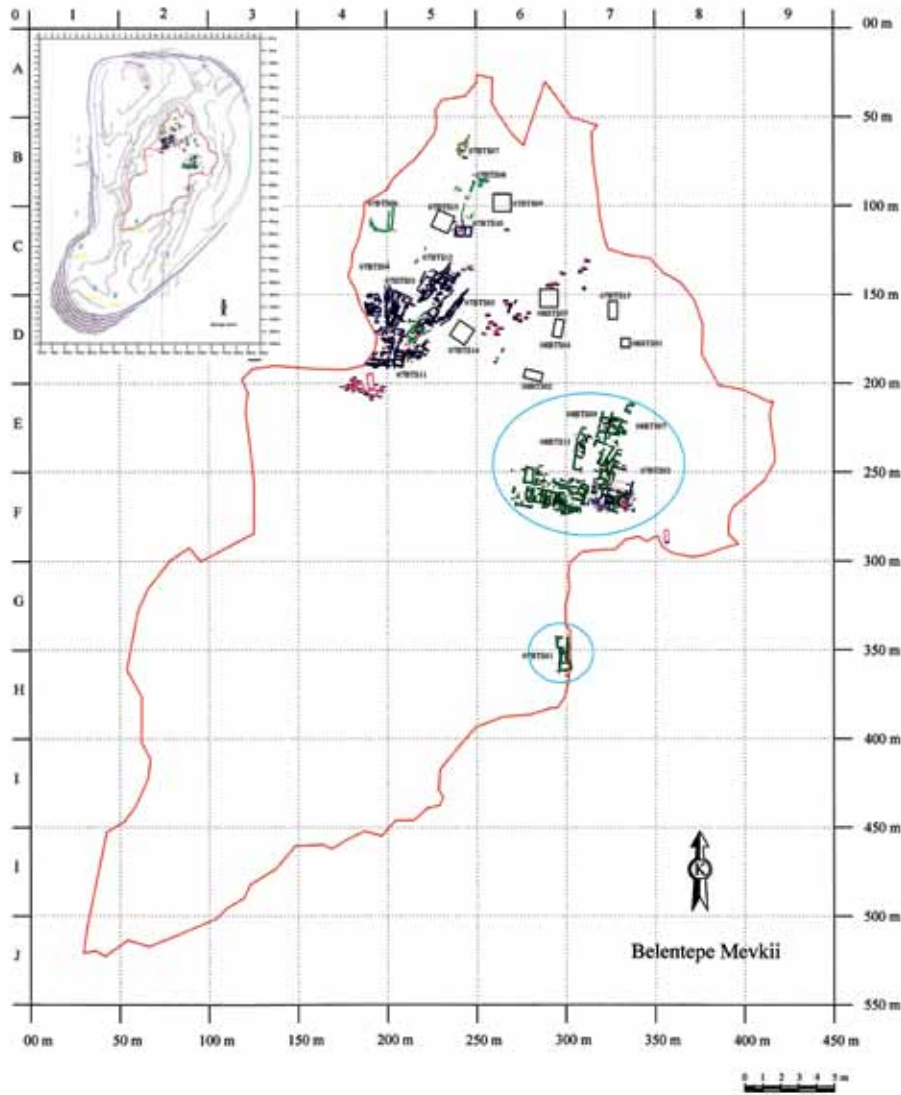


Figure 1
Plan of Belentepe
excavation area

excavations in this ancient settlement on this coal site in 2007-2008 (Tırpan - Söğüt 2009: 254-256; Tırpan - Söğüt 2010: 516-518). The excavations of the northern hill of this settlement located on two hills were completed during these studies (Söğüt - Gider 2010: 241-257) while only an area of 70 m² on the northern outskirts of the southern hill could be excavated (Fig. 1).

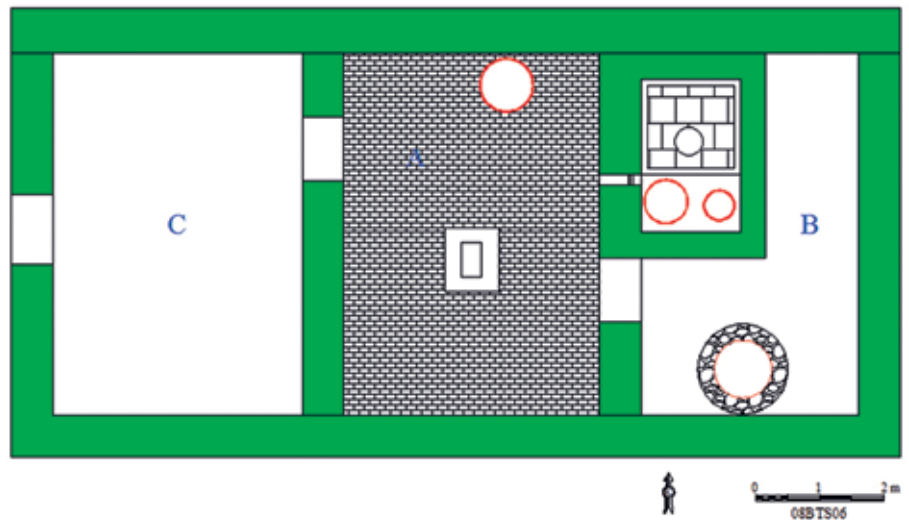
Studies on the northern outskirts of the southern hill indicated that the area was occupied in three different periods. The first of these phases was the Hellenistic necropolis, after which there was a long hiatus in activity. The second period is dated to the 6th-7th centuries A.D and the third is in the 10th-11th centuries A.D. The settlement was abandoned after that period. Most of the Byzantine structures excavated are wine press complexes from the 10th-11th centuries A.D. (Tırpan et al. 2010: 175-188) Studies on this area where a few examples of civil architecture were also found (Tırpan - Söğüt 2010: 516-518) could not be completed.

The remains of one structure found on the southern side of the wine press complex No. 2 stands out from the others because of its paved mosaic floor (Fig. 2). The three room structure is oriented east-west. It is approximately 13,90 m long and 6,95 m wide from one outer wall to the other (Fig. 3). Walls of the structure preserved at base level were built in dry masonry bonded with mud mortar. The

Figure 2
Wine press with mosaic
pavement



Figure 3
Restitution plan of the
wine press



northern wall was built on top of the Hellenistic wall, using it as a foundation. The floor of Room A is paved with mosaic while the floors of Room B and Room C are packed earth. The large quantity of tile fragments indicates that there was a tile roof.

Room A is 3,95 x 5,65 m from one inner wall to another, and the mosaic pavement is made of local limestone tesserae varying between 1,5 x 2 cm to 3 x 4 cm in size (Fig. 4). A pithos was found buried in the floor right in front of the wall close to the northern edge of the ground sloping towards north. There are small and thin stone slabs and tile pieces around the pithos. No traces of a mosaic pavement were found in the centre of the room. Roof tiles and stones from the walls were found in this area. Therefore, it is clear that there was originally no mosaic pavement in the centre of Room A. Over the eastern wall of Room A, a channel made of mortar runs to the pithoi and the receiving basin in Room B. Present traces indicate that there may have been a terracotta pipe.

Room B to the east of Room A is 3,40 x 5,65 m. There is a 1,50 x 1,55 m receiving basin that is 1,62 m deep on the northwest corner of the room (Fig. 5). The walls of the basin were made of field-stones and the inner face was covered with red plaster, including brick dust in three layers. The floor was covered with



Figure 4
Mosaic pavement, press basin
and pithos found in Room A

limestone pavers and there is a 10 cm high and 10 cm wide frame around it. There is a hole, 44 cm in diameter and 23 cm deep, in the south of the basin's floor which slopes towards south. The function of this arrangement, similar examples of which are seen in olive oil workshops in Börükçü¹ and Belentepe,² was to collect the sediment in this hole during the cleaning of the basin and to remove it easily with the help of a scoop (Adams 1966: 275). Two pithoi were discovered buried in the ground in front of the basin. The pithoi were surrounded by the walls of the basin and its floor was paved with stone slabs covered with red plaster including brick dust. The channel over the eastern wall of Room A opens into this area (Fig. 6). A large pithos was placed right in front of the southern wall of Room B and surrounded by field-stones. Lime plaster with sand was used as the binding agent. This storage vessel, similar examples of which are seen in wine presses dated to the 10th-11th centuries A.D., must be from the later stage of use (Tırpan et al. 2010: 176-180).

The west of the structure was bordered by Room C, 3,90 x 5,65 m in size. Inside the western wall of the room, a door opening with its two steps preserved was discovered. The data gathered from the studies here indicates that this place was used again in the 10th-11th centuries A.D. At this stage the room was divided into two and the separation wall was extended to the mosaic floor in Room A.



Figure 5
Receiving basin and pithoi
found in Room B

Figure 6
The channel between the floor
and the receiving basin

1 In the workshop No. 2 in Börükçü, a basin paved with tiles was found right in front of the platform where the pressing was done. The basin floor slopes towards south and there is a round collecting hole in front of the southern wall (Tırpan - Büyüközer 2010: Fig. 8; Tırpan - Ekici 2010: 315; Büyüközer 2012: 133-134, Fig. 13). For general information about Börükçü also see, Söğüt 2004: 24-31; Söğüt 2012: 553-586.

2 The basin was paved with stone slabs and a collecting hole narrowing downwards was dug in its south side in the Olive Oil Workshop No. 1 in Belentepe (Söğüt - Gider 2010: 245).



Figure 7
Isometric drawing of the
mechanical press system

According to a comparison of the present remains with parallel examples, the structure is best understood to have been a wine press. Room A is the place where the production took place. Inferring from parallel examples, we assume that in the hole in the middle of the room there was a rectangular or round pedestal on which the screw press system with a rectangular mortise at the centre was placed (Fig. 7). Presses of this type, with a mortise where the screw is placed, are always located at the centre of the treading floor (Roll - Ayalon 1981: 111-125; Hirschfeld 1983: 216-217; Frankel 1996: 204; Kletter 2010: 175). On the screw fixed to the mortise, there are two planks placed in a relatively high log. With the help of these spikes, the nut was turned down and the rectangular or round log applied direct pressure on the grapes filled in sacks below (Frankel 1996: 204, Fig. 5; Frankel 1997: 82, Fig. 1e; Khalil - Al-Nammari 2000: Fig. 8). This type called “single fixed screw press” was only used in wine making (Frankel 1996: 214, Fig. 5).

As no storage basins or smaller rooms around the production area were found, it is clear that grapes were processed on this floor from the beginning. According to Y. Dray the central treading floor was organised as the working area (Dray 2003: 221). At that time, grapes picked from the vineyard must have been laid on the ground and made to release juice under their own weight (Roll - Ayalon 1981: 111-125; Hirschfeld 1983: 207-219; Rahmani 1991: 95-102; Frankel 1999: 138-158; Sidi et al. 2003: 261-263). The first grape juice obtained through this method, which supplies the best quality wine (Pliny, NH 14.10.77; Columella, Agriculture 12.27; Forbes 1965: 110, Fig. 28), must have been collected in the pithos buried in the ground in the north of the mosaic floor and transferred directly to the pots from here.

At the second stage, the grape juice obtained either by treading the grapes on the floor or crushing them with a stone cylinder³ was transferred to the pithoi in front of the basin in Room B or directly to the receiving basin through the channel or the pipe over the eastern wall of the room (Forbes 1965: 74-80). That the floor around the pithoi was covered with red plaster with brick dust indicates that the grape juice was poured directly onto this floor and directed to the pithoi or the basin. A filter was used at the mouth of the terracotta pipe in these types of presses, and therefore no second process was needed (Sidi et al. 2003: 261).

At the third stage grapes that were crushed either by foot or a stone cylinder were pressed with the screw press in the middle of Room A (Frankel 1993: 109-113; Frankel 1999: 140; Sidi et al. 2003: 261), thus the juice left in the skin or the stem was released. As the grape juice obtained at this stage was the same as the one in the second stage, it was again transferred to the basin through the channel or the pipe. At the fourth stage, water was added to the grape pulp and this was pressed for the second time. As a result the fourth class wine that only workers and slaves drank was obtained (Varro 1, 54). The basin must have been closed at this stage and this last grape juice was most probably collected in the pithoi in front of the basin.

The fermentation period for the wine was 3 years during this period (Forbes 1965: 285; Robinson 2006: 267-269). As grapes were picked every year, storage pots were also used every year. Therefore after the first fermentation stage, grape juice collected in the basin or the pithoi was transferred to the carrying pots such as the amphora or leather bags. The major part of the second stage of

³ That the grapes were crushed bare foot in such a large and slippery area poses the risk of falling down. Therefore, grapes laid on the ground may have been crushed with a cylindrical stone.

the fermentation took place during this transfer⁴. The second stage of fermentation was a long process. Therefore, the wine at the second fermentation stage had to be stored somewhere cool (Frankel 1999: 43). In the west of the structure, Room C may have been used for the fermentation stage. However, this room is quite small for storage and also at a busy spot used to access the presses⁵. So the wine must have been stored somewhere cooler (Dar 1986a: 150-151; Khalil - Al-Nammari 2000: 49).

The mechanical press system, large treading floor, receiving vats for different stages of the process, large receiving basin⁶ and the channel connecting to this basin discovered in the wine press in Belentepe show that this was a press operating at full capacity built to produce different types of wine⁷. Considering that there may be storage rooms in the southern part that has not yet been excavated, it is understood that the production here was for commercial purposes rather than local use.

The mosaic pavement on the floor in Room A was made of tesserae cut from local limestone varying in size from 1,5 x 2 cm to 3 x 4 cm and 1,5 - 2 cm thick (Fig. 8). The tesserae are rectangular, square or trapezoid form. Although they are mostly white, there are some yellowish or light-brown ones. The tesserae were not placed in a pattern but irregularly (Fig. 9). In the preserved sections, there are gaps between tesserae because of their varying forms. Therefore, the number of tesserae placed in an area of 10 cm² varies between 10 and 12.

There is a 70 cm deep hole in the floor of the room where the screw press system is thought to have been placed. A levelling layer was formed with small limestone slabs, the thickness of which varies between 10 and 13 cm over the compacted soil below. Over this layer there is a 2-2,5 cm layer of limestone plaster with soil followed by a 3 cm thick layer of red plaster with brick dust (Fig. 10). Tesserae were placed over this red plaster⁸. In a decorative mosaic pavement the plaster layer with brick dust (nucleus)⁹ on which the tesserae were placed would be thinner. However, this layer is thicker in the wine press both to prevent the loss of juice and to create a more stable ground for the tesserae.

The most important reason why the central treading floor of the Belentepe wine press was paved with mosaic is because the rough surface of the limestone tesserae makes it easier to crush the grapes when some pressure is applied on them. Besides, as there was no vat under the press in single screw presses, the juice flowed directly to the ground. Thus, there was the need for a hygienic floor.



Figure 8
Mosaic pavement found
in Room A

4 At this stage the wine was filtered with the help of a piece of linen cloth and sweeteners and flavours prepared beforehand were added to it to speed up the fermentation process (Henderson 1824: 47). For detailed information on the main stages of wine making, see Forbes 1965: 73.

5 Pliny suggests that one side of wine cellars or at least the windows should face northeast or east (NH 14.133). Room C that is thought to have been used as storage is on the northwest.

6 Use of large receiving basins in wine presses is a Byzantine characteristic (Frankel 1999: 140). Floors of these basins were mostly paved with mosaics. These examples are usually dated to the Late Roman-Byzantine period (Macalister 1912: 49; Ahlström 1978: 46).

7 Ancient press systems were divided into three according to their uses. The first one is the simplest mechanism with just a treading vat and a receiving basin. These were mostly carved into natural rock and they produced wine for daily use. The second group of improved press systems consists of the treading floor, receiving basins and the storage basins. Two different types of wine could be acquired in these presses. The third type is the press with mechanical equipment. There are a large treading floor, receiving vats for different purposes, receiving basins, channels or pipes connected to these basins and mechanical press systems in this type of press. Different types of wine could be produced in these presses. (Khalil - Al-Nammari 2000: 46-47).

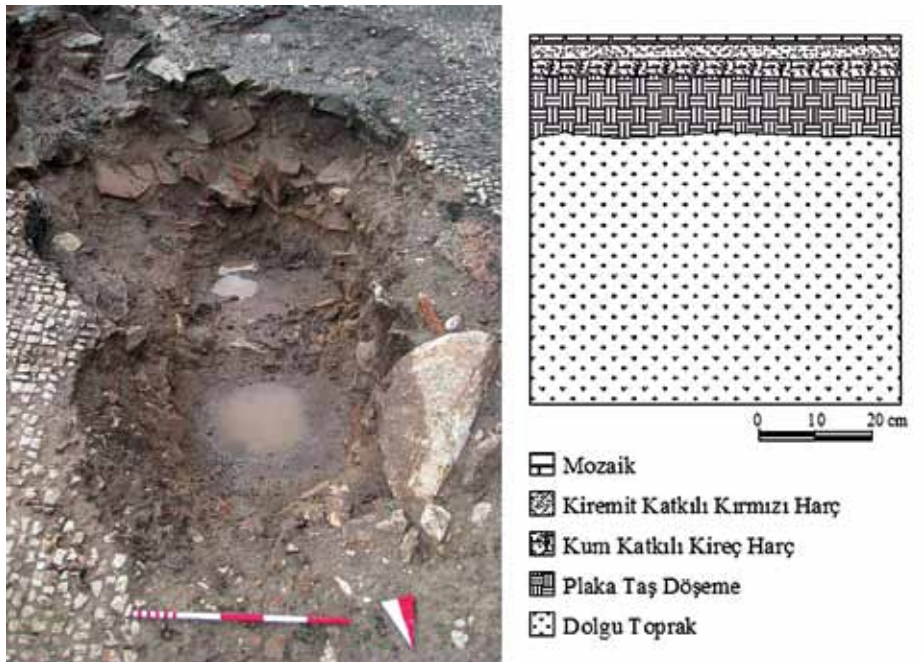
8 Through the drilling in the mosaic paved floor of the wine press in Khirbet Yajuz, the floor was seen to have been constructed in the same way (Khalil - Al-Nammari 2000: 45-46, Fig. 7).

9 $\frac{3}{4}$ of this mortar is brick dust and $\frac{1}{4}$ is limestone (Üstüner 2002: 63).

Figure 9
Mosaic pavement



Figure 10
Construction layers of
the mosaic pavement



The single fixed screw press system was quite common in the east of the Mediterranean in the Levant Region during the Byzantine Period (Saller - Testa 1961: 27-41; Frankel 1997: 82; Khalil - Al-Nammari 2000: 49; Kletter 2010: 175). These presses were generally – as in the Belentepe example – used within a complex containing a central working area paved with mosaic. A screw press with a treading floor paved with mosaic was found in the ancient city of Shiqmona and, through three coins found in the receiving basin, it was dated to the 6th century A.D. (Kletter 2010: 171-175, Fig. 31). The wine press with the mosaic pavement found in Rehovot was dated to the 6th-7th centuries A.D. (Roll - Ayalon 1981: 111-125), and the one found near Caesarea was dated to the 5th-7th centuries A.D. (Hirschfeld - Birger-Calderon 1991: 107-109). Similar wine presses in Kefar

Sirkin and Mazor are dated to between the second half of the 5th century A.D. and the beginning of the 7th century A.D. (Sidi et al. 2003: 253-266). In addition, similar examples were found in Emmaus (Aijalon Park) (Hirschfeld 1983: 211-218), Jalame (Weinberg 1988: 21, Pl. 2-4 c, g- 2-5 d-f), Khirbet el-Kursi (Khalil - Al-Nammari 2000: 49-50), Suwafiyah (Zayadine 1981: 341-355), Qum (Taccani 1995: 22-23), Jerusalem (Rahmani 1991: 95-110; Avner 2000: 160-161), Khirbet Yajuz (Khalil - Al-Nammari 2000: 41-57), Sacad (Sari - Molhem 1997: 196-201), Nebo (Saller 1941: 193-194), Mishmar Ha-‘Emeq (Avshalom-Gorni et al. 2008: 65-67, Fig. 8), Eshtemo‘a (Hirschfeld 1983: 217-218, Pl. 25A) and Carmel Mountain (Dar 1999: 100-107) and they were dated to the 5th-7th centuries A.D.¹⁰. In all of these examples, the mosaic pavements were of plain white limestone tesserae with no depiction on them. The irregularity of the mosaic pavement and the large size of the tesserae are characteristics similar to the Belentepe example.

Two coins were discovered in the excavations in the Belentepe wine press. One of the coins is dated to the period of Justinian II (565/6 A.D.) (Tolstoi 1968: 423-424, Pl. 30/36) and the other is dated to the period of Mauricius Tiberius (584/5 A.D., Bellinger 1966: 303, Pl. 67/25) (Fig. 11). This indicates that the wine press was used in the second half of the 6th century A.D., contemporary with other Eastern Mediterranean examples. Large number of pithos and amphora fragments found on the mosaic floor and around the basin during the excavations confirm this date.



Figure 11
Coins found in the
wine press

¹⁰ It is claimed that the use of these wine presses came to an end at that period as the Arabs dominated the region and wine making was prohibited (Roll - Ayalon 1981: 124; Dar 1986b: 169).

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