

Vladimir Wolff Avrutis

# WINE PRESSES AT THE NESHER-RAMLA QUARRY

*A Thousand Years of Winemaking*



Zinman Institute of Archaeology  
University of Haifa



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With contributions by  
Anna Chaim, Yoav Farhi  
Anna de Vincenz, Mina Weinstein-Evron

Edited by Etan Ayalon



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THE ZINMAN INSTITUTE OF ARCHAEOLOGY, UNIVERSITY OF HAIFA



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”אשתך כגפן פריה - בירכתי ביתך” (תה’ קכח, ג)

*Dedicated to my wife Michal Nehama*





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## PREFACE

The archaeological site of el-Khirbe (“The Ruin” in Arabic) is situated within the confines of the Nesher-Ramla cement quarry operated by the Nesher Israel Cement Enterprises Ltd.

During the 1990s, intensive development of the quarry necessitated conducting archaeological salvage excavations at the site. Exploration of the site was started in 1996 by the Archaeological Institute of the Hebrew University in Jerusalem and was subsequently continued under the auspices of the Israel Antiquities Authority. Since 2006 and to the present (2015), large-scale excavations at the site have been directed by Shlomo Kol-Ya‘akov on behalf of the University of Haifa’s Zinman Institute of Archaeology. In the course of these excavations, archaeological remains from at least eight different periods have been exposed at the site (see Avrutis 2012:4, Table 1.1). The results of these excavations have been published only selectively but continue to be reported. The present volume focuses exclusively on the wineries uncovered at the site.

The main author of this volume, Vladimir Wolff Avrutis, had the honor of starting work at the site in May 2006 as an area supervisor, and up to the present day he is still participating in the fieldwork as the expedition’s associate director. Besides supervising the excavation of different areas (varying from season to season), he is responsible for the publication of all Late Chalcolithic, Early Bronze Age I (see Avrutis 2010, 2012, in prep.; Avrutis and van den Brink 2010), and Persian Period remains uncovered at the site. In addition, he has taken upon himself the mission of reporting on the various agricultural installations excavated at the site.

The author wishes to thank the head of the expedition, Shlomo Kol-Ya‘akov, for his kind permission to work on and publish these important finds. He is also grateful to Alexander Melamed for his daily support in the field and for installing the interest on the theme. Thanks are also due to all members of the field-staff for their participation in the excavations.

Thanks are due to Dr. Etan Ayalon for his advice and willingness to be the scientific editor of this volume. The contributions to the present publication of Dr. Anna de Vincenz (Chapter 5), Dr. Yoav Farhi (Chapter 6), Prof. Mina Weinstein-Evron and Silvia Chaim (Chapter 7) are very much appreciated. The author is grateful to his colleague Yana Tchekhanovets for her assistance and referring me to relevant publications. Immense gratitude and respect should also be expressed to all the archaeologists of the Israel Antiquities Authority for their fieldwork and publications, which provide such rich material about the material culture of this country throughout the ages. Much gratitude is also expressed to Yaakov Eitan for editing the language of this text.

Special thanks are due to Bouky Boaz, the logistical and administrative director of the project. The author is grateful to the Zinman Institute for Archaeology at the University of Haifa for its academic patronage. Thanks are due to Nesher Israel Cement Enterprises Ltd. for financing this long-term excavation project and for providing much technological assistance in the field. Mention should be made in particular of the daily support by Yoram Golan, the Nesher-Ramla quarry planning and development manager. Thanks are also due to many others who have supported the excavations along the way.

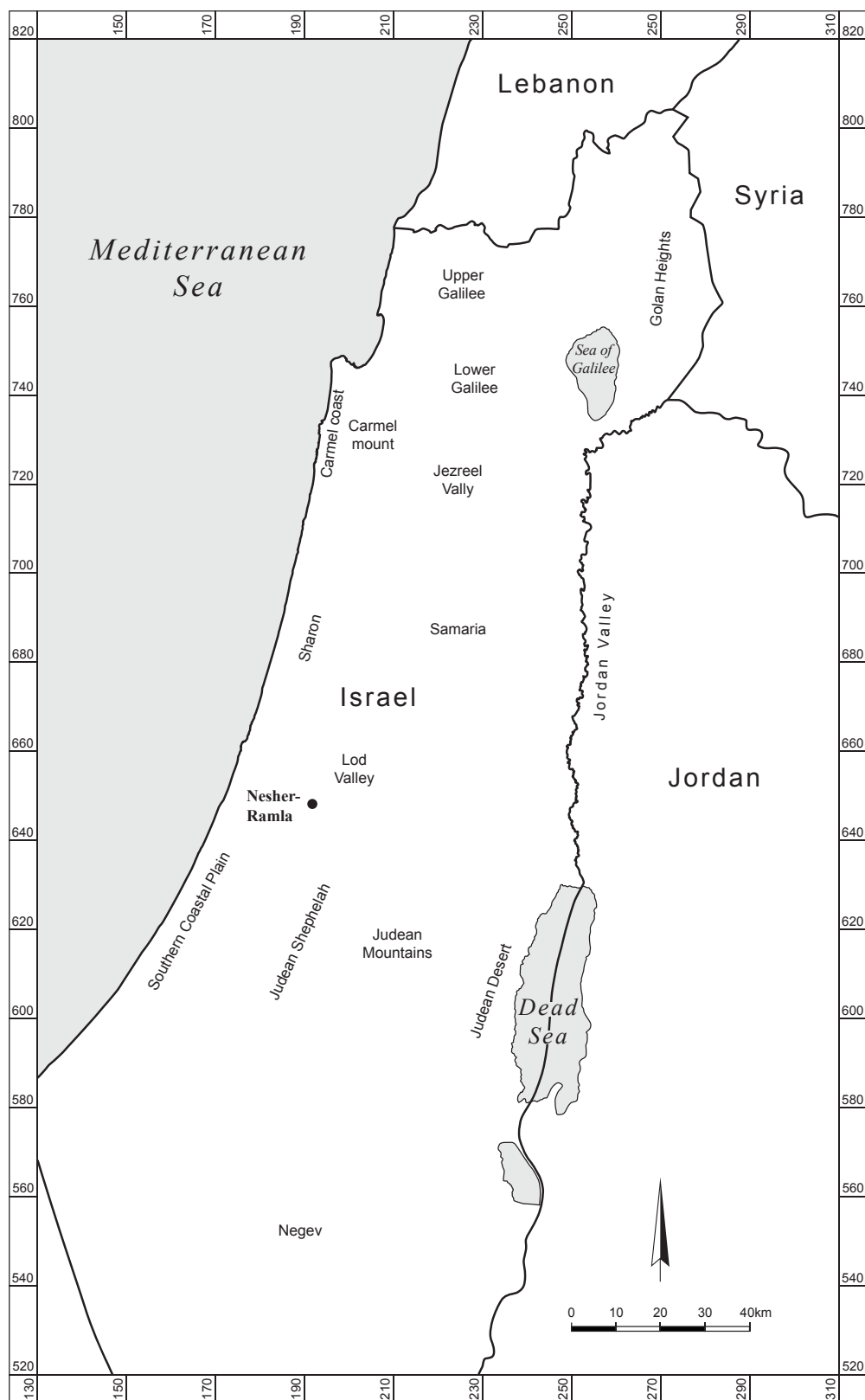
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**Fig. 1.1.** Map of the southern Levant with main geographic regions

# CHAPTER ONE

## INTRODUCTION

*Vladimir Wolff Avrutis*

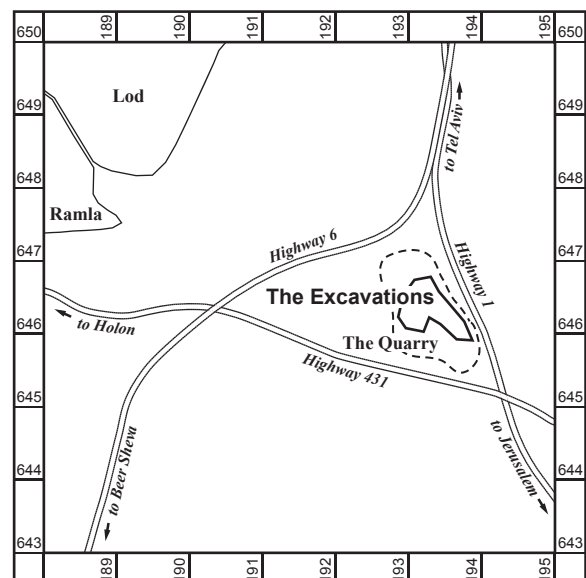
“Binding his foal unto the vine, and his ass colt unto the choice vine; he washes his garments in wine, and his clothes in the blood of grapes: His eyes shall be red with wine, and his teeth white with milk.”

(Genesis 49:11-12)

”אסרי לגפן עירה ולשרקה בני אתנו כבס ביין לבשו  
ובדם-ענבים סותה. חכלילי עינים מיין ולבן-שנים מחלב”  
(בראשית מט, יא-יב)

### 1.1. THE SITE AND ITS LOCATION

The archaeological site of el-Khirbe is located in the Lod Valley, bordering the Judean Shephelah or piedmont (NIG map reference 192848-3790, 646196-909). It is situated within the Neshet-Ramla quarry (henceforth NRQ), five kms east of Ramla and five kms south-east of Lod (Fig. 13.2). It is delimited by the Ayalon riverbed to the west, Highway #1 (Tel Aviv–Jerusalem) to the east–northeast and Highway #431 to the south. The site extends over the slopes of two adjoining hills, together forming the main, crescent-shaped hill, rising 110–125 m above sea level, and encompasses the existing quarry on its south and the valley below.



**Fig. 1.2.**

Location map of the site

### 1.2. HISTORY OF THE SITE IN LIGHT OF THE EXCAVATIONS

During the last two decades the archaeological site of el-Khirbe has been seriously damaged by quarrying activities (Fig. 1.3). Salvage excavations have been conducted only since the mid-1990s (cf. Preface above; for the various archaeological expeditions and the main features recovered see Avrutis 2012:4, Table 1.1).

The earliest evidence for human activity within the boundaries of NRQ dates to the Middle Paleolithic, consisting of a series of occupations related to the Mousterian culture (Zaidner et al. 2013).

Within the site borders was a Late Chalcolithic settlement that incorporated areas of both domestic





**Fig. 1.3.**  
Satellite photograph of the Nesher-Ramla quarry, 20.1.1993, view to the east (courtesy of Nesher Israel Cement Enterprises, Ltd.)

and mortuary activity, above-ground and in caves (Avrutis 2012; in prep. a). For the next recorded phase of human activity at the site, the late Early Bronze Age I, burial grounds have been uncovered (ibid.; ibid.).

The Persian period at the site was primarily characterized by an extremely large cemetery and various agricultural installations (this volume; Avrutis in prep. b). The Persian period settlement itself has still not been found. The site was subsequently re-settled once again during the Late Hellenistic period. The poorly preserved remains of this period consist mainly of graves (Kol-Ya'akov 2010; forthcoming).

During the Early Roman period a settlement extended over most of the area of today's NRQ. The characteristic features of this period include hiding complexes (Melamed 2010a; forthcoming a), water cisterns, ritual baths (Melamed 2010b; forthcoming b), agricultural installations (this volume; Avrutis in prep. b), and tombs (Kol-Ya'akov 2010; forthcoming).

Human activity at the site during the Late Roman period has still not yet been fully elucidated, but during the Byzantine period the settlement clearly reached its zenith. Constituting the most recent phase of occupation in many of the excavated areas, the Byzantine remains are well-preserved. All main components of a typical Byzantine village or town have been identified, including both public and residential areas, two churches (Zelinger and Di Segni 2006; Kol-Ya'akov 2011), a bath-house (Avrutis forthcoming), water cisterns, agricultural installations (this volume; Idem. in prep. b), and tombs (Kol-Ya'akov 2010; forthcoming).

After the Muslim conquest the settlement at the site was much reduced in size until its eventual abandonment, probably during the founding and construction of the neighboring city of Ramla. The latest phase of the site's history includes several peripheral excavated areas, bearing evidence for sporadic human activity during the Mameluk period.

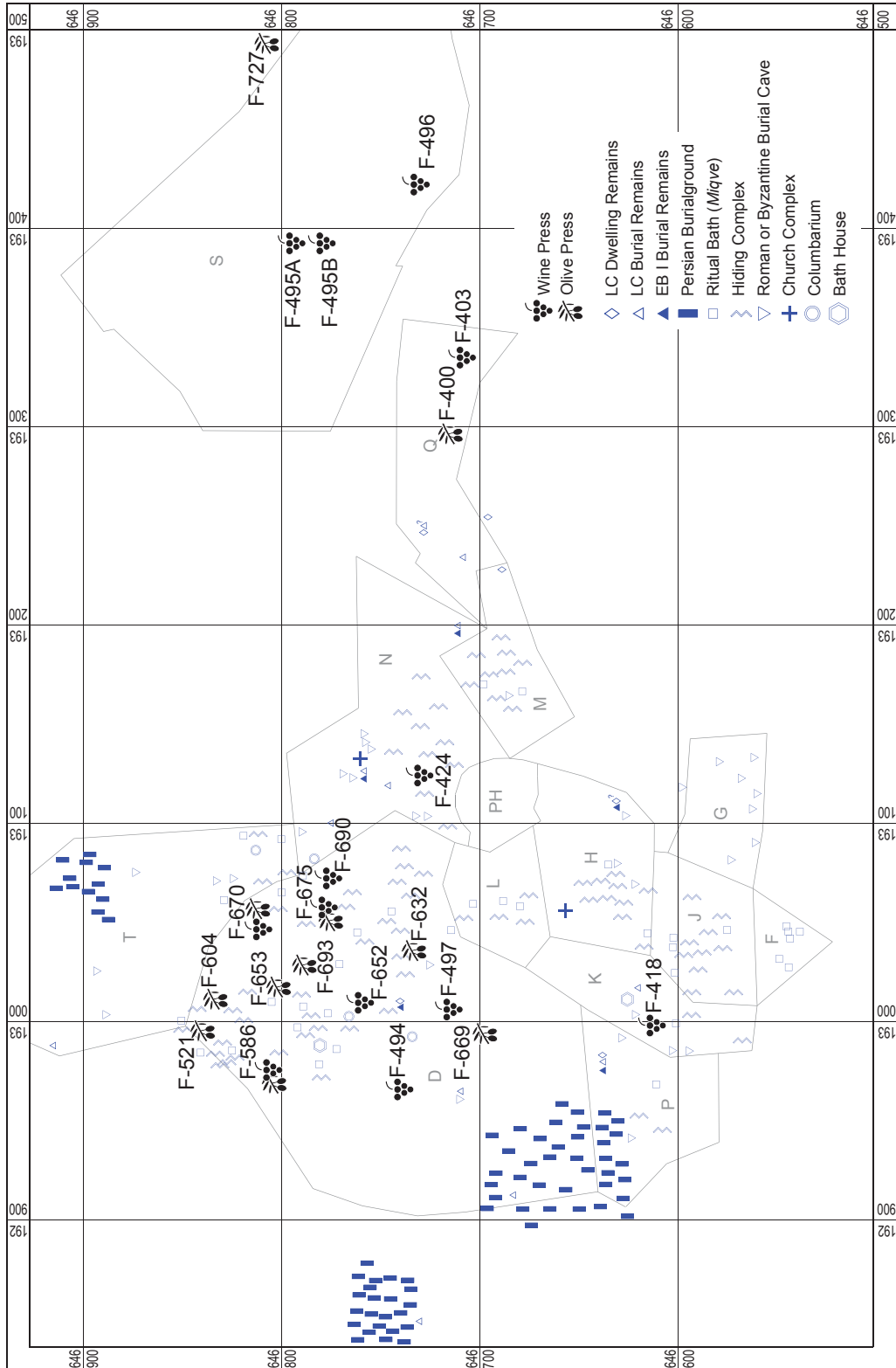
### 1.3. AIMS AND METHODS OF THE CURRENT PUBLICATION

The present volume deals exclusively with the wine processing installations uncovered within the NRQ. In the literature, these installations are frequently referred to as "wine presses." It should be noted that the term is misleading, as it should be exclusively used for the device which extracted the juice from the grapes, such as a beam or screw press. Although the term "winery" is much more appropriate for these installations (Frankel and Getzov 1997:41\* n.\*\*; Frankel 1999:51), as the term "wine press" has been widely accepted in the archaeological literature, it is retained in this publication.

Wine presses have been encountered in Areas D, K, N, Q, and S (Fig. 2.1). As already mentioned, the complete uncovering of the site is still in progress; nevertheless, its largest part has already been excavated. As the wine presses which have been discovered to date are large elevated installations, the finding of additional installations of this type within the boundaries of the site are rather unexpected.

The wine presses unearthed until now are mostly in a good state of preservation due to two main factors. First, the fact that the early dated installations are located outside of the settlement spared them damage or destruction during subsequent building activity in the Early Roman and Byzantine periods. The second factor which resulted in the good preservation of the later, Byzantine, wine presses is that they are usually the most recent features at the site, and thus were not disassembled.

Every structural feature (F) at the site was assigned a unique number sub-divided into loci (L) and walls (W). The wine presses presented in this volume are arranged according to a typological-chronological order (see Chapter 2), from the simplest installations to the most complex and, for each such type, from the earliest to latest installation. The geographical coordinates, designating the location of each installation are according to the New Israel Grid (henceforth



**Fig. 1.4.**  
Map showing the location of the main features uncovered at the Neshet-Ramla Quarry

NIG). The dating of the installations are designated in the centuries of the Common Era (henceforth BCE and CE). The description of the wine presses at the NRQ site is followed by a comparative study of similar installations recorded in the contemporary borders of the State of Israel, the Palestinian Authority, and the Hashemite Kingdom of Jordan (Chapter 3; Appendix 1). Further on in the volume, the pottery and numismatic reports for the Persian, Early Roman, and Byzantine periods are documented (Chapters 4, 5, 6 respectively). The sediment samples retrieved from the compartments of Wine Press F-494 are described in Chapter 7. Chapter 8 contains the summary and conclusions of the material reported and discussed in the earlier chapters of the volume. The references for all chapters appear together at the end of the monograph. The relevant loci and walls are listed in the register (Appendix 2). This volume includes 129 figures and 9 tables.

#### 1.4. VITICULTURE AND WINERY

A wild variety of vine (*Vitis silvestris*) still prevalent in central parts of Europe, the Balkans, south Caspian Belt, Turkey, and North Africa, is believed to be the progenitor of the domesticated vine (*Vitis vinifera*). No remains of *Vitis vinifera* have been found in the southern Levant, therefore it has been suggested that the domestication of this fruit took place in northern Syria, Aegean belt and Caspian Sea area (Zohary and Spiegel-Roy 1975:321–323; Ayalon et al. 2012:17, n. 4). The earliest remains of cultivated grapes must sextracting installations recorded in the southern Levant are from the Chalcolithic period and Early Bronze Age at sites such as Ta'anek, Lachish, Jericho, Arad, Numeria, and Bab edh-Dhra' (Borowski 2002:102 and references therein; Ayalon et al. 2012:17). Subsequently, the vine became an important plant of the economy of Canaan and Ancient Israel. The antiquity of the country's viticulture and perhaps its geographical origin is reflected in the Biblical tradition which attests to Noah's having planted a vineyard after the Flood (Gen. 9:20).

The earliest indications of wine production and consumption have been dated as early as the mid-fourth millennium BCE, as evidenced by the infrared spectroscopy analysis of the deposits found inside jars from Godin Tepe in the Zagros Mountains of Central Western Iran (Badler et al. 1990:34). It is interesting that, in most of the known ancient and modern languages, the word "wine" has a common root, which probably derives from the Hittite "*wiyanas*" (Brown 1969:146–170). This seems consistent with the likely Black Sea/Caspian origin of the beverage previously mentioned. The grapevine was one of the basic and most important crops of the ancient southern Levant, as evidenced both by literary sources (e.g., Gen. 49:11–12; Num. 13:20–24) and archaeological evidence (Chapter 3). Many of the ancient names of local settlements contain grape-related components (Borowski 2002:103; Spanier 2003).

Wine "cheers God and men" (Judg. 9:13) and is considered a boon to mankind (Ps. 104:15), symbolizing the good human life, peace, and prosperity (e.g., Mic. 4:4; Prov. 3:10). One of the most vehement of the prophets' curses in the Bible warns that "you have planted pleasant vineyards, but you shall not drink their wine" (Amos 5:11). During the Iron Age almost every ordinary family has its own vineyard (e.g., 2 Kgs. 18:31; Isa. 36:16), this being a sign of stability and permanent settlement (e.g., 2 Kgs. 19:29; Isa. 36:17; 65:21; Jer. 31:4; 32:15; Ezek. 28:26; Hos. 2:17; Amos 9:14; Ps. 107:37). The classical sources emphasize the importance of the wine (for list of the references see Roll and Ayalon 1981:119, n. 7; Ayalon et al. 2012:16, n. 3). Pliny mentions it as one of the "necessary things for humans" (Pliny, *NH* 37:LXXVII:202). Furthermore, in his *opus vita* he mentions the use of wine in the production of different medicinal ointments (e.g., *NH* 34:XXII:103, 104; 34:XXVIII:119; 35:XIII:32; 36:XXXIV:142, 143), and in the preparation of *maltha* used to make extra hard plaster for the walls of baths (*NH* 36:LVIII:181).

Wine played and continues to play a central role in ceremonies of both ancient and modern cults and religions. Widespread reference to its

consumption during festivals and celebrations appears in ancient texts. During the Late Bronze Age, wine was an important part of the New Year's Day celebrations mentioned in Ugaritic texts (Reeves 1992). In the Iron Age and Persian Period its drinking continued to play a prominent role in festivals (e.g., Esther 7:2; Isa. 5:11–12; Amos 6:4–7), and other celebrations (Judges 9:27; 21:20–21). Later on, during the Hellenistic

and Roman Periods, distinct deities, such as the Greek god Dionisus and the Roman god Bacchus, were patrons of wine and drinking. Wine is a basic part of Jewish ceremonial blessings (*Kiddush*) on *Shabath* (the Sabbath) and festivals, and is central to the Christian Eucharist. For thousands of years, wine has played an important role in personal and communal activities, both sacred and profane.

## CHAPTER TWO

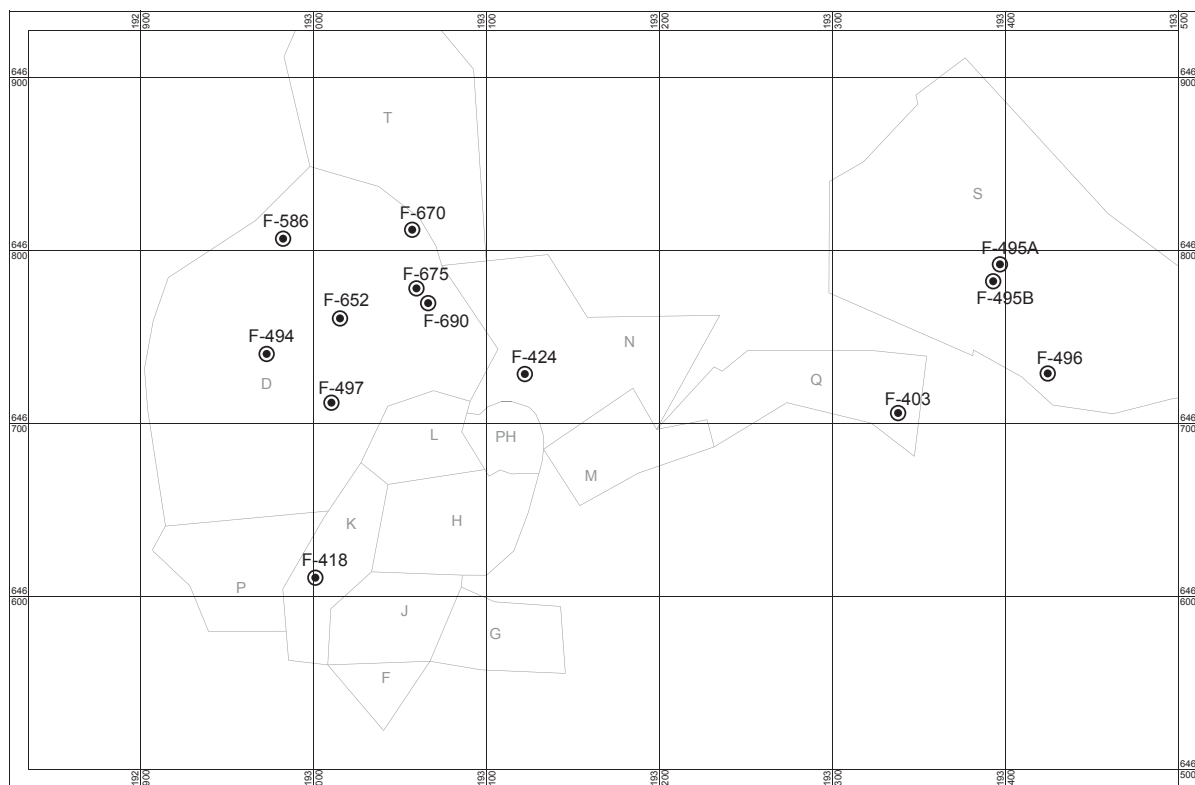
### STRUCTURAL DESCRIPTION OF THE WINE PRESSES

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#### 2.1. INTRODUCTION

Thirteen installations related to the production of wine were excavated within the boundaries of the NRQ archaeological site. They were discovered in Areas D (which due to its large dimensions was sub-divided into four unequal sub-areas, D1–D4), K, N, S, and Q (Fig. 2.1). These installations

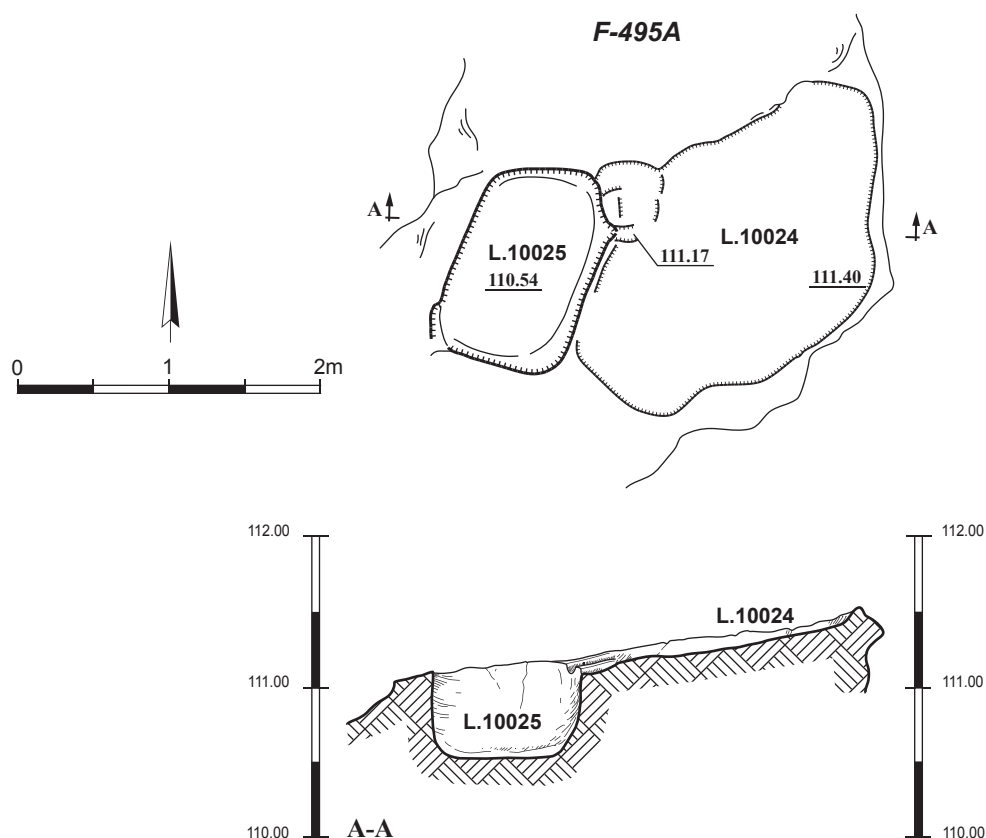
date to various periods: Persian (5), Early Roman (2), and Byzantine (6). Whether hewn into the local *nari* bedrock or constructed above it, the installations vary in the number of their components and respective sizes. In this chapter the wine presses are presented according to their degree of complexity, starting from the simplest and progressing to the most complex.



**Fig. 2.1.**

Map of the Nesher-Ramla quarry archaeological site, divided into the different excavation areas, showing the location of the wine presses





**Fig. 2.2.**

Plan and cross-section of Wine Press F-495A

## 2.2. WINE PRESS F-495A

Wine Press F-495A was uncovered in Area S (map reference 193397/646791). It was composed of a nearly rectangular treading floor (Locus 10024), with average dimensions of  $1.60 \times 1.70$  m, yielding a total area of ca.  $2.9 \text{ m}^2$  (Fig. 2.2). Its treading floor was shallow (8–10 cm deep) and inclined  $10^\circ$  from east to west. Two rock-cut grooves situated in the northwestern corner of the floor led to a rectangular-shaped collecting vat (Locus 10025) with rounded corners (Fig. 2.3), measuring  $1.36 \times 0.93 \times 0.58$  m, thereby accommodating a maximum capacity of ca.  $0.7335 \text{ m}^3$  (733.5 liters).

*Dating:* The only indicative ceramic potsherd found on the treading floor of this wine press was a fragment of a holemouth jar (Fig. 4.1:1), possibly

dating the installation to the Persian period, although its intrusive origin is an additional possibility.



**Fig. 2.3.**

Photograph of the collecting vat of Wine Press F-495A (view to the southwest)

## 2.4. WINE PRESS F-586

Wine Press F-586 was uncovered in Area D4 (map reference 192976/646807). Its treading floor (Locus 10458) was irregularly-shaped, with average dimensions of  $2.30 \times 1.90$  m, yielding an area of  $4.5 \text{ m}^2$  (Fig. 2.6). The floor was inclined slightly towards the south in the direction of the collecting vat (Locus 10489), which was irregularly circular in shape, and measured  $1.70 \times 1.25 \times 0.80$  m (Fig. 2.7), accommodating a maximum capacity of ca.  $1.7 \text{ m}^3$  (1,700 liters). At the northern end of the vat was a rounded rock-cut step. At its eastern side was a circular sedimentation pit cut into the bedrock with a diameter of 0.60 m and a depth of 0.45 m. The walls and floor of the collecting vat were covered by at least three layers of non-hydraulic plaster. At some later phase the wine press was converted to an oil-extracting installation by hewing a grooved cup-mark in the former treading floor. This interpretation is supported by dozens of olive stones found in the transformed installation as well as by similar installations uncovered at the site (Avrutis in prep. b).

*Dating:* The ceramic shards found in the installation date it to the Persian period (Fig. 4.2).



**Fig. 2.7.**  
Photograph of the collecting vat of Wine Press F-586  
(view to the southeast)

## 2.5. WINE PRESS F-403

Wine Press F-403 was uncovered in Area Q (map reference 193335/646705). It consisted of a treading floor and collecting vat (Fig. 2.8). The treading floor (Locus S54A) was rectangular in shape, measuring  $1.55 \times 1.70$  m, yielding an area of  $2.63 \text{ m}^2$ . At its western part was exposed a hewn cup-mark 0.23 m in diameter at its top and with a depth of 0.25 m. Along with part of the roof of Cistern F-392 (see below), the southwestern part of this cavity had collapsed. The collecting vat (Locus S54B) was rectangular in shape at its top and narrowed downwards, becoming oval-shaped. It measured  $1.20 \times 0.90 \times 1.05$  m, accommodating a maximum capacity of ca.  $0.6 \text{ m}^3$  (600 liters).

Wine press F-403 was uncovered in the immediate proximity of three rock-cut installations designated as F-392 (Locus S53), F-401 (Locus S46), and F-416 (Locus S76) (Figs. 2.9, 2.10). F-392 was a cistern situated directly beneath Wine Press F-403, with an irregular oval shape measuring  $6.90 \times 5.65$  m and a depth of 3.80 m. Its walls and floor were covered by at least two layers of plaster. The entrance to it was via a stepped opening on its eastern side. Just adjacent to and southwest of the cistern was a pair of underground installations. One, Cistern F-401, was bell-shaped in form, with a diameter of 2.90 m and a depth of 2.55 m. Access to it was via a round shaft 0.85 m in diameter. Adjacent to and northwest of F-401 was another cistern, F-416, with a diameter of 5.65 m and a depth of 4.30 m. Its entire cavity was covered by at least two layers of non-hydraulic plaster.

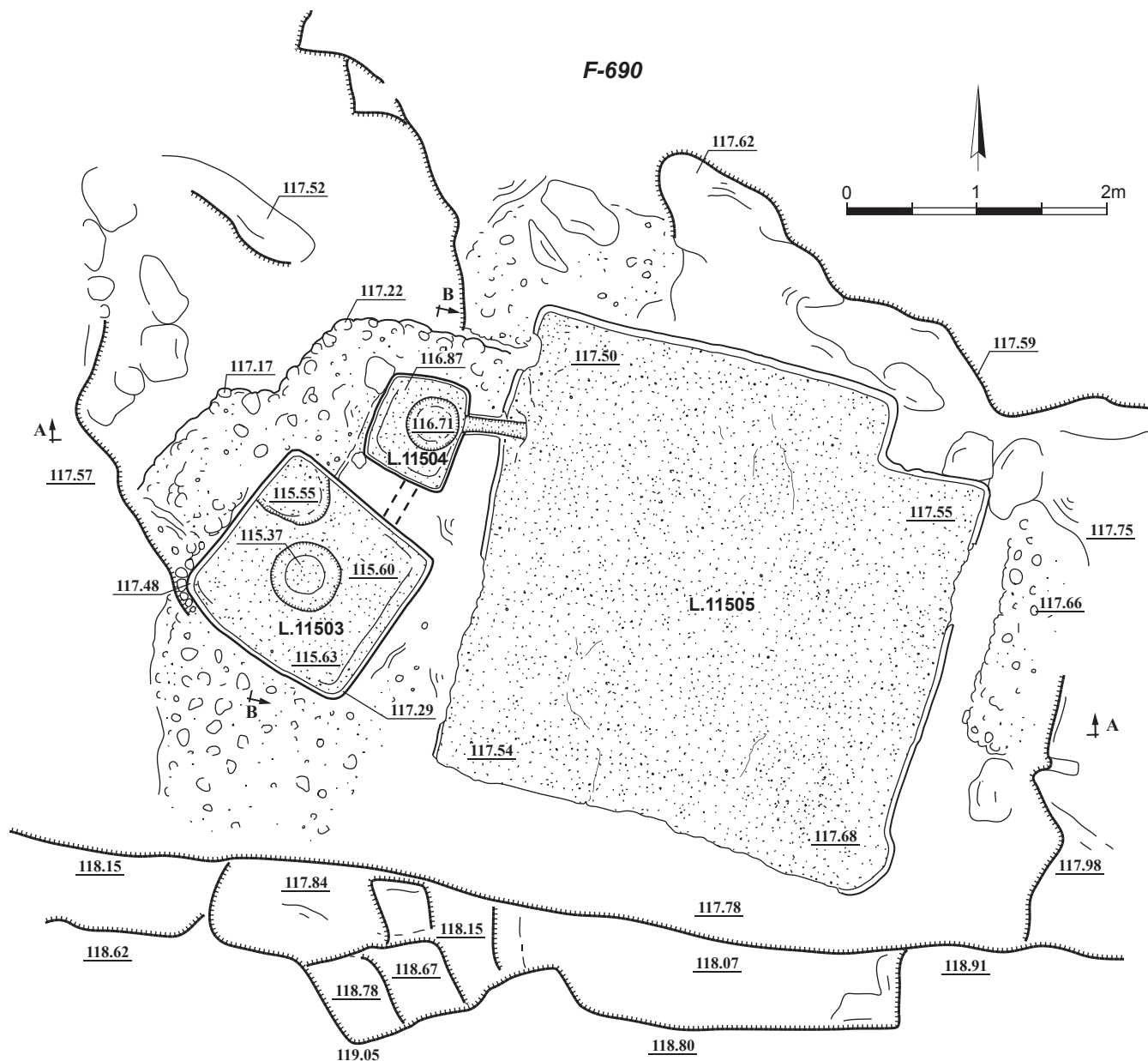
*Dating:* The rich ceramic assemblage retrieved from the cavities of F-392, F-401, and F-416 date the entire complex to the Persian period (Figs. 4.3-4.8).



## 2.8. WINE PRESS F-690

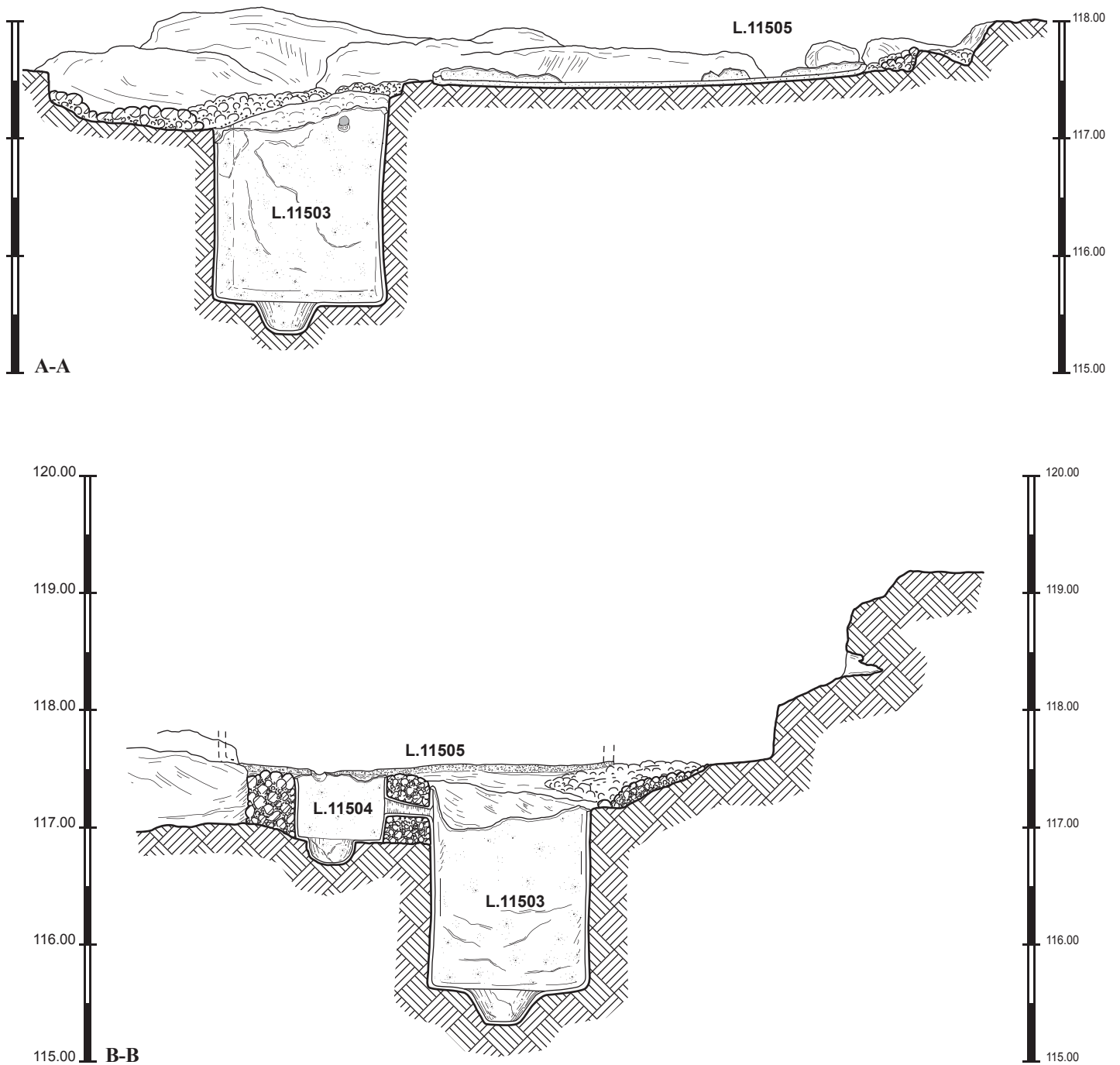
Wine Press F-690 was uncovered in Area D3 (map reference 193066/646773) and consisted of a treading floor, an intermediate vat, and a collecting vat (Figs. 2.16–2.18). The treading floor (Locus 11505) measured 3.65×3.55 m, yielding a surface area of 12.9575 m<sup>2</sup>, its rock-cut and plastered walls preserved to a height of 0.22 m above the floor.

The floor was also plastered and inclined towards the receiving system to which it was connected by a rock-cut, plastered channel. The constructed, intermediate vat (Locus 11504), situated west of the treading floor, measured  $0.65 \times 0.65 \times 0.60$  m, yielding a maximum capacity of  $0.2535 \text{ m}^3$  (253.5 liters). Off-center and towards the eastern part of the intermediate vat was a sedimentation pit 0.38 m in diameter and 0.12 m deep.



**Fig. 2.16.**  
Plan of Wine Press F-690

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**Fig. 2.17.**  
Cross-sections of Wine Press F-690



**Fig. 2.18.**

Photograph of Wine Press F-690 (view to the northwest)



A plastered conduit (Fig. 2.19) situated in the southern wall of the intermediate vat connected it to the rock-cut collecting vat (Locus 11503) which measured  $1.45 \times 1.30 \times 1.80$  m, accommodating a maximum capacity of  $3.393 \text{ m}^3$  (3,393 liters). At the center of the collecting vat was a conical sedimentation pit 0.48 m in diameter at its top, which narrowed towards its maximum depth of 0.20 m. At the northern corner of the collecting vat was a shallow (6 cm) round depression, 0.48 m in diameter. Both intermediate and collecting vats were plastered. The dividing wall between them was built of small and medium-sized field stones held together by mortar.

*Dating:* The numismatic evidence found in this installation dates it to the Early Roman period, i.e., the first century BCE (see Chapter 6, Nos. 2, 5).

**Fig. 2.19.**

Photograph of the receiving system of Wine Press F-690 (view to the southwest)



with average dimensions of 2.15×2.80 m. The corner floors were square and slightly larger: 2.80×2.80 m in the northwestern corner (Locus 10125) and 3.30×3.25 m in the northeastern corner (Locus 10059). Reconstruction of the southern wing's upper floors was based on the assumption that they were symmetrical with those in the northern wing, and this yielded an overall area of ca. 73 m<sup>2</sup>. All floors were paved using *tesserae*, while the walls were plastered (Fig. 2.61). A small (inner diameters 6–8 cm) ceramic pipe set diagonally in the foundations of each floor (Fig. 2.62) connected it to the compartment below. The upper floors were inclined slightly from the ends towards the openings of these pipes.

The lower compartments were semi-circular in shape with vaulted ceilings (Fig. 2.63). Their bottoms were paved with *tesserae*, while the walls were plastered. The top of the front wall of each compartment, which faces the treading floor,

reached only the base of its vaulted ceiling, leaving an opening in the upper part. At the lower part of each front wall was a ceramic pipe draining it to the treading floor (Fig. 2.64). Some of these pipes were found sealed by plaster “corks” (Fig. 2.65). The maximum capacity of the compartments varied between 0.377 m<sup>3</sup> (377 liters) to 0.699 m<sup>3</sup> (699 liters), providing a cumulative total capacity of 5.079 m<sup>3</sup> (5,079 liters) (Table 2.1). The surfaces of the compartments were covered by an unusual red plaster.

The treading floor (Locus 10078), paved using relatively large *tesserae* (5–6×5–6 cm), measured 6.35×7.00 m, yielding a total area of 44.45 m<sup>2</sup>. Within the material used to form the foundation layers of the floor was found a significant number of the *tesserae* stone flakes. This observation attests to the preparation of the *tesserae* (or at least the finishing cutting) in the immediate vicinity of the installation. In the center of the floor was



**Fig. 2.59.**

Aerial photograph of Wine Press F-494 (view to the northeast); photograph by David Silberman



**Fig. 2.60.**  
Aerial photograph of Wine Press F-494 (view to the east); photograph by David Silberman



**Fig. 2.61.**  
Photograph of Wine Press F-494 (view to the southwest)





**Fig. 2.62.**

Close-up photographs of two holes with inserted ceramic pipes which connected upper floors in Wine Press F-494 with the compartments below them

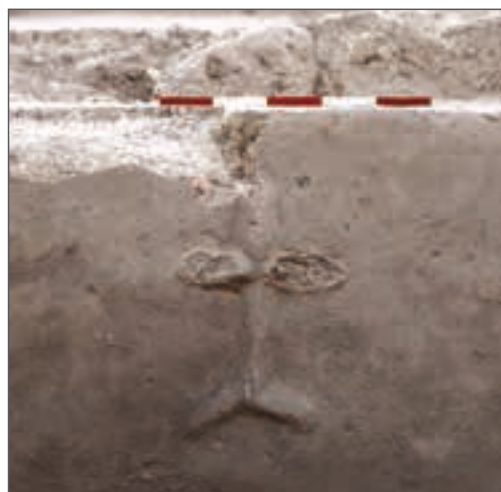


**Fig. 2.63.**

Photograph of three compartments in Wine Press F-494 (Loci 10116, 10132, and 10133; view to the northeast)



**Fig. 2.68.**  
Close-up photograph of the monogram incised on the bottom of a marble table fragment in secondary use as a paving slab in the intermediate vat, Wine Press F-494



**Fig. 2.70.**  
Photograph of the modeled cross decorating the eastern wall of the collecting vat, Wine Press F-494



**Fig. 2.69.**  
Photograph of the collecting vat (Locus 10152), Wine Press F-494 (view to the northeast)

