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Archaeology and Economy in the Ancient World

44

Judaea/Palaestina and Arabia: Cities and Hinterlands in Roman and Byzantine Times

Panel 8.6

Achim Lichtenberger
Oren Tal
Zeev Weiss (Eds.)

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Edited by

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CONTENTS

PREFACE

On behalf of the 'Associazione Internazionale di Archaeologica Classica (AIAC)' the 19th International Congress for Classical Archaeology took place in Cologne and Bonn from 22 to 26 May 2018. It was jointly organized by the two Archaeological Institutes of the Universities of Cologne and Bonn, and the primary theme of the congress was 'Archaeology and Economy in the Ancient World'. In fact, economic aspects permeate all areas of public and private life in ancient societies, whether in urban development, religion, art, housing, or in death.

Research on ancient economies has long played a significant role in ancient history. Increasingly in the last decades, awareness has grown in archaeology that the material culture of ancient societies offers excellent opportunities for studying the structure, performance, and dynamics of ancient economic systems and economic processes. Therefore, the main objective of this congress was to understand economy as a central element of classical societies and to analyse its interaction with ecological, political, social, religious, and cultural backgrounds. The theme of the congress was addressed to all disciplines that deal with Greco-Roman civilization and their neighbouring cultures from the Aegean Bronze Age to the end of Late Antiquity.

The participation of more than 1200 scholars from more than 40 countries demonstrates the great response to the topic of the congress. Altogether, more than 900 papers in 128 panels were presented, as were more than 110 posters. The publication of the congress is in two stages: larger panels are initially presented as independent volumes, such as this publication. Finally, at the end of the editing process, all contributions will be published in a joint conference volume.

We would like to take this opportunity to thank all participants and helpers of the congress who made it such a great success. Its realization would not have been possible without the generous support of many institutions, whom we would like to thank once again: the Universities of Bonn and Cologne, the Archaeological Society of Cologne, the Archaeology Foundation of Cologne, the Gerda Henkel Foundation, the Fritz Thyssen Foundation, the Sal. Oppenheim Foundation, the German Research Foundation (DFG), the German Academic Exchange Service (DAAD), the Romano-Germanic Museum Cologne and the LVR-LandesMuseum Bonn. Finally, our thanks go to all colleagues and panel organizers who were involved in the editing and printing process.

Bonn/Cologne, in August 2019

Martin Bentz & Michael Heinzelmann

Judaea/Palaestina and Arabia: Cities and Hinterlands in Roman and Byzantine Times

Introductory Notes

Achim Lichtenberger – Oren Tal – Zeev Weiss

While already for several decades, survey archaeology and the investigation of city – hinterland relations have been in the focus of Mediterranean archaeology[1], the systematic implementation of this method in the southern Levant, is not commonly practiced in the region. Only a few cities in this region were investigated by systematic intensive or extensive field surveys, among them Abila, Gadara, Hesbon/Esbous, Gerasa, Philadelphia and Petra in Transjordan.[2] Major urban centers in ancient Palestine were often integrated in systematic field surveys especially into the Archaeological Survey of Israel,[3] sometimes accompanied by excavations of different scale, as was the case in Caesarea, Apollonia, Scythopolis, Sepphoris, Ascalon and Elusa to name several examples. Some of these sites are partially covered in this work by contributions. However, it is obvious that a small collection such as ours cannot fill the gap of a systematic study of city – hinterland relations in the southern Levant. It is therefore our aim to provide the status quo of these relations in some selected cities and towns and to illustrate the variety of research methods and disciplines used to examine this topic.

It is remarkable that systematic field surveys were hardly implemented in Transjordan and Arabia, given the long tradition of systematic field reconnaissance in the Near East, starting in the 19th century and continued by scholars like N. Glueck, S. Mittmann and many others.[4] These surveys aimed at a general overview of the settlement history of whole regions and at identifying ancient sites. Today, research questions have changed, and in many cases the study of micro-regions with their hinterlands are the focus of research. Such studies can only be undertaken in a systematic fashion, using multi-disciplinary approaches and high-resolution analyses looking at all kinds of zones of urban settlements and connections within the site and its hinterland.

The AIAC panel dedicated to urban infrastructure aimed at exploring the relationships between the city (or town) and its hinterland (as reference to its agricultural terrains) or periphery (as reference to its subjected settlements). It focused on some southern Levantine major and secondary administrative centers of Judaea/Palaestina and Arabia under Roman and Byzantine rule (1st to 7th century CE). Papers in the three sessions presented several test-cases in which information on the hinterland/periphery of a center is well documented through surveys, excavations, and other means of documentations (i.e. LiDAR, aerial photography, geophysical surveys and so forth). Some papers addressed a range of issues connected with the Graeco-Roman city and its chora/hinterland/periphery. Among these, networking and communication, territory, definitions of a city/town, fortifications, citizenship, road networks, villages and estates,

aqueducts and dams, rivers, streams and seafronts, industrial quarters and production facilities, agricultural terrains and field towers, centralized dumps and necropoleis, were considered means of defining the urban infrastructure. The papers in many cases aimed at both the economical perspective and the political and social perceptions.

Given the scarcity of studies addressing these issues in a southern Levantine milieu, our intention was to produce a collective volume on the subject, but we became fully aware that this is only the start of an urgently needed research program on hinterlands and peripheries of urban centers in the southern Levant. Especially notwithstanding the intensive urban encroachment and modern development in the region threatening the ancient remains.

Among the papers, the more systematic approach of Nicolò Pini aimed at discussing the terminology of city – hinterland relations in the southern Levant. He discussed the important phenomenon of Roman settlements that according to size were more than villages, but in administrative terms lacked the polis status and often also lacked the urban fabric. Such sites underline that we are dealing with a variety of settlements in the region and highlight the problems of looking at center – periphery phenomena in limited dimensions.

All of the other papers dealt with one particular urban center and its hinterland. Several studies related to coastal sites such as Caesarea (discussed by Uzi ʿAd, Peter Gendelman, Rivka Gersht, Joseph Patrich) and Apollonia (discussed by Oren Tal), with Caesarea being studied from many perspectives by different scholars. The comparison between the two coastal centers was enlightening because of their different size, economic potential and political status.

Jerusalem (Aelia Capitolina) (discussed by Shlomit Weksler-Bdolah) and Sepphoris (Diocaesarea) (discussed by Zeev Weiss) can also be regarded as two test-cases in Western Palestine. Both cities were important regional centers, one in Judaea, the other in the Galilee, the former quite large and connected to the Roman army, the latter a medium-sized center largely populated by Jews. In addition, Beth Guvrin-Eleutheropolis was also discussed during the conference (by Boaz Zissu). This regional center in southern Judaea had a remarkably multi-religious profile with pagans, Jews and Christians living in the hinterland. Unfortunately, the paper did not make it into the publication.

During our three-sessions panel much time was spent on discussing cities of the Decapolis. These major urban centers in the region had a long history stretching back at least to the Hellenistic period. They come very close to the ideal of a Graeco-Roman city with a marked political status and urban center as well as hinterland settlements. Scythopolis (by Gabi Mazor), Gerasa (by Achim Lichtenberger and Rubina Raja), Hippos (by Michael Eisenberg and Mechael Osband) and Gadara (by Claudia Bührig) were the cities that received attention during the panel; unfortunately, the papers on Scythopolis, Hippos and Gadara did not make it into the publication. The lack of detailed studies underlines the importance of a systematic study of the settlement history of this region.[5]

Some of the cities of the Decapolis later belonged to the Roman province of Arabia, the province that was established after the incorporation of the Nabataean kingdom by Trajan in 106 CE. Before the provincialization phase, the Nabataean kingdom was urbanized on a small scale, but it developed enormously in the context of the pax Romana and its settlements turned into large cities. During the conference, Petra (discussed by Will M. Kennedy) and Elusa (discussed by Christian A. Schöne, Michael Heinzelmann, Tali Erickson-Gini and Diana Wozniok) were two such sites. Although it is difficult to compare the two, one being the capital and religious center for a long time, the other developing mainly during the Byzantine period, it was important to discuss these two centers since they broadened the perspective into more arid regions. Yer they have to be seen as warnings that generalizations from one site are not permissible for other sites.

It is obvious that this collection of papers is a start at best and an appetizer for more detailed studies on the city – hinterland (and periphery) relations in the southern Levant during the Roman and Byzantine periods. There is an enormous variety of sites and regions, a variety that makes any selection not suitable for generalizations. Although being part of the Roman or Byzantine Empire provided the cities with a shared political framework, culturally, these cities were quite diverse. Thoroughly Romanized cities such as Caesarea on the one hand and more indigenous cities such as Sepphoris on the other can hardly be compared to each other. From a geographical point of view, generalizations are not applicable with cities in the fertile and water rich plains such as Caesarea or Scythopolis nor with others in semi-arid regions such as most of the cities of the Decapolis or cities in arid desert environments such as Petra and Elusa. Desired are more detailed test-cases of city – hinterland studies in Roman and Byzantine Palestine and Arabia. Still, also systematic studies dealing with terminology, concepts and modelling are urgently needed. Only if we could find a common ground on terminology of a city, territory, networks, infrastructure and economy, comparative and systematic perspectives, will we be able to reach more general conclusions about city – hinterland relations in this particular part of the ancient Mediterranean.

Notes

[1] See e.g. Alcock – Osborne 2007, 118–119.

[2] See the contributions in this volume on Gerasa and Petra. On Abila see Fuller – Fuller 1992, on Gadara cf. Bührig 2016, on Hesbon see LaBianca – Hubbard – Running 1990 and Kennedy 2017 on Philadelphia.

[3] See http://survey.antiquities.org.il/index_Eng.html#/MapSurvey.

[4] Glueck 1945–1949; Mittmann 1970. Regarding Jordan, http://www.megajordan.org/Map is an important resource for settlement history although it is not up to date.

[5] Cf. also the collection by El-Khouri 2009.

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Semi-urban or Semi-rural Settlements: A New Definition of Urban Centres Required?

Nicolò Pini

The paper takes the move from a comparative analysis carried out for the doctoral thesis on a series of rural settlements in the ancient Roman provinces of Palestine, Arabia and Syria, occupied at least from the 1st to the 7th century CE. One problem was indeed to establish a coherent definition for these settlements, exclusively based on their material evidence.

The terminology used to define settlements is not a simple issue, but is also far from being a purely theoretical interest. In fact, terms archaeologists employ do not only affect the understanding of the scientific data but could possibly lead to misleading final interpretations. One should distinguish two orders of problems: the first connected with the differences between modern languages[1] in use in the scholarly production and terminology offered by ancient sources; the second depending directly on the nature of the settlements. Changes in the meaning of each word occurred through time and consistent differences are noticeable in different geographical contexts. These differences can be partially explained by a different local settlement history and the copresence of parallel linguistic and cultural systems.

Terminology appears to be set on a clear contraposition between urban centres and their countryside, characterised by what is generically described in modern scientific literature as "villages". One could think that the difference between cities and rural settlements might be marked in the terminology as well as in their morphology, but material remains show a more complex reality, due to the variety of rural settlements and their diachronic development. In many cases the label "rural" appears insufficient and limitative. To a certain extent, this variety is also rendered by the multiple designations offered by the historical sources for the rural contexts (like the Greek terms *kome* and *polichne*). If one possible explanation can be a legal and fiscal differentiation among the settlements, what is still arguable is whether such diversity in status is reflected in the morphology of the settlement too.

The major challenge ahead is to describe and identify settlements belonging to an intermediate level, a blurry semi-urban or semi-rural dimension, characterised by settlements defined by Avni as "urban hubs" in the countryside.[2] If the difference between a city, or a *polis*, and a village is conceptually clear and easily understandable through the material remains, how is one to distinguish such "towns" from a large village exclusively on the basis of the material remains? How to differentiate a town from a *polis*, functionally and morphologically? Safrai suggests that the difference between a *polis* and a town is to be seen differently "in size, in economic level and in architecture, in their ethno-demographic stratification and, particularly, in the degree of

Fig. 1: Aerial photography of the site of Hisban/Esbus.

Hellenisation, or the degree of openness to the Graeco-Roman culture and integration in the life of the Hellenised elite in the eastern empire", even if he admits that the distinction is not always clearly visible.[3] Similarly, Avni underlines the importance of the diachronic perspective when distinguishing settlement types, since the Byzantine period represents a period of widespread and radical changes in the settlement pattern in the area.[4]

Functionally and morphologically, cities and towns appear to overlap to a certain extent, the difference being purely ideological: this level is sometimes more difficult to grasp and more subject to diachronic changes.[5] For instance, the recent development of the term "city" shows a substantial dualism in its use:[6] On the one side, the official designation as a city; on the other side, the common one. If the latter considers the dimension as the defining criteria for a city, the former reflects a more

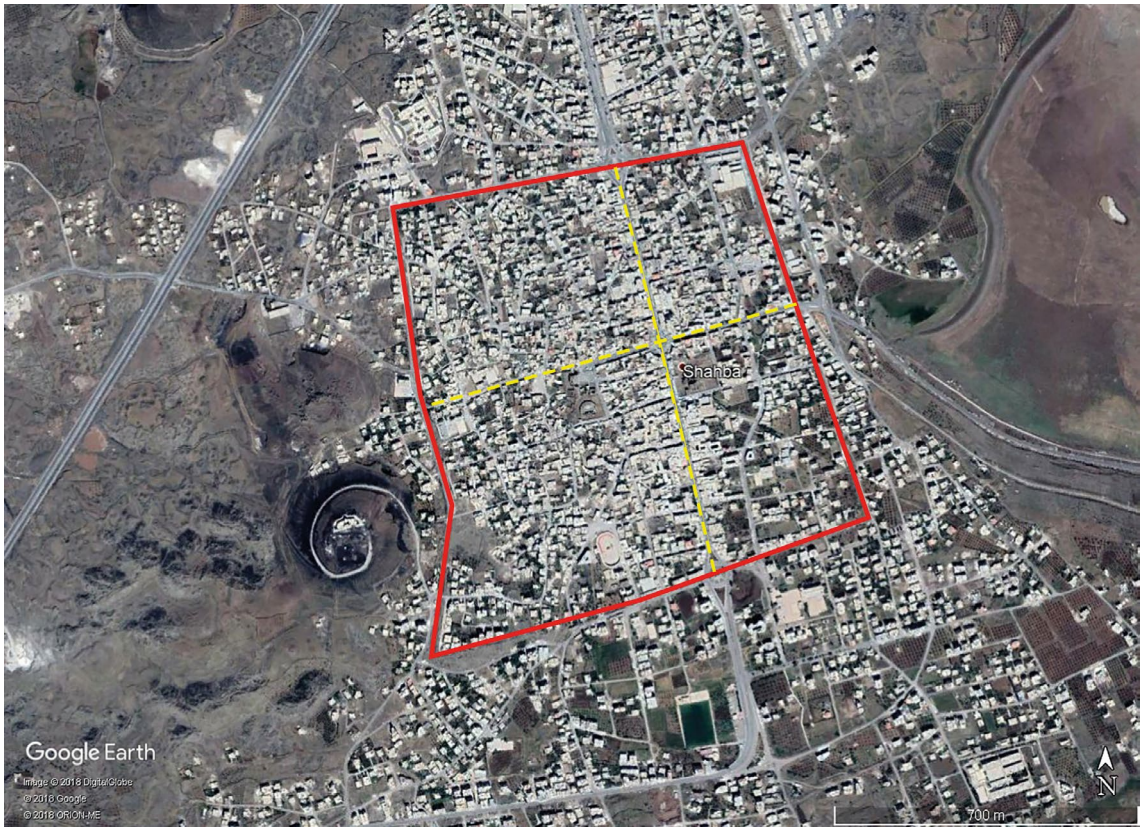

Fig. 2: Satellite image of the site of Shahba/Philippopolis.

complex context that underwent consistent usage shifts, where the defining criteria (for instance, the presence of a bishop or large industrial districts in the European context) are never systematically established and have constantly changed through time and space.[7]

During Roman times, the identification of the proper urban centres (*poleis* and *metropoleis*) in both the administrative and common terminology seems less problematic, in light of the correspondence between the physical features (size of the settlement and its population, geometrical planning of the urban space, public infrastructures and facilities, administrative buildings, major religious complexes and commercial and recreational areas) and predominant political, economic and civic roles. Moreover, the legal recognition ensured by the emperor is also essential.

In the late Roman and Byzantine periods, however, the situation became more complicated, due to the radical transformation in the physical aspects and in the functional features of the cities (such as the encroachment phenomenon and development of urban industrial districts).[8] Moreover, cases of 'promotion' of earlier villages to the urban rank are well attested, for instance Esbus (fig. 1),[9] originating an extremely complex context to render. Although fulfilling political and administrative

requirements, these new *poleis* often differentiate themselves quite clearly from the traditional 'Hellenistic' morphology, generating difficulties in their identification as proper urban centres. Only in few circumstances, as for Philippopolis (fig. 2), the new 'rank' is followed by a complete 'upgrade' of the settlement's features.[10]

The fact that a "town" has specific urban features is the major reason of such confusion. Its definition is often fluctuating, constantly escaping standardisation. It is normally considered in between the city and the village, and it clearly implies a physical and social separation between its urban space and the surrounding countryside.[11] Be that as it may, once a researcher tries to isolate a set of features to define a town, he or she is at odds, because the designation of a town is highly dependent on how each society perceives the settlement's importance.[12] On a general level, one can affirm that a settlement can be defined as a town when it presents socially and physically proper urban features, such as determined economic, religious and political services (i.e. a communal church, market areas, barracks, administrative buildings) and socio-economic stratification, but still lacks a political and legal acknowledgment as an urban community.

It cannot be known for certain whether the ancients thought similarly about these terms and concepts as today. Nonetheless, when considering the sources available, one could quite confidently notice the same blurriness of definition of settlement types, on each level of village, town and city. Furthermore, it is complicated to reconstruct the changes that the terms may have undergone over several centuries, especially in light of the many different languages spoken in the Roman and late antique Near East.[13] To further complicate matters, written sources (especially Byzantine) present different hierarchies of settlements and more often mention the same centre in different ways, in particular in the case of settlements that can be defined as small cities or towns (or even as a large village) for which one can find indiscriminately different terms.[14]

Despite the general lack of an official label to define the semi-urban or semi-rural level, one exception can be represented by the *metrokomia*. Sartre analysed all the evidence coming from the available epigraphic finds from southern Syria and three constitutions from the 5th century.[15] The resulting pattern is far from clear, since the use of the term in the two different sources can refer to extremely different contexts, both chronologically and geographically. The inscriptions do reflect in fact an extremely limited administrative environment, namely in today's central Hauran, for the 2nd and 3rd (and perhaps the 4th) century, where the *metrokomiai* would have functioned as a sort of surrogate for the *polis* in land owned directly by the emperor. The justification is fairly simple: "the imperial treasury need not to be deprived of the income anticipated from these regions",[16] that nonetheless needed some urban settlement to be administrated. Fiscally the *polis* was not a solution, and functionally a simple *kome* was not sufficient to meet the administrative and strategic requirements: an intermediate level (the *metrokomiai*) fulfilled this need,

Fig. 3: The northern part of Shivta, showing possible signs of small-scale planning.

but remained an isolated and regional pattern. The use of the term *metrokomiai* is clearly different in some Egyptian papyri and legal texts,[17] where it reflects an unofficial terminology attested in Egypt in the 4th and 5th century and distinguishes a type of *komai* ruled according to the public law from privately owned *epoikia* – another term normally translated as "villages".[18]

The continuity into the early Islamic period is reflected in many sites of the Near East and also by the Arabic terminology, that follows the same clear distinction between properly urban and rural contexts[19] but maintains the intermediate grey area. The situation is complicated for the earliest phases of the Islamic period, since no direct source is available, apart from some references in the Quran. Only from the 10th century onwards a more clear hierarchy of settlements was defined and four ranks were established among the urban settlements: *amsar*, capitals of regions; *qasabat*, district capital; *madina*, a city of "considerable size"; finally, "towns of various sizes with urban characteristics", for which several terms are employed, but whose physical features are

Fig. 4: Comparison of the size of the settlements considered in the study.

not always clearly distinguishable.[20] Of particular interest is the term *qarya*, the only one showing a radical change in meaning: in the Quran, in fact, it refers to cities, while in its later use it clearly identifies some sort of rural settlement.[21]

In light of such a complex range of terms, no clear-cut typology can be established. The impression is that the problem of the definition of the settlements depends on the fact that their morphology can be subject to multiple and simultaneous factors (topographic and environmental, social, economic and military). Moreover, the fact that proper urban centres are present in the same region and represent an indisputable 'central place' in the socio-economic and administrative local system does not necessarily imply that all the settlements under their control had exclusively an agricultural function, supplying the city with goods. Nor are they necessarily characterised by a low socio-economic stratification of the inhabitants, modest architectural quality, complete lack of planning and modest dimensions (smaller than 10 ha).[22] For instance, in the rural site of Shivta some blocks in the northern part of the settlements seems to

Fig. 5: Walls of Mampsis in the Negev.

follow some small-scaled planification, at least looking at the regularity of the streets in that area (fig. 3).

In my opinion, the criteria defining rural settlements need to be reconsidered, avoiding considering only one single feature. Especially the size of the settlement could be particularly misleading for our interpretation of the site. Comparing the case studies, it becomes quite clear that pretty large settlements could develop even in the rural context (fig. 4). If the size is not comparable with the larger urban centres, it is not rare to find, in Transjordan and Syria at least, "villages" extending for more than 10 ha. Some examples like Sharah and Umm el-Jimal are even comparable to a small city.

Therefore, the set of criteria has to consider either morphological or functional features, detecting in both of them possible marks of 'urbanity'. Clearly, the first do include size and density, but also the way the borders of the settlements are defined. To this regard, if one specific urban feature is the presence of walls (often with accentuated military functions), rural settlements present diversified solutions, relying either on natural characteristics of the ground (steep slopes or wadis) and on anthropic solutions (architectural features). Nonetheless, even where perimetric walls are built (more easily in open spaces like the steppe or large plateaux), they do rarely show proper military functions but seem to offer defence from simple incursions or maybe to express some sort of communal social identity (fig. 5). Elsewhere, more organised blocks of courtyard houses create a close front to the outside (either for the settlements or for single quarters too) (fig. 6). Sometimes the two solutions are combined, as in Umm el-Jimal.

On the other hand, functional features inform more clearly on the nature of the site. The impression for the Roman and especially Byzantine Near East is to have a well-developed intermediate level of settlements ("towns"), not necessarily related to the presence of a *polis* in the region. A good example could be the Leja in central Hauran (Syria), where the absence of larger urban sites and the strategic importance of the region encouraged the development of such rural "urban hubs"

Fig. 6: External block in Umm el-Jimal.

(among which the abovementioned *metrokomiai*). Sharah, for instance, not being one of the identified *metrokomiai*, still shows a complex functional pattern. The agricultural specialisation is well underlined by the widespread stables found in almost every residential unit,[23] but the presence of a wall surrounding the entire settlement and of several structures interpreted as military outposts, a public bath and a possible large sanctuary (apparently in use at least during the Roman period), and later also a mosque, suggest a 'semi-urban' dimension (fig. 7).[24]

In some regions, the late-antique boom in the countryside can be related to the new defensive strategy adopted by the Byzantine Empire to protect the eastern borders, encouraging local pastoral communities to adopt more stable living strategies and integrating more intensively some of their representatives into the administrative provincial system, as the example of the Jafnids well demonstrates.[25] For instance, Umm el-Jimal saw a dramatic expansion in the Byzantine periods, with a complete change in the settlement's organisation probably from the 5th century onward. Like Sharah, the site does not seem to have been a simple large "village": agricultural features like stables and fenced areas scattered in and around the settlement are well attested; but the wall surrounding the site, with a monumental gate (Commodus Gate), the 'New Barracks' (even if smaller than the earlier Roman fort), at least one large communal church (possibly bishop seat?) are indicators for a more complex reality.[26] Moreover, large empty areas, associated with structures and facilities like small fences and reservoirs, are possibly related to the caravan trade, suggesting also an interregional commercial importance of the site (fig. 8).

Fig. 7: Satellite image of Sharah.

To conclude, sites ascribed to an intermediate semi-urban level are an important component in the settlement's pattern in the Near East, especially in the late antique period, although they escape a clear terminological definition, either in

Fig. 8: Satellite image of Umm el-Jimal.

ancient or in modern sources. The surge of such "towns" can be related to various reasons, but they are clearly to be understood as urban hubs in the countryside, sometimes substituting proper urban centres if not present in the area or overtaking some urban functions after the evident changes witnessed by the cities from the 4th century onwards. Moreover, an accentuated policy engaging local communities could also have encouraged the development of larger settlements in the countryside. Therefore, archaeologists need to be aware of a bigger complexity than the simple urban-rural dichotomy when analysing a city and its countryside, especially in a moment of dramatic dynamism as in Late Antiquity.

Notes

[1] The paper will take into consideration English, since it is most commonly used in the scientific literature for the region investigated.

[2] Avni 2014, 196.

[3] Safrai 1994, 61.

[4] Avni 2014, 194.

[5] Topalov et al. 2014, 309.

[6] This dualism appears to be consolidated in the English language at least since the 18th century (Topalov et al. 2014, 309).

[7] Topalov et al. 2014, 308.

[8] Among others: Wirth 2000, 34–48; Walmsley 2012, 34–47; Avni 2014, 40–106.

[9] Mitchel 1992, 104 f.

[10] Dentzer et al. 2010.

[11] Topalov et al. 2014, 1227.

[12] In Europe, the term town undertook a shift from a vaguer use at the beginning of the Middle Ages (when it could also be used in a rural context) to a proper urban connotation at the end of this era. On the contrary, in the United States a more dimensional criterion is applied, meaning that a town is a larger settlement than a village, but still smaller than a city. Moreover, a stronger rural connotation is often implied (Topalov et al. 2014, 1228).

[13] In the Roman and Byzantine Levant, Greek terminology, though applied over a large region and consisting of a more or less standardized set of terms for settlements, has no univocal terms used to describe types of settlements containing less properly urban features, though still not entirely rural (Avni 2014, 194). It is interesting to note that despite the quite clear theoretical definition of polis mentioned above, the term is also used for rural settlements that surely lack any official recognition and are possibly elsewhere defined with other terms. Safrai mentions for instance the ambivalent use of the term in Josephus (Safrai 1994, 61 f.).

[14] Together with the aforementioned use of polis, historical sources also use its diminutive polichne or the term kome megiste, a "large kome", which normally defines more properly communities of independent farmers (i. e. villages). Moreover, it is interesting to note for Palestine that there is a different conceptualisation of the types of settlements between the Byzantine sources and the contemporary Jewish sources, where some reported towns of the Jewish texts are referred to as villages in the Byzantine ones (Avni 2014, 194 f.).

[15] Sartre 1999; Sartre 2005, 230–233.

[16] Sartre 2005, 231.

[17] The Codex Theodosianus (11, 24, 6; dated 3rd December 415) and the Codex Justinianus (10, 19, 8 and 11, 56; dated to the August 468). Apparently, they adopted the term in the light of its common use in the daily language.

[18] Sartre 1999, 210. Sartre does not exclude the possibility that the same term could have also been used with the same connotation in this period in other regions like Syria, Arabia and Palestine.

[19] Connected to the presence or absence of defensive structures and – most importantly – of the Friday Mosque and the minbar. The dimension, the population and the availability of commercial and guest facilities

are also used as defining features (Topalov et al. 2014, 684 f.). Still, not much of attention was paid to clearly distinguish between the several terms employed to describe the urban centres, notwithstanding the evident chronological and regional differences, and this leads to several ambiguities in their definition and application.

[20] Avni 2014, 196. Some terms were also used as synonyms, like madina and misr. Among the possible differences in their use in earlier phases of the Islamic period, medina possibly refers to administrative centres based in already existing settlements, while misr seems to describe a "city built ex nihilo" (Topalov et al. 2014, 47).

[21] Topalov et al. 2014, 1010. In the later acceptation, it might include settlements defined today as towns, or like metrokomiai mentioned in Greek sources.

[22] Safrai 1994; Hirschfeld 1997.

[23] Clauss-Balty 2010, 202–206.

[24] Clauss-Balty 2010, 200 f.

[25] Fisher 2011; Fisher 2015, 313–347.

[26] de Vries 1998; de Vries 2000.

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Caesarea Maritima – A View from Outside: The Periphery of the Roman and Byzantine Metropolis

Peter Gendelman – Uzi ʻAd

Life and afterlife coexisted in the periphery of Caesarea Maritima the metropolis of the province Judaea, later Syria Palaestina and Palaestina Prima. This paper offers a view on the different activities, which have taken place in the outskirts of Caesarea in about a radius of 15 km from the city-walls. We will focus on the city's necropoleis, wasters, suburb mansions, stone quarries, agricultural installations, water supply and watermills.

Necropoleis

The cemeteries of Caesarea are scattered from the Hadera Stream to *Crocodileon Flumen* (Tanninim Stream) with concentration in close proximity to the city's walls (fig. 1d).[1]

Remains of a 1st century hypogeum with evidence of secondary burial by collecting of bones, a known Jewish practice, was exposed southeast of the city.[2] A number of 3rd to 7th century Jewish funerary inscriptions, which were found scattered in this district[3], suggest a continuous ownership of cemeteries in the area by the Jewish community of Caesarea.

The best Caesarean example of walled cemetery was found next to the Herodian city's south fortification, where inhumation and cremation were practiced between the late 1st and early 3rd century.[4] Deceased were buried in cists built of stone slabs or within urns, mainly of reused pottery vessels. Stepped pyramidal and pillar like stelae of local sandstones were built atop the cists, and inscribed marble gravestones, in Latin and Greek, were attached to their upper-face (fig. 1a).[5]

The fragmentary marble sarcophagi found along the road leading from Caesarea to Flavia Neapolis/Shechem indicate that in Caesarea, like in other cities, burial in roadside cemeteries was practiced. The only excavated burial of this cemetery is the 2nd century mausoleum, where an almost intact lid with gorgoneia and fragments of a marble garland-sarcophagus were found (fig. 1b).[6]

Marble sarcophagi were favored by the wealthiest Caesareans; other Caesareans who wished to be buried in a coffin and could not afford a marble sarcophagus sufficed with local stone or wooden coffins.[7] From 3rd to 4th century on the custom of burying in lead coffins also reached Caesarea and was practiced by certain pagans and Christians alike.[8]

Other walled cemeteries, dating from 2nd to 4th century, are situated northeast of the city (fig. 1d).[9] The graves in these cemeteries were arranged in clusters, where the deceased were laid directly on the cists' floor or within local stone sarcophagi, which were placed inside the cists (fig. 1c). Remains of cremated infants and fetuses were

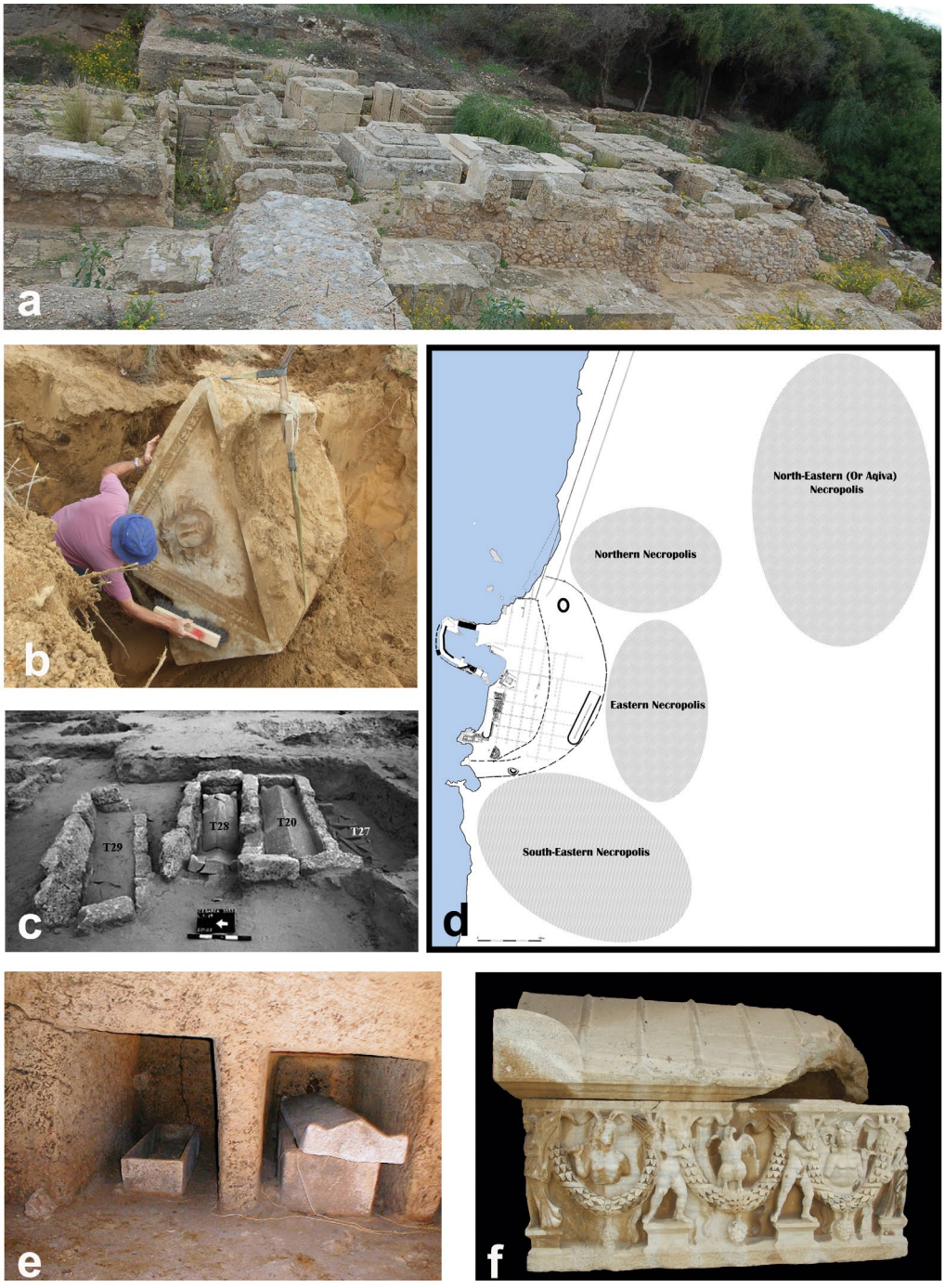


Fig. 1: Necropoleis: (a) Roman cemetery, next to Herodian south fortification. (b) Marble sarcophagus lid, mausoleum next to the road. (c) Northern necropolis, burial cluster. (d) Caesarea necropoleis, map. (e) Roman hypogeum with limestone sarcophagi, Taninim Reservoir area. (f) Garland sarcophagus, Tel Mevorakh mausoleum.

found in two of the burial clusters. Fragments of funerary inscriptions indicate that also in this cemetery funerary stelae were built atop cists. One Greek epitaph, bearing a cross, shows that Christian families were also buried in this cemetery.[10] The possibility that a cluster – or more than one – was owned by a certain family is suggested by a partially preserved inscription declaring that "It is permitted to all my descendants to be buried nearby". The find spot of the inscription in Caesarea is unknown.[11]

Numerous hypogea with loculi or arcosolia and mausolea were excavated or surveyed in the surroundings of the city (fig. 1e). One, a 3rd to 4th century hypogeum, is associated with the Samaritan community[12]; others apparently served Pagans and Christians.[13] In most cases the hypogea and mausolea were part of a larger burial ground, which includes cist tombs, either cut in bedrock or built of ashlars, with or without sarcophagi.[14] A good example is the Tel Mevorakh necropolis, situated next to the High Level aqueduct leading water to Caesarea, where late Roman arcosolia and cist tombs were found in proximity to a remarkable mausoleum. Two ornamented marble sarcophagi – stylistically dated to the 2nd and 3rd centuries – were found in this mausoleum, together with several undecorated and partly broken ones (fig. 1f).[15]

City Wasters

From the excavations within Caesarea and its vicinity it becomes clear that the city's refuse was widely reused either as construction-fill for public and private buildings or as land reclamation (see below). Broken pottery, empty amphorae, animal bones, debris from demolished buildings etc. were reused in different ways, particularly for constructions and crafts.[16]

That the dealing with refuse was a rather complicated issue is deduced from the 2014 excavation at an area about 60 m south of Caesarea's late antique fortification, where dumped refuse layers were found within enclosures of ashlar walls (fig. 2a, b). The area – about 3,600 m^2 – was operated continuously from the late 2nd to the 6th century as an organized dumping ground. The nature of the dumped refuse from the enclosures indicates that the refuse was sorted at least once. All that could be useful for construction and crafts, such as large rubbles, long animal's bones, metals, glass, large potsherds and complete but cracked pottery vessels was taken for recycling. The rest was left within refuse-enclosures till the organic components decomposed, then the refuse became suitable for use as foundation fill, land reclamation and for other purposes. The fragments of local and imported pottery of all kinds, glass, metals, bones and roof-tiles, found within the deposits[17], point to the domestic nature of the refuse. In contrast, the port refuse (wasters not yet found), as the unpublished 5th century fills in the western façade of the platform of the Augustus and Roma temple, like in the Monte Testaccio dump in Rome, is comprised of more than 90% of broken amphorae.[18]

Scholars suggest that in Rome refuse collection, disposing and reusing were done by private contractors – *stercorarii*, probably under supervision of officials known as *quattuoviri viarum curandarum*.[19] It is not unlikely that the same system operated in Caesarea, not only in the area mentioned but also in other extensive areas next to the flourishing city.

Toward the 7th century the organized refuse collecting ceased to function. Instead the waste was thrown over the city walls or piled within buildings that went out of use, as happened in and near the amphitheater at the northeast part of the city (fig. 2c).[20]

Suburban Mansions

Several late antique upper class suburban palaces and villas provided their owners and guests with the pleasures, which the countryside could offer within sight of Caesarea. So far only five such extensive and luxurious mansions have been found, of which four were partially excavated (fig. 3a).

The first to be discovered is the 'Bird Mosaic' complex located on top of a sandstone ridge (fig. 3c). The complex covered an area of about 1,650 m² (50 × 33 m). All excavated parts of this mansion are covered with mosaics mainly multicolored; the one in the courtyard is decorated with bird medallions (fig. 3b).[21] The mansion had two stories with living rooms, triclinia, service facilities, courtyards, a private bath (as evinced by the water installation) and probably also a private chapel. The unique gold-glass mosaic sigma tabletop uncovered in the mansion demonstrates well how luxurious the mansion was and how wealthy his owners were.[22]

Additional a palatial residence – the 'Harvest Blessings' mansion – is situated in the eastern suburb of Caesarea, in a distance of about 300 m from the 'Birds Mosaic' mansion[23], and occupied an area of approximately 2,300 m² (65 × more than 35 m). The excavated parts include a sizable chapel, living rooms, courts and other compartments whose function is not entirely clear (fig. 3d). The rooms were richly decorated with multicolored mosaics and mural paintings (fig. 3e). Numerous fragments of marble slabs found during the excavations indicate that opus sectile floors and/or marble walls lining were decorating parts of the complex.[24]

Remains of an additional complex were found about 600 m northwest of the 'Harvest Blessing' mansion. The excavated area of this mansion consists of a well-preserved private bath with a circular piscina and small parts of other expenses (fig. 4a, b).[25] Unlike Horton who identified the complex as a public bath[26], other scholars see it as a private dwelling.[27] The complex was generally dated to ca. 550–640; recent excavation of the mansion water supply, conducted by one of the authors, confirmed that the complex was erected during the 6th century.

Not far from this complex – north to the city's late antique fortification – another complex was partly excavated by G. Edelstein, who suggested that the remains are of

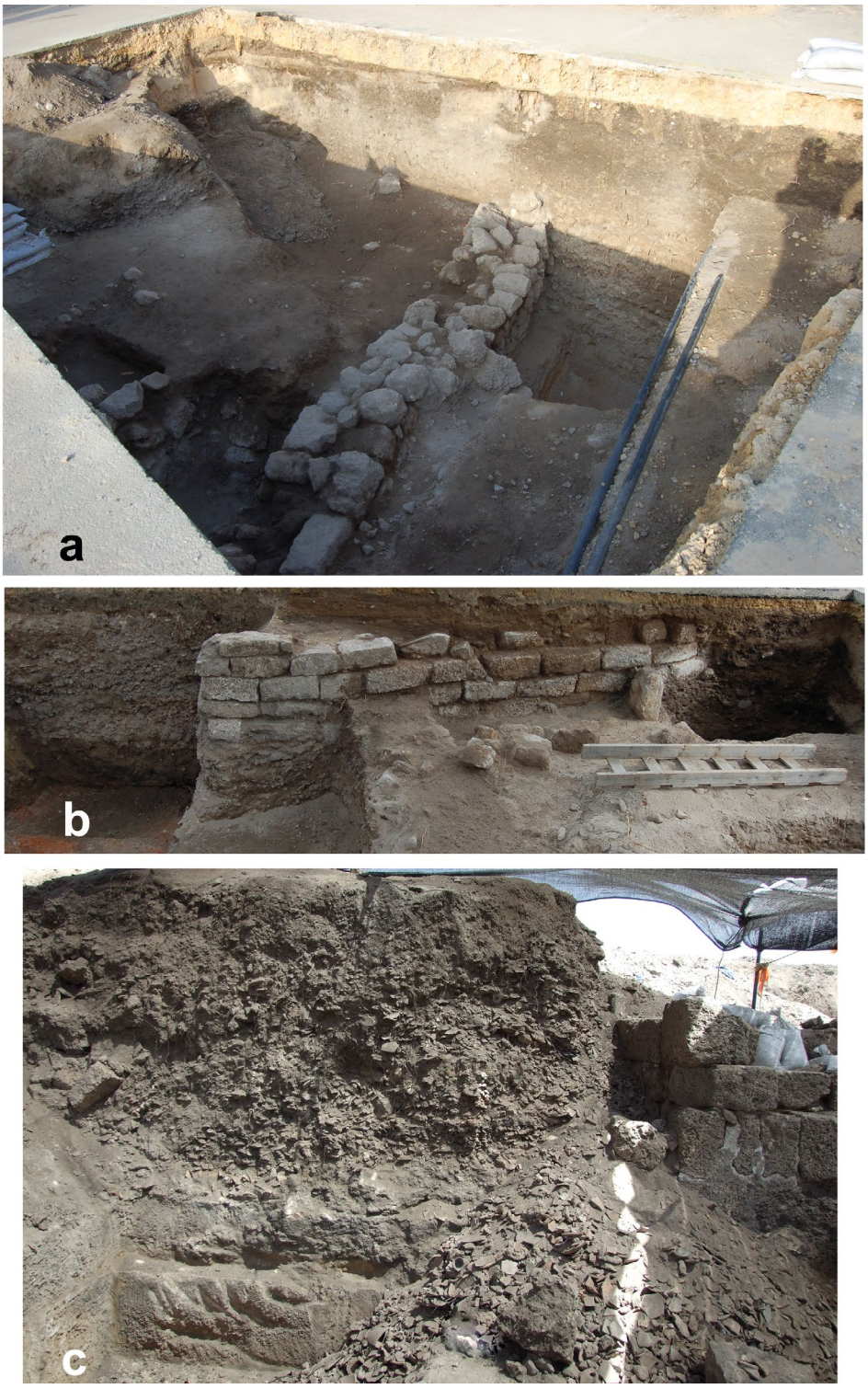


Fig. 2: City wasters: (a–b) Waster ground enclosures, south of the Late Antique fortification. (c) City waste damping within the amphitheater.

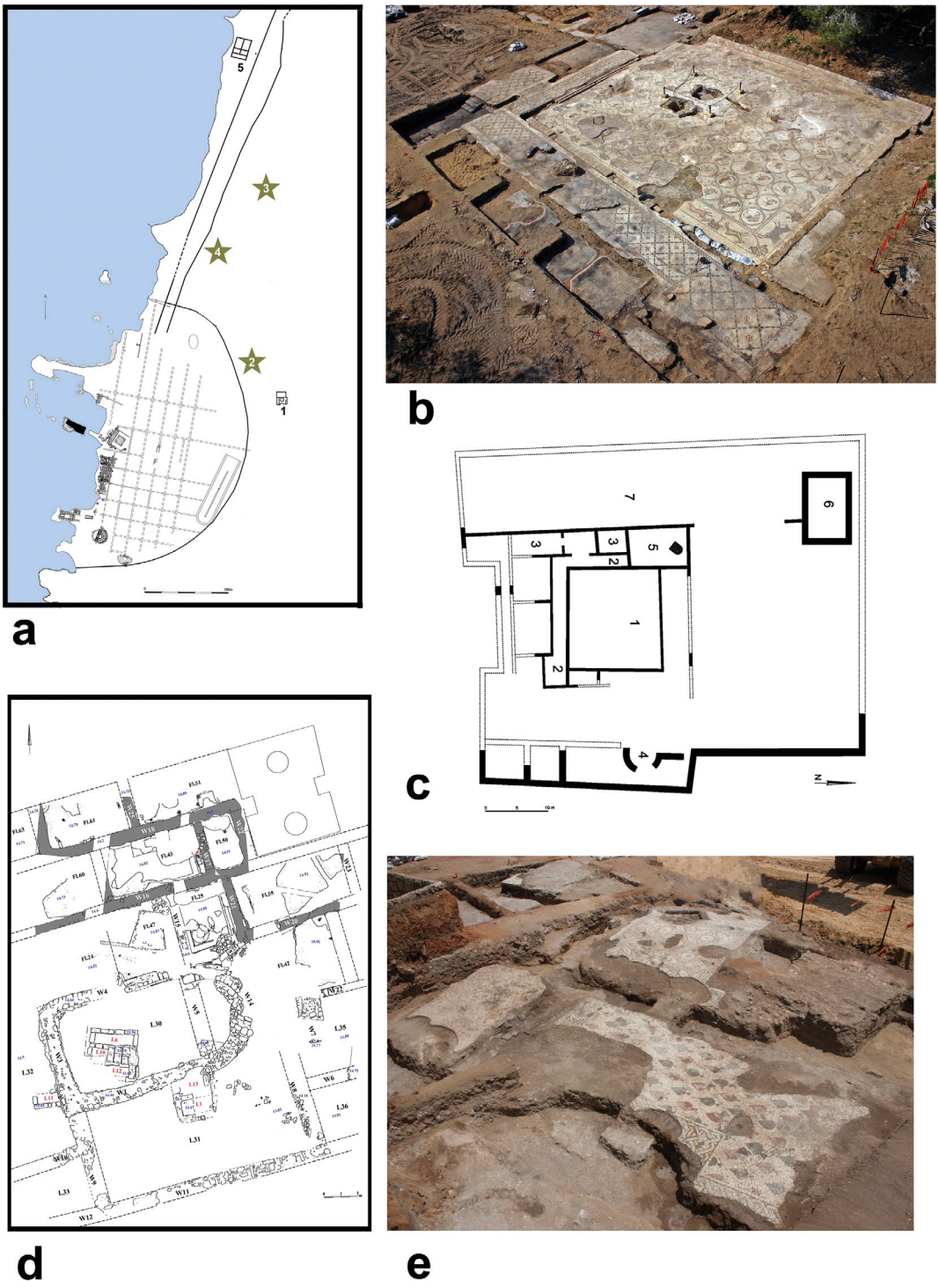


Fig. 3: Suburban Mansions: (a) Caesarea Suburb Mansions, map. (b–c) ‚Bird Mosaic' mansion: (b) Plan. (c) Aerial view. ‚Harvest Blessing' mansion: (d) Plan. (e) Mosaic floors, northern wing.

either a public or private bathhouse.[28] Yet the possibility that the large elliptic hall, the room or rooms attached to it on the north – all paved with colored mosaics – and the marble bases and columns uncovered in the hall, are the remains of a private mansion should not be ruled out (fig. 4c, d).

The ‚Tell Tadwira' mansion located on top of the sandstone hill facing the seashore – about 1.5 km north of Caesarea – was only surveyed.[29] This rather impressive complex has the remains of two monumental stairways one at the south and the other on the north (fig. 4e, f). On top of the hill there are remains of walls, mosaic and marble floors, and pools or water cisterns.

In the Roman period suburban mansions located in range of visibility from a city were common in many parts of the Roman Empire, including Caesarea, Apollonia-Arsuf and Bet Govrin in the Province of Syria Palaestina.[30] In Late Antiquity, on the other hand, suburban mansions were generally uncommon. The 6th century suburb villa near Amorium in Phrygia, Asia Minor, mentioned in the Life of St. Theodore of Sykeon[31] is one of the few examples known from this period. It had a private chapel like the 'Harvest Blessings' and probably also the 'Bird Mosaic' mansion in Caesarea. The phenomenon of contemporary existence of four or more palatial mansions in distance of visibility from the city and from each other can only be explained by the fact that the owners were high administrative and/or cleric officials of the province stationed in its capital city Caesarea.

Quarries

Despite the substantial use of imported marbles and decorative stones the main building material used in Caesarea was the local calcareous sandstone. The sandstone quarries spread along the ridges from the Hadera stream in the south to the border of the Roman province Phoenicia in the north. The archaeological record provides little evidence about sandstone quarry management. The large sized quarries, the uniform measures of the quarried blocks in each one, suggest municipal ownership and operation (fig. 5a)[35], yet also private enterprise under municipal concession or private ownership and operation should not be ruled out.

The limestone quarries located on the slopes of Mount Carmel and on the western edge of the hills of Samaria (fig. 5b) supplied Caesarea with stone harder than the sandstone. The limestone was more suitable for architectural members and decoration, including sculpture, as well as street and public squares paving. The extent of limestone quarries also suggests municipal ownership.[33]

Peter Gendelman

Agriculture

Caesarea Maritima controlled a large *territorium*, which included extensive agricultural hinterlands in the Sharon Plain and south of Mount Carmel. However, evidence of agricultural production was also found in the proximity to the city. The remains of an early Roman winepress, for example, were exposed a few hundred meters to the east of the contemporary city wall.[34] This accords with the mention of a "winepress of Caesarea" in Tosefta (Tosefta Ahilot 18:13) even though the written evidence is much later.

The remains of the large Byzantine agricultural complex discovered about 2 km to the northeast of the city, is another meaningful example.[35] It includes a system of irrigation channels, which were operated from a shallow well and a large circular pavement (19 m in diameter), which most likely functioned as threshing floor (fig. 6). To fertilize the soil, an extensive area around the site was covered with a layer of dark soil that came from the city wastes. Such an elaborate and sizeable system suggests that the facility was owned and operated either by the municipality, or by one of the wealthy citizens of Caesarea. Additional agricultural plots, with soil fertilized with city waste, were exposed to the north and east of the late antique walls of the city.[36]

Considering the size of the population of Roman and Byzantine Caesarea (up to 50,000 or more) the evidence available today of the agricultural activities in the city's proximity is undoubtedly but a small fraction of what actually was.

Water Supply

Based on the excavations in the southwestern zone of the city, wells and water cisterns were the only source of water supply until the first third of the 1st century CE. Since then an elaborate system of three aqueducts were created to supply Caesarea with water (fig. 7a).[37]

The High-level aqueduct is the earliest and the most complex system among the three. It reached the *castellum* – the distribution pool next to the Herodian city wall – and supplied the city with good quality drinking water.[38] The high-level aqueduct consists of two main channels, A and B, whose primary water source was the ʿEin Shuni spring on the southern slopes of Mount Carmel. During the late Roman and early Byzantine period, two sources, higher other water than the ʿEin Shuni one, were added to the system (springs of the Tanninim Stream and ʿEn Zur). At its peak, the high-level aqueduct carried water to a distance over than 14 km.

Channel A – with estimated flow rate of 650–325m³/hour – was most probably built during the second quarter of the 1st century CE (fig. 7b). Channel B – with an estimated flow rate of 750m³/hour – was added alongside channel A during Hadrian's reign, as is well attested by no less than eleven inscriptions (fig. 7c).

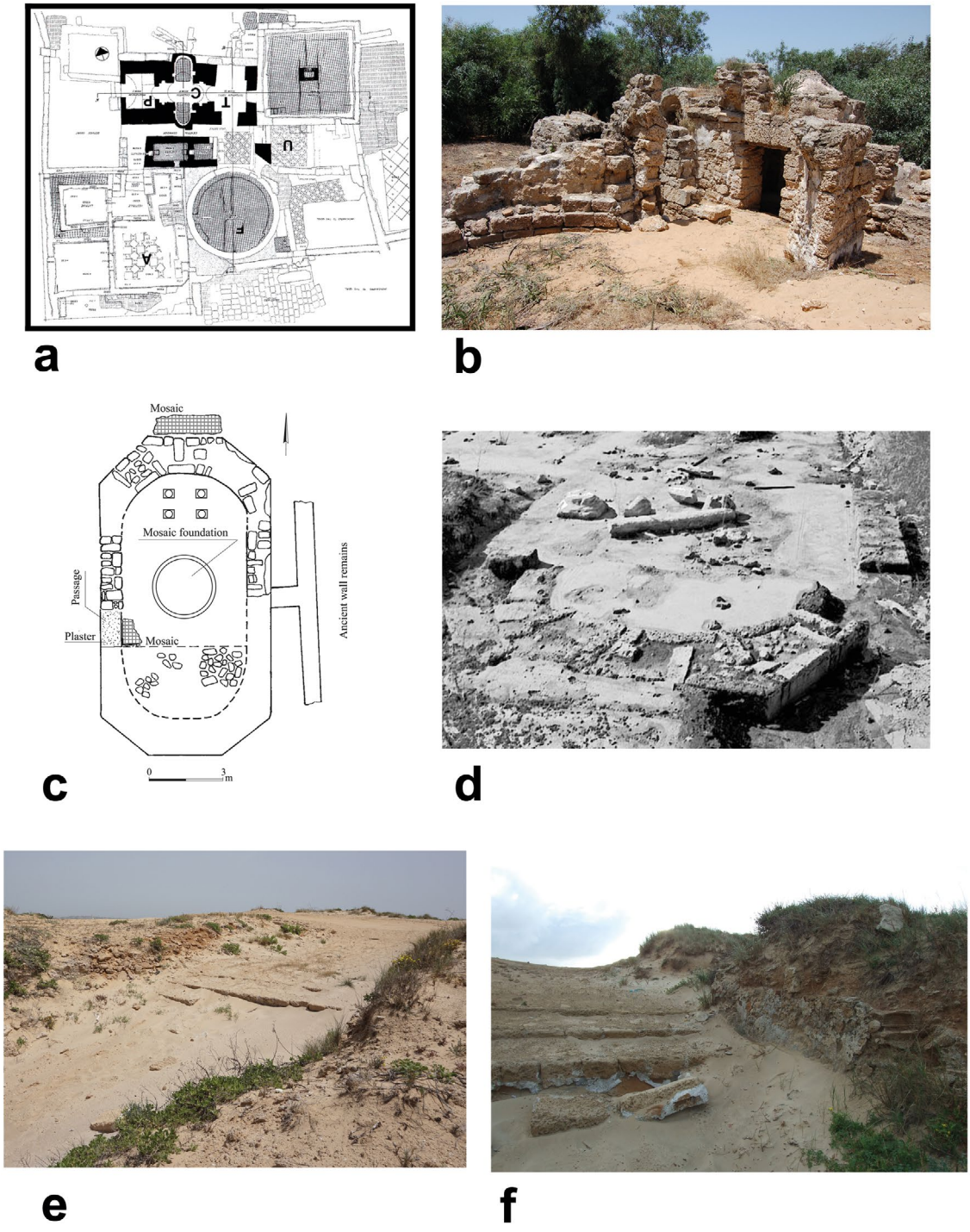
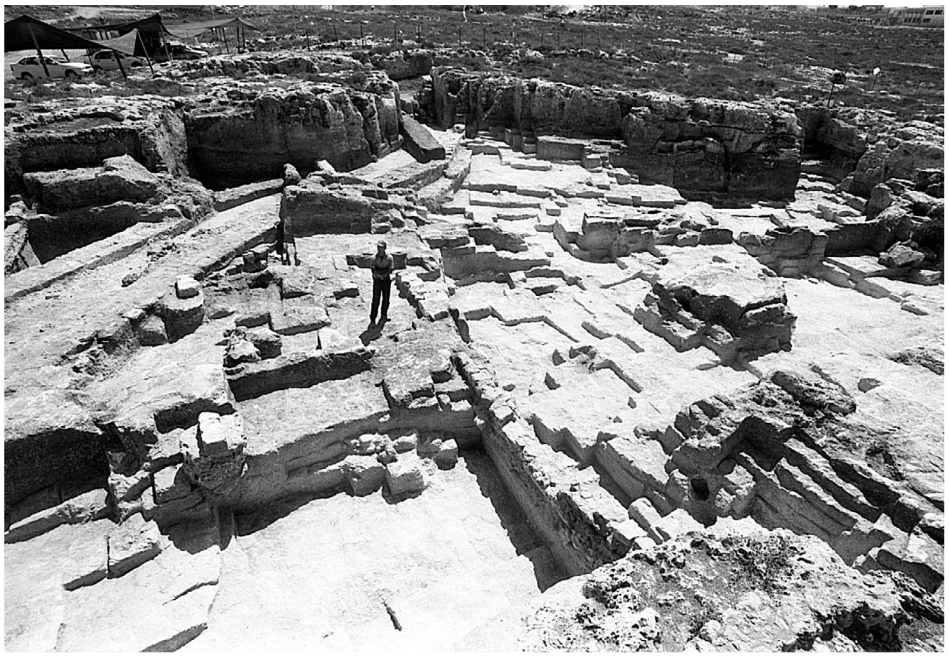


Fig. 4: Suburban Mansions: (a) Plan. (b) Mansion with private bath after Horton 1996. (c–d) Mansion? after Edelshtein 2007. (e–f) Tell Tadwira' mansion, southern and western stairways.



a

b

Fig. 5: Quarries: (a) Sandstone quarry, Tanninim Reservoir area. (b) Limestone quarry, western slopes of Mount Carmel.

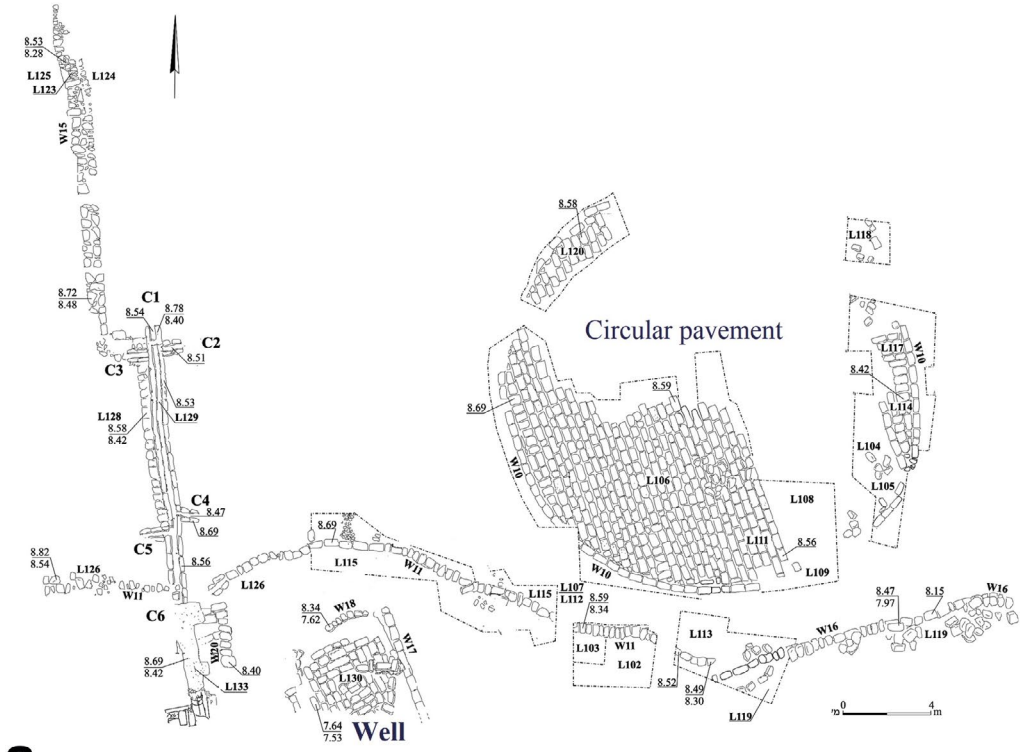


Fig. 6: Agricultural Installations: (a) Plan. (b) Agricultural complex east of Caesarea.

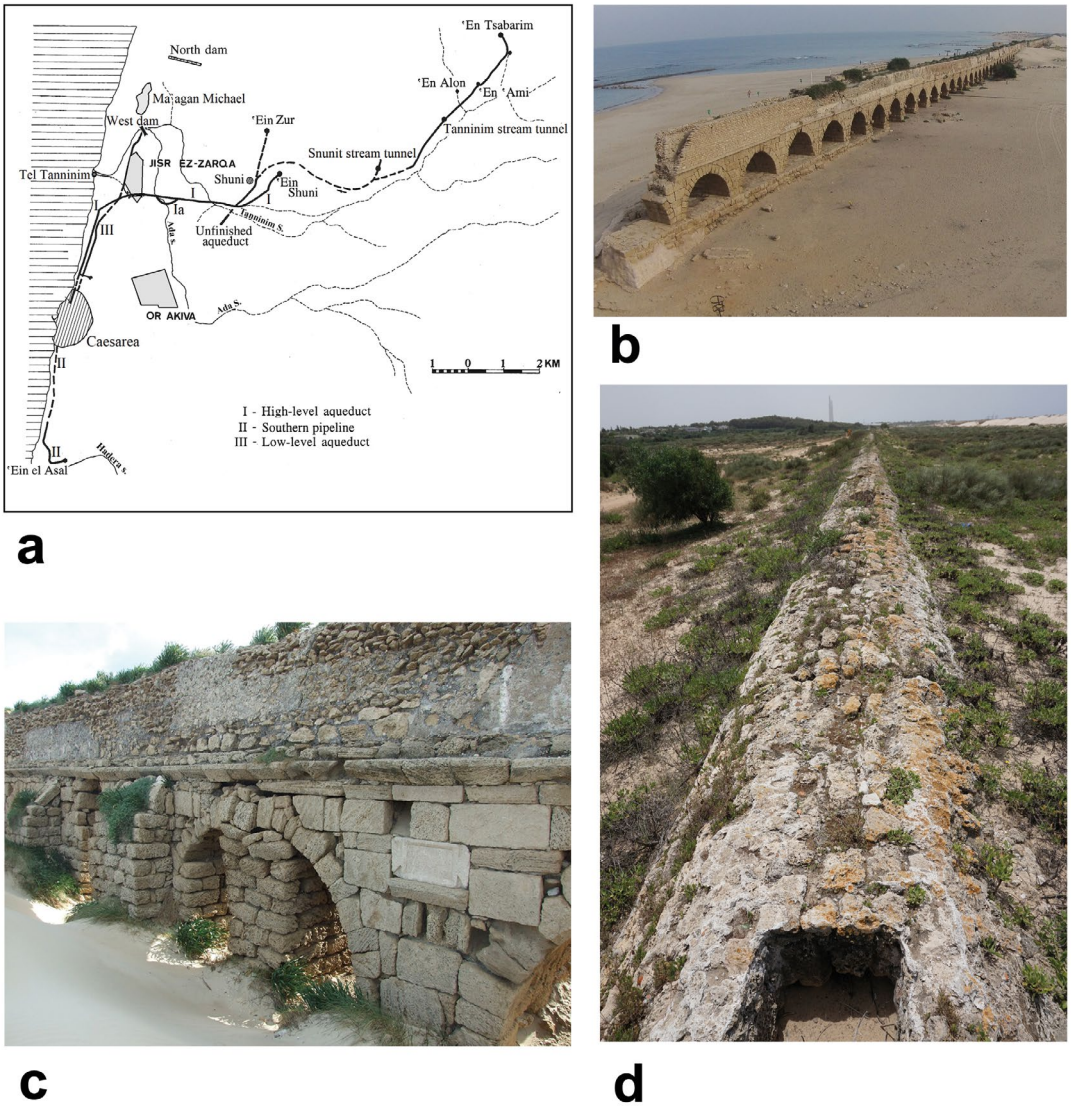


Fig. 7: Water Supply: (a) Caesarea aqueducts, map. (b) High Level Aqueduct Channel A. (c) High Level Aqueduct Channel B. (d) Low Level Aqueduct.

The eastern parts of the high-level aqueduct were constructed as ground channels, either laid upon solid foundations or cut into the bedrock. The western parts along the costal lowlands were built upon arches.

In the end of the 3rd century or later a bypass (Channel D; fig. 7a: Ia) was added to Channel A after the section passing through the marshy land, which the Tanninim stream created, began to sink and leak in several points. As for Channel B, the very same problem was solved, in the end of the 4th century or later, by inserting three terracotta pipes into the channel; the pipes (Channel C1) supplied Caesarea with an estimated flow rate of 64.8m³/hour. Later, probably during the 6th century, the pipes of Channel C1

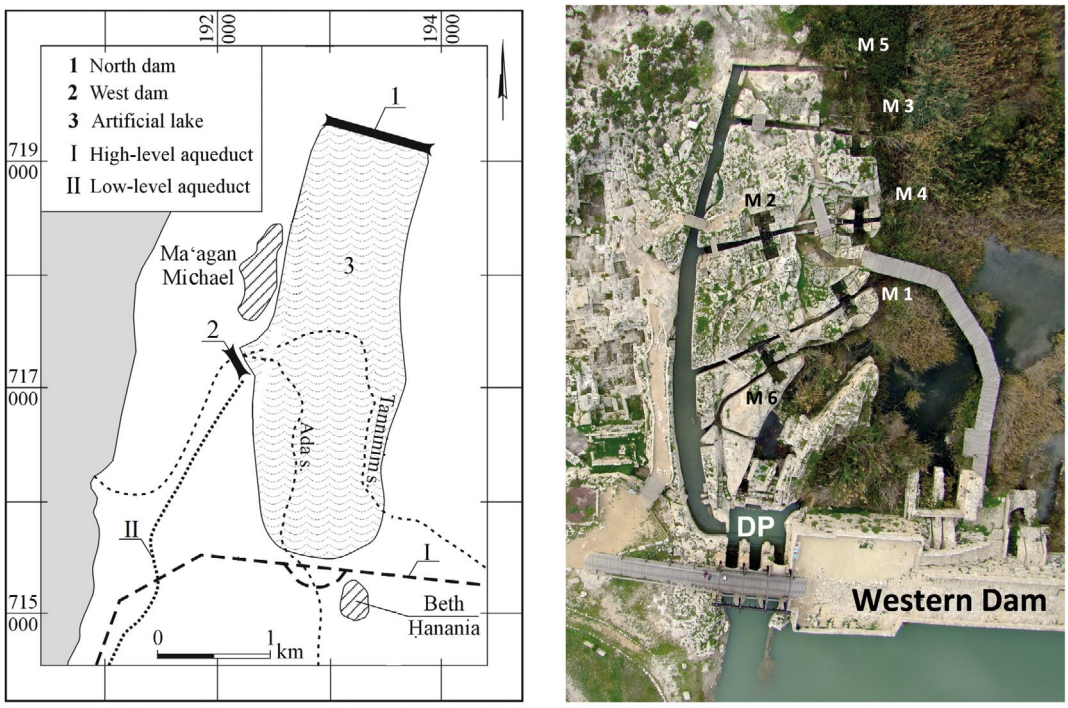


Fig. 8: Water Supply and Water Operated Flour Mills: (a) Tanninim reservoir, map. (b) Flour mills, aerial view.

ceased to function and a new Channel C2 – with an estimated flow rate of 130m³/hour – was constructed atop. Channel C2 was fed from water sources topographically higher than the previous sources and supplied the Caesareans with water that reached the city at a height of one meter more than previously possible.

The south pipeline (fig. 7a: II), a single terracotta pipe, was the second system that supplied water to Caesarea. It began at the 'Ein el-'Asal spring on the mouth of the Hadera stream and dated to the late Roman or the Byzantine period. The pipeline, protected by thick concrete casing, ran northward along the low Mediterranean seashore and reached the city from the south. Three control basins were observed along its route.[39]

The third system that supplied water to Caesarea was the low-level aqueduct, which received the water from the Tanninim reservoir (fig. 7a: III). During the 4th century, an artificial lake located 3.5 km north of Caesarea, was created (fig. 8a). The lake covered an area of about 6 km². Local springs and two streams supplied water to the lake. To raise the water level up to 2.5 m, two massive dams were constructed. The northern dam was blocking a 900 m long gap between the foot of Mount Carmel and the sandstone ridge parallel to the Mediterranean coast; the western dam was constructed within the 190m gap created by the Tanninim and the Ada streams in the sandstone ridge (fig. 8a). The dams were built of Roman concrete dressed with

ashlars. Original wooden frames that were used in the construction of the western dam were uncovered during the excavation.[40] A tripled floodgate passage was cut through the bedrock next to the southern end of the western dam. It was operated by means of wooden gates; the remains of which were exposed during the excavation. The water flowed through the passages into a distribution pool and from there it was distributed to the low-level aqueduct and to the flour mills.

The northern section of the low-level aqueduct was cut into the bedrock and covered with concrete vault ceiling (fig. 7d). The southern section was entirely built of concrete. It is not clear how the brackish water supplied by the low-level aqueduct was used.

Water Operated Flour Mills

The six flour mills activated by the Tanninim artificial lake were hewn and built to the west of the western dam during the Byzantine period (fig. 8b).[41] Each was operated from the distribution pool by a feeding channel. The water activated a vertical wheel, which rotated two pairs of Pompeian type millstones made of basalt by means of cogwheels system (not preserved). The use of Pompeian type millstones in the water-operated flour mills at the Tanninim lake is unique and not reported from any other similar devices.[42] The twelve Tanninim lake millstones, which likely operated around the clock and supply most of the daily flour needs of the approximately 50,000 citizens of Caesarea, were undoubtedly a profitable public enterprise.

Uzi ʿAd

Notes

[1] Gendelman – Gersht forthcoming.

[2] Porath 2007, 46–47; Porath 2008, 1660.

[3] CIIP II, Nos.1445. 1467. 1494. 1499. 1504. 1525. 1554. 1657. 1674.

[4] Porath 2000, 37*; Porath 2008, 1660.

[5] CIIP II, Nos.1434. 1436. 1444. 1531.

[6] Gendelman – Gersht forthcoming.

[7] On bronze handles from wooden coffins discovered in the early Roman period hypogeum, see Bahat 1966, 16.

[8] Rahmani 1988, 246–248; Rahmani 1999, 90–93 nos.16–23 pls. 9–12.

[9] Avner – Gendelman 2007; Gendelman forthcoming.

[10] Lehmann – Holum 2000, No. 212; CIIP II, No.1533.

[11] Lehmann – Holum 2000, No.143; CIIP II, No.1613.

[12] Porath 2007, 50.
[13] E.g. Bahat 1966; Siegelmann – Ne'eman 1992; Siegelmann 1992, 64–66; Haiman 2009; Sa'id 2012; Gendelman – Massarwa 2011, figs. 3–5.
[14] E.g. Siegelmann 1992, 64–66; Lipconsky 1998; Pelistöcker 1999; Nagorsky 2003, Porath 2007, 48; Gendelman – Massarwa 2011, figs. 3–5. 11.
[15] Stern 1978, 10 f. pls. 4. 5.
[16] Peña 2007, 119–208.
[17] For similar refuse deposits from all around Roman Empire cf. Peña 2007, 279–282.
[18] Peña 2007, 229–306.
[19] Panciera 2000, 103–105; Peña 2007, 278 f.
[20] For similar practice in diverse sites cf. Peña 2007, 283 note 9.
[21] Reich 1985; Porath – Gendelman – Gorin-Rosen 2007, 118–133.
[22] Porath – Gendelman – Gorin-Rosen, 125–127.
[23] Avi-Yonah 1973, 9; Siegelman 1974; Gendelman forthcoming.
[24] Gendelman forthcoming.
[25] Horton 1996.
[26] Horton 1996, 189.
[27] Hirschfeld 1997, 46 f.; Porath – Gendelman – Gorin-Rosen 2007, 137.
[28] Edelstein 2007, 58.
[29] Everman 1992, 183 f. fig.1.
[30] Porath 2008, 1660; Roll – Tal 2008; Vincent 1922.
[31] Ellis 1988, 569 note 33.
[32] Gendelman – Massarwa 2011, fig. 11; Sa'id 2011; 2012; 2016.
[33] E.g. Olami – Sander – Oren 2005, Site 15.
[34] Gendelman 2011.
[35] 'Ad 2009.
[36] Porath – Gendelman – Gorin-Rosen 2007, 123. 136; Nagorsky 2003.
[37] Porath 2002.
[38] Porath 2002; Porath – 'Ad 2015.
[39] Porath 1990.
[40] Sa'id – 'Ad 2004; Porath – 'Ad – Sa'id forthcoming.
[41] Oleson 1985; Sa'id – 'Ad 2004.
[42] 'Ad – Sa'id – Frankel 2005.

Image Credits

Photos: P. Gendelman (figs. 1a. b. f; 2a. c; 3e; 4e. f, 5b; 7b. d); T. Sagiv (figs. 1c. e; 5a; 6b); V. Asman (fig. 6a). – Maps and plans: A. Iamim and P. Gendelman (figs. 1d; 3a); R. Mishaev (fig. 3b); A. Aj'an (fig. 3d); Courtesy of the Israel Antiquities Authority (figs. 7a; 8a). – Aerial view: Skyview, Courtesy of the Israel Antiquities Authority (figs. 3b; 8a. b).

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The City and Its Territory – A Digital Archaeological-Cartographical Approach: The Case of Caesarea Maritima

Joseph Patrich

Numerous studies were already published concerning the territorial interrelations between a center and its countryside, and the potential agricultural yield of a countryside of limited extension. Such are the studies of Yuval Portugali concerning the countryside of Tel Kiri and Tel Yoqneʿam in Izrael Valley in the Biblical period; the study of Rosen on Izbet Sarta and the study of Ben David 1998 on the production of olive oil in the southern Golan; that of Dahari on the gardens of the monks in the high mountains of Sinai, and more recently, together with Sion, on Reḥovoth-in-the-Negev. This list is far from being exhaustive. The French studies led by Tate and by Dentzer on the limestone massive and other regions in Syria, and the work of Marlia Mango and her Oxford team on the countryside of al-Andrein, Syria should also be mentioned.[1]

The boundaries of the countryside

The city and its countryside were a single administrative and economical entity with respect to provision of food supply, taxation and administration. A recent study by Holum,[2] as well as earlier studies, had clearly elucidated this point. Any attempt to quantify these aspects must start with tracing the territorial boundaries of a city.

The rural boundaries (*territorium*) of a city are to be determined by the geophysical features, taking into consideration also the available literary sources pertaining to its geographical history. Archaeological finds, such as milestones and dated inscriptions with the city era, are of course also relevant. There is no consensus among scholars concerning the rural boundaries of Caesarea. There are decisive differences in the maps drawn by Avi-Yonah, Notley and Safrai, Faust and Safrai and Holum, overlaid on TIR map (fig. 1).[3] According to Notley and Safrai, referring to the borders as traced in Eusebius' *Onomasticon*, Naḥal Alexander marked the southern border, separating the region of Caesarea from that of Apollonia. According to Avi-Yonah, followed by Holum, it was Naḥal Poleg (*Bdellopotamos*), located farther south. In the north, Avi-Yonah set the border line between Caesarea and Dor/Dora in Haḥal Daliya (*Chorseos Flumen*), while Notley and Safrai included Dor in the region of Caesarea, extending it as far as the region of Acre/Ptolemais. Not so in Faust and Safrai. Unlike Avi-Yonah, Holum proposed that Ḥorvat Sumaqa and the entire Lower Carmel were included in the boundaries of Caesarea, forming its northern border. He included within also Elyaqim in the NE, Umm Reiḥan in the E and Tur Karem/Birat Sorqa in the SE. The extension eastward in both Avi-Yonah's and Holum's maps is much vaster than that in Safraiʿs maps.

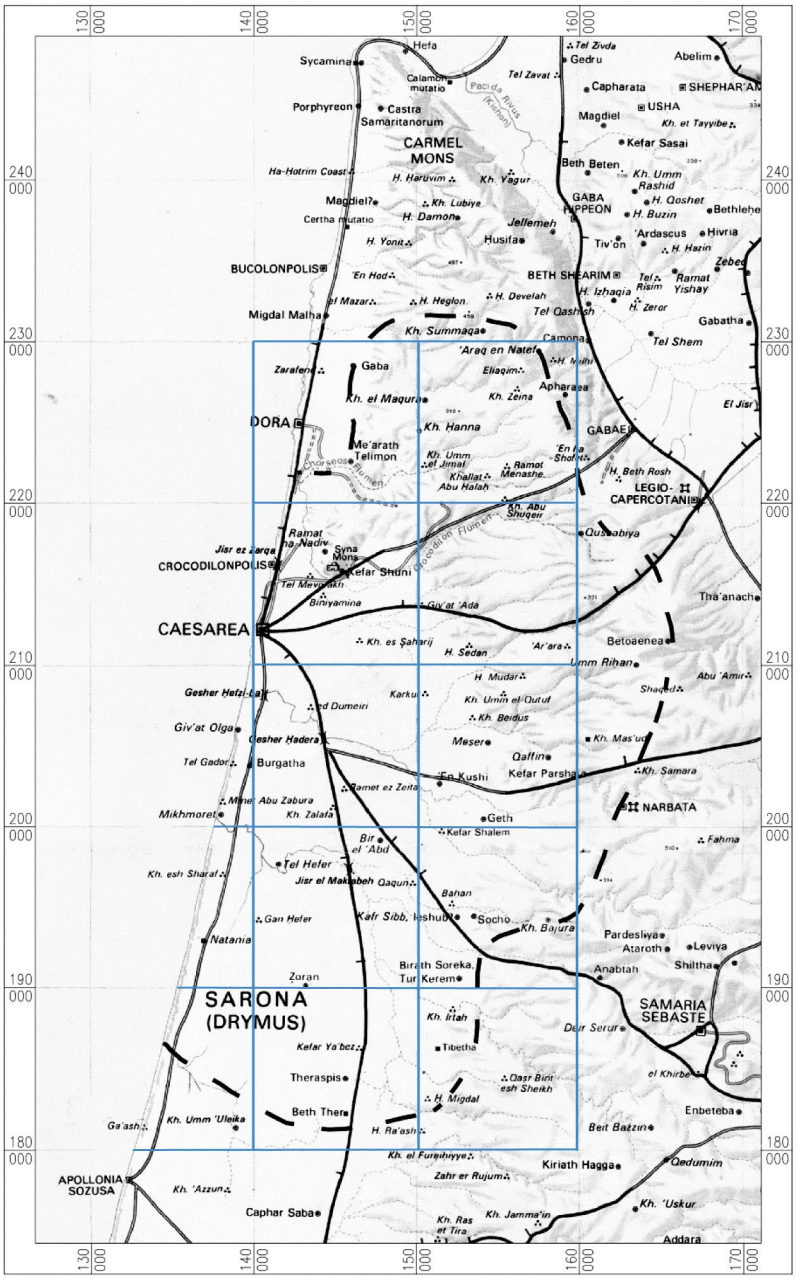

Fig. 1: Map of the territory of Caesarea according to Holum (2016), overlaid on TIR map. The squares mark the Survey Maps.

The area marked by Holum encompasses ca. 900 km^2. He opined that the area included 100–120 villages. In the TIR map, only 54 villages, 4 forts and 9 farmsteads are marked within these confines. Wine and oil presses and other installations uncovered in the Survey Maps (see below), were not marked on the TIR map. Seemingly, some of

	ʾAtlit (26)	Yagur (27)	Dor (30)	Daliya (31)	Binyamina (48)	Regavim (49)	Mikhmoret (52)	Ḥadera (53)	Maʿanit (54)	Netanya (56)	Kfar Yonah (57)	Tul Karem (58)	Even Yehuda (59)	Total
Hel.	–	–	5	7	7	36	3	5	5	4	6	8	2	88
Rom.	–	50	36	26	90	111	12	38	2	17	10	6	10	406
Byz.	1	10	49	57	88	87	18	69	65	13	26	21	42	546
E. Ar.	1	–	2	4	19	26	3	10	11	2	10	5	4	97

Table 1: Number of sites in the 13 Survey Maps.

them indicate farmsteads. From the Rabbinic sources we know that six of these villages, of Jews or Samaritans, were producers of wine.

The geophysical features of the countryside of Caesarea Maritima

The *territorium* adopted here is that of Holum. Extending between Naḥal Dalya in the north and Naḥal Poleg in the south, it is delineated by the Mediterranean on the west and the western Samaria Hills on the east. It included the Lower Carmel – the southern part of this ridge, part of the Manasseh Heights – as far east as its watershed, the northern foothills of Samaria and the northern Sharon Plain. Administratively, the territory of Caesarea (including that of Narbatha) reached the boundaries of Samaria-Sebaste on the east and those of Antipatris and Apollonia on the southeast and south, respectively. A network of five Roman roads connected Caesarea with its hinterland and with inland cities.

The archaeological data: The Survey Maps

The rural hinterland of Caesarea holds thirteen 10 × 10 km^2 Survey Maps, some of them only partially. Seven of the maps were already published as hardcopy books and are available also online, electronically. Other four are available at the moment only electronically on the website of the Survey of Israel; one is not available yet.

Like the city itself, the countryside much flourished following its foundation by Herod, in the Roman period and even more so in the Byzantine period (with 406 and 546 sites respectively), relative to the only 88 sites of the Hellenistic period (Table 1). In the early Arab period, when Caesarea ceased to function as a provincial capital and had much shrunken in size, the countryside also underwent a decisive decline, with only 97 sites. This decline is also resonated in the early Muslim sources, according to which following the conquest the lands around the city were known to be swampy, not recommended for settlement.[4] Seemingly, the lengthy years of the siege (634–640/41 CE), resulted in negligence of proper drainage of the streams and the fields.

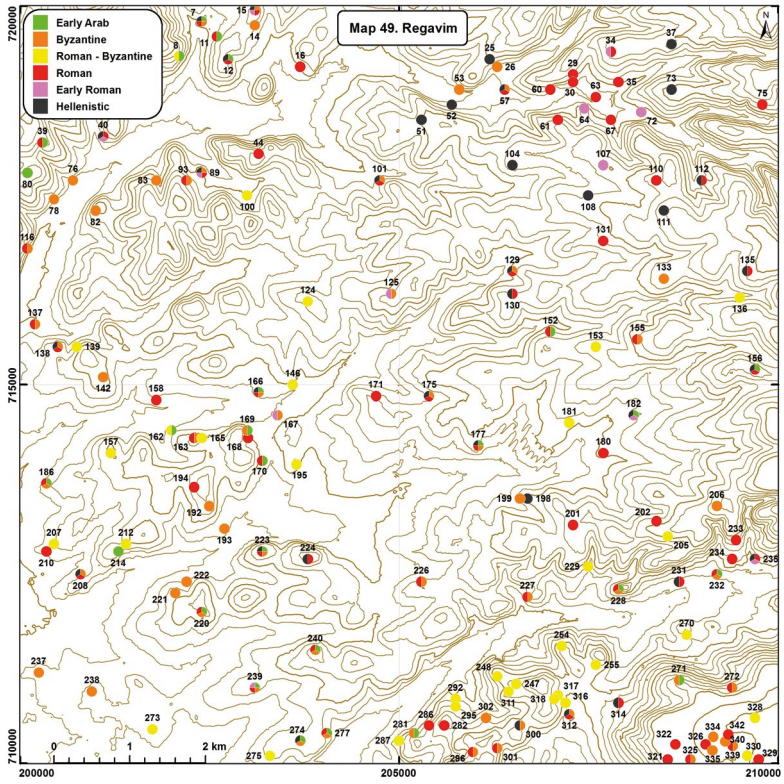

Fig. 2: Regavim Survey Map, marking Hellenistic to Early Arab period sites.

Most of the Survey Maps in the hinterland of Caesarea provide only meager information about each individual site. The surveys of Olami (Maps 30 and 31), and of Neeman (Maps 52–54) were carried out decades ago, when the survey methodology and the publication of the results were by far pre-mature.

The most recent survey was conducted in Regavim (Map 49), published by Gadot and Tepper, located to the east of Binyamina (Map 48), in which Caesarea is included. According to the introduction chapter, pertaining to the Roman and Byzantine periods, more than a third of the 111 Roman sites were settlements, but their names are not listed as a group, and they are not sorted according to size categories: big, medium-size or small villages, farmsteads etc. Hence, only periods can be presented on the map (fig. 2), not size category or site typology. There are neither aerial photographs nor detailed maps or plans of any settlement. The actual pattern of the rural settlement is thus quite vague. It is not clear which were the major villages; neither is it possible to associate a farmstead or isolated agricultural installations with this or that village. The settlement pattern pertaining to the Byzantine period is even more vague. It was not clearly indicated how many of the 87 documented sites are settlement remains (40?), and how many should be considered as installations. As for the farmsteads, the introductory discussion is more detailed, but the description of each farm is laconic. Such is also the case with the other

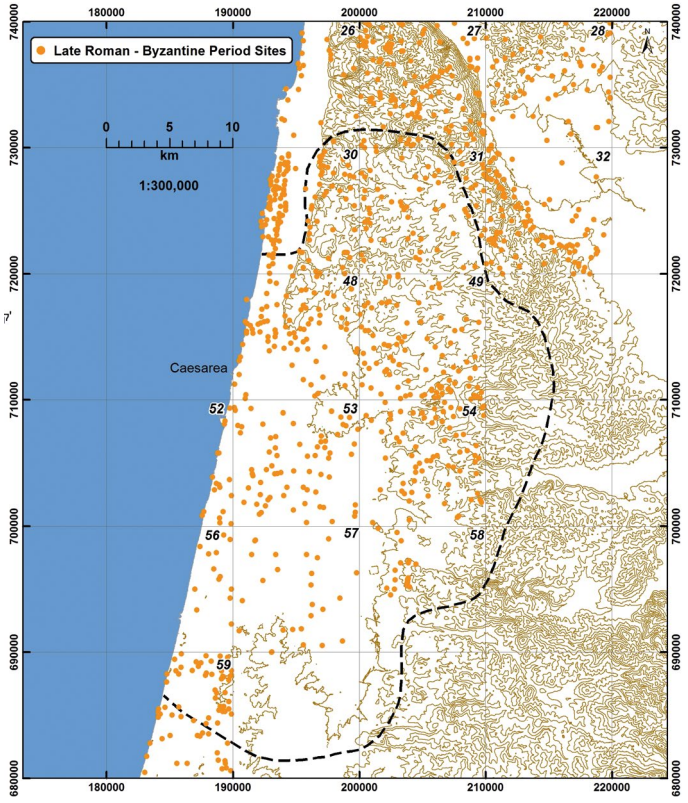

Fig. 3: Late Roman/Byzantine period sites in the territory of Caesarea.

Survey Maps (fig. 3), in which the documentation is even more laconic. Extracting sites identified as settlements rather than installations or other non-settlement sites from the total number of sites listed in the Survey Maps, yields these results (Table 2):

The listed settled sites much differ in their dimensions (which in many cases are not provided). Only few extended over several dozens of dunams (1 dunam = 1,000 m^2). More were much smaller, representing perhaps farmsteads or just small farmhouses. Military installations of the Roman and Byzantine periods are almost nonexistent. The actual area occupied by the Survey Maps is about 900 km^2, with a total of 185 settled sites. Namely ca. 20 settled sites of different dimensions per 100 km^2. How many of them were full-fledged villages is hard to tell in the present state of knowledge. As was indicated above, Holum estimated this number to be 100–120 in the entire territory, and on the TIR map only 54 villages, 4 forts and 9 farmsteads are marked within these confines. A better evaluation of the settlement pattern should include a thorough examination of aerial photographs of past years, taken before the intensive works of development that had changed the landscape considerably. In some cases, getting back to the field will be indispensable. Such a task is beyond the scope of the present study.

But another big lacuna in the archaeological data presented here concerns salvage excavations. This information, not all of which already published, is stored in another

Map Name	Number of Settled sites*
Dor (30)	25
Daliya (31)	20
Binyamina (48)	27
Regavim (49)	40 ?
Mikhmoret (52)	5
Ḥadera (53)	19
Maʿanit (54)	21
Netanya (56)	3
Kfar Yonah (57)	10
Tul Karem (58)	4
Even Yehuda (59)	11
Total	**185**

*Ranging in size from several dozens to just 3d and less, and dated to the Roman and Byzantine periods.

Table 2: Number of settled sites of the Byzantine period.

IAA server, not accessible to the public. The compilation and analysis of all this data requires a separate study. Faust and Safrai totally refrained from relying on survey results in their book on the rural settlement in Israel. They rather preferred to rely on salvage and initiated excavations. But ignoring entirely information derived from the Survey Maps seems to be going too far.

At the absence of more detailed settlement hierarchy in the Survey Maps, all that could be presented in Table 1 and in the accompanying map (fig. 3), are just the periods, not the size, or type, of each site. But one should note that the periods' definition (presented in different colors on the maps), is not the same in all maps; some surveyors had differentiated between Roman and Byzantine sites; in other maps the more general term "Roman-Byzantine" is applied; and in some cases the Roman period is divided into early Roman and late Roman.

The total number of sites per period presented in Table 1 is just one aspect of the settlement pattern emerging from a Survey Map, somewhat misleading when listing different sections of the same aqueduct as different sites, likewise sections of Roman roads, bridges, milestones, quarries, tombs, and all sorts of non-inhabited installations in the countryside.

Agricultural installations

Table 3 presents a summary of the distribution of wine and oil presses in the Survey Maps in the hinterland of Caesarea.

Map Name	No. of o/p	No. of w/p
Dor (30)	7	20
Daliya (31)	6	12
Binyamina (48)	10	2
Regavim (49)	15	30
Mikhmoret (52)	–	–
Ḥadera (53)	1	1
Maʿanit (54)	1	–
Netanya (56)	3	
Kfar Yonah (57)	3	6
Tul Karem (58)	2	12
Even Yehuda (59)	4	3
Total	**52**	**95**

At some sites the occurrence of an installation is indicated in the plural, without specifying a number. Hence, the numbers presented here are minimal.

Table 3: Numbers of oil and wine presses in the Survey Maps.

Interestingly, on average, the amount of wine presses recorded is almost twice the amount of oil-presses. On the map of Binyamina, that includes Caesarea, the picture is reversed, with 10 oil presses against just 2 wine presses. On the map of Even Yehuda, the numbers are almost equal: 4 oil presses and 3 wine presses. The almost absence of such installations on the maps of Ḥadera and Netanya may derive from modern over-cultivation and construction works that obliterated these remains, rather than from natural geological and geographical features. The total of 52 oil presses and 95 wine presses is much smaller relative to the 100 installations of each type mentioned by Dar for Mount Carmel alone.

Some particular cases

The studies of Shimon Dar on the rural settlements in western Samaria (of sites such as Qarawat Bani Ḥasan and Umm Reiḥan), and in the hilly southern Carmel,[5] are at sheer variance relative to the Survey Maps discussed above. It was a thorough architectural and topographical survey, complemented by excavations in some cases. The extension of the arable land associated with each site was marked and analyzed as well. The largest settlement included in the northernmost confines of Caesarea was Ḥorvat Sumaqa, which Dar had extensively excavated between 1983–1995. Other sites explored by him in a similar method within the confines of Caesarea are Kh. Mansura, a rural settlement

occupying some 20 000 sq.m and two farmsteads, Kh. Umm ed-Daraj, a large farmstead, and Kh. es-Sulemanije, a farmstead well protected all around (90 × 137 m = 12,330 m^2). The farmhouse in the center (32 × 53 m = 1,696 m^2 in dimensions), was surrounded by workshops and other appended structures. Likewise Umm Reiḥan in western Samaria.[6]

Farms and their agricultural yield

There were numerous farms in the hinterland of Caesarea in the Roman and Byzantine periods. In the Samaritan revolt of 529/30, whole Christian estates were set on fire (Cyril of Scythopolis, *Vita Sabae* 70), especially in the region of Neapolis located to the SE of Caesarea, deep in the land of the Samaritans. The number of Christian estates of this kind must have been large as well in the rural area of Caesarea.

The most impressive farmsteads are those excavated by Hirschfeld in Ramat HaNadiv on the Carmel ridge – Manẓur al-ʿAqeb/Ḥorvat ʿAqav and Ḥorvat ʿEleq, and that excavated by Seligman in Naḥal Ḥaggit.[7]

The archaeological-architectural report on the Ḥorvat ʿEleq farmstead was complemented by a quantitative study, speculative to a certain degree, pertaining to the geophysical conditions, subsistence and potential agricultural yield of the dry farming at the site and population size. The arable lands cultivated by the inhabitants of the farm are estimated to be 15 km^2; only half of which was tilled each year, the other was laid fallow. The main commodities were cereals, olives and vines and various fruit trees, such as figs, pomegranate, almonds and some peaches, apples and pears. Since five members of a nuclear family could till 200,000–300,000 m^2 in pre-modern times, ca. 25–35 families could cultivate ca. 7 km^2. The 4,800 m^2 walled area of the site could accommodate some 100–120 people, i.e. 20–25 nuclear families, if a coefficient of 20–25 people per residential dunam (1,000 m^2) is applied. The other workers (estimated to be 350–500, emerging from 70–90 families), would have lived outside. Calculations are also presented about the yields of wheat, barely, lentils, wine and olive oil and the produce of the livestock.[8]

Palatial manors and mansions (extra-mural and in the countryside)

Ḥorvat ʿEleq (following Hirschfeld's interpretation), was not the only palatial complex in the countryside of Caesarea. The structure on top of Tel ʿAfar on the coastal plain (to the west of Givʿat Olga, 6 km to the south of Caesarea) was a wealthy mansion overlooking the sea, like a *villa maritima*. Nearby stood a massive rectangular structure with thick walls, square towers at its corners, buttresses on each side and two vaulted openings. It might have served as a granary. Numerous roof tiles, marble fragments and many tesserae were also found in the entire excavated area. Porath had suggested that

the complex was an extra-mural governor's palace; Peilstöcker opined that it might have served as a monastery, but at the absence of a church, this seems to me a farfetched proposal.[9]

Wealthy dwellings (*villae suburbanae*) were also uncovered outside the city walls of Caesarea. The most impressive is the villa located to the northeast of the city, at a distance of a few hundred meters from the city walls. Its central courtyard was decorated with the so-called "Birds Mosaic". The villa was situated atop a hill overlooking the sea and the city.[10]

Monasteries were perhaps located on top of Tel Tanninim[11] and Tel Ḥuwira/Tadvira, on the sea shore. From the literary sources it is known that a nunnery and a monastery existed in Aphthoria, 12 miles to the south or SE of Caesarea. The proposed identifications include Baḥan, Bir al-ʿAbd and Umm al-Ḥaled/Netanya, but there is no certainty. A laura might have existed in Naḥal Galim, descending from Mount Carmel. It is also known that in the mid 6th century a monastery existed outside one of the city gates. But altogether, there is only meager evidence concerning monasticism in the region of Caesarea, both literary and archaeologically.[12]

Summary

Theoretically, an analysis of the soils included in the countryside of a city may permit to evaluate its potential agricultural yield. This is not a simple task, but the available information and technology makes it possible.[13] For this end a digital application that will present all geographical features and archaeological data that pertain to a particular region – a city and its countryside (*territorium*), should be developed, enabling to present each city in the context of its archaeological and geographical countryside. Such an application can show, on screen, all relevant archaeological data, to evaluate the agricultural yield and population size and to present these results in tables, charts and maps in GIS (Geographical Information System),[14] or similar technology. Such technology permits to present geographical information as well as archaeological and historical data as superimposed cartographical layers.

The objective of such a project is to present a synthesis between the archaeological finds and the soil and geophysical features of the said *territorium*, in order to evaluate the land use, and provide the potential agricultural yield of the region. The agricultural installations, such as terraces, oil and wine presses, will permit to identify actual crops associated with a particular sort of soil in the arable zones and evaluate the potential agricultural yield of each zone within this territory, and hence – of the territory in its entirety. Animal fens and their relations to the topography and to non-arable zones will enable to mark grazing areas. Villages, farmsteads, terraced plots, water installations etc. will enable to trace the extension of the cultivated lands and their relations to the roads and to the city. Quarries, fish ponds, lime, pottery and glass kilns etc. will enable

to identify industries and other production areas. The agricultural produce can be translated into calories, and given the amount of calories necessary for the livelihood of a human being, an estimated size of the population living in the said territory can be evaluated.[15]

But it seems that the major obstacles lie in the paucity and poor quality of the archeological information in many of the Survey Maps. Yet, the possibility is there, and a move in this direction should start, if not in the rural hinterland of Caesarea, perhaps in that of another city, town, or region.[16]

Notes

[1] Portugali 1984; Rosen 1986; Ben David 1998; Dahari 1993; Dahari – Sion 2017; Tate 1992; Dentzer 1985/1986; Mango 2011.

[2] Holum 2016.

[3] Avi-Yonah 1951; Notley – Safrai 2005; Faust – Safrai 2015 and Holum 2016.

[4] Kister 1977, 43 f.; El'ad 1978, 163.

[5] Dar 1982; Dar 1998; Dar 2014.

[6] Dar et al. 1986.

[7] Hirschfeld 2000, 13–87. 235–370; Seligman 2010.

[8] Rosen 2000.

[9] Porath 1988/1989; Peilstöcker 2009.

[10] Spiro 1992; Porath 2006.

[11] Stieglitz 2006.

[12] Patrich 2016. Ayelet Dayan, in her Ph.D. dissertation (Dayan 2015), derived from still unpublished materials in the IAA archive files, had marked 10 sites in the area of Naḥal Ḥadera and Baḥan, where a monastery might have existed. The identification of these sites as monasteries is very dubious.

[13] On the soils of Israel, see Gil – Rosenzaft 1955; Ravikovitch 1970. A digital soils map also exists in the Israel Institute of Geology, but a more detailed field work in the territory at our concern might be required.

[14] Chapman 2006.

[15] Chatfield 1953, 9–23; Wing – Brown 1979, 23–25; Guggenheim 1981, 17–19; Berdanier 2000, 17–28. Wheat provides 3300 calories per kg; lentils – 3400 calories per kg; beans – 3480 calories per kg. (Aykroyd – Doughty 1970, 30; Watt – Merrill 1963, 68). Since the daily requirements of calories of a 10 year old boy is 2200 and for a 22 year old lad is 2800, the total amount of population that could have been nourished by the land yields can be evaluated.

[16] The outlines of such a project were first proposed by me in the framework of a conference on "Towns and Regions in the Mediterranean Area. A Diachronic Comparison", held in Barcelona, Institut d'Estudis Catalans, 28–29 September 2015. A more detailed article on the present topic, entitled "The Settlement Distribution in the Countryside of Caesarea Maritima", is forthcoming in „Ciutats mediterrànies: l'espai i el territori", ed. Flocel Sabté, Barcelona, 2019.

Image Credits

Fig. 1: Holum 2016. – Fig. 2–3: Cartography: Dr. Mitia Frumin. – Table 1–3: by author.

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Architectural Decoration in Roman and Late Antique Caesarea Maritima and Its Periphery: Production, Importation and Reuse

Rivka Gersht – Peter Gendelman

The excavations at Caesarea Maritima – the harbor city built by Herod the Great in 22–10/9 BCE on the northern part of the coastal Plain of Sharon – yielded plenty of evidence for local production of architectural decoration out of raw and recycled materials. As it is impossible to deal with all available evidence in the framework of this study, we will focus on selected examples of producing and recycling architectural members and reliefs, floor pavements and wall revetments.

Architectural members and reliefs

The earliest evidence of local production of architectural members is dated to the foundation of the city when local sandstone was the main building material. The most notable examples are the monumental fragments from the temple built by Herod in honor of Augustus and Dea Roma; all were originally stuccoed, endowing the impression of shining marble (fig. 1).[1]

Limestone, together with sandstone, continued to be the principal materials for local production of architectural members and reliefs also during the 1st and early 2nd century CE. Among the prominent examples of reliefs carved in local stones is the fragment of a monumental relief of a Victory holding a trophy, which was found in front of the western façade of the temple platform, recycled as pavement slab (fig 2a).[2] The excellent workmanship suggests that the goddess ornamented an official monument that may have belonged to the temenos of Augustus and Dea Roma. Of less qualified workmanship are the Victories accompanying the inscriptions of the detachments of *Legio VI Ferrata and Legio X Fretensis*, which worked on the Hadrianic aqueduct that supplied water to Caesarea.[3]

Certain examples of sandstone architectural members retain stucco coating and molding; among these are the capital from the entrance court of one of the Caesarean hypogea (fig. 2b), and the column-drums from an unidentified building in Insula W2S5.[4] Stuccoed and painted sandstone capitals and shafts were also part of the architecture of the atrium and peristyle court of the early 1st century domus in Insula W2S3 (fig. 2c), where a fragmentary marble statue of one of the Dioscuri brothers was found (henceforth the Dioscuri Domus).[5]

The same domus also provided evidence for locally carved marble panels in champlevé technique, which were added to the decoration of the peristyle court in the beginning of the 2nd century.[6] Only three fragments of these panels survived, with remains of

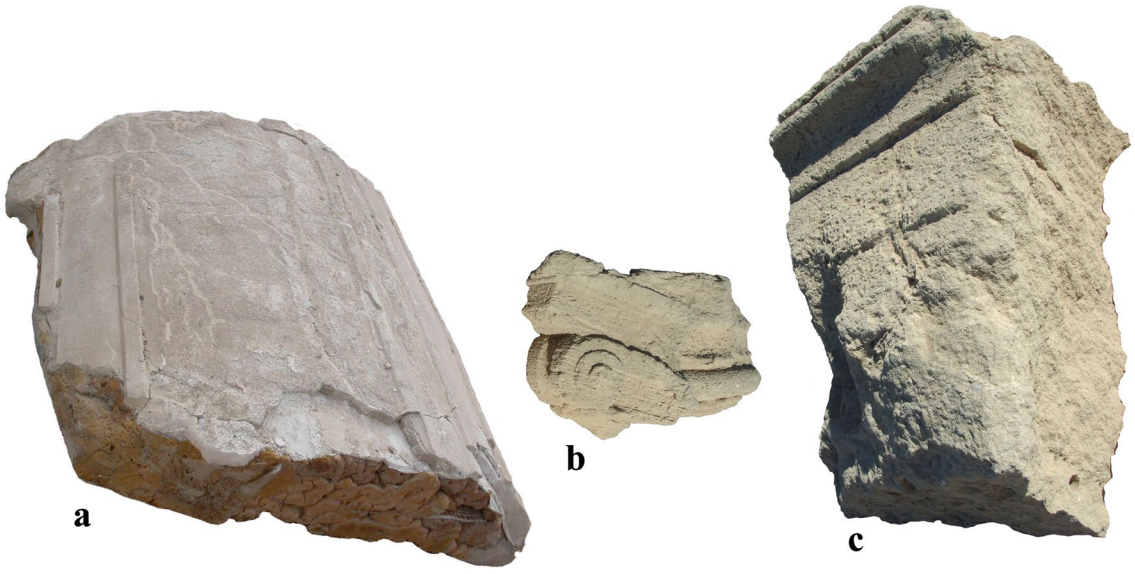


Fig. 1: Temple of Augustus and Roma: (a) stucco, fragment, (b–c) Corinthian capital and cornice, local sandstone.

two hunters and a single red deer (*cervus elaphus*). In one of the fragments (fig. 3) the craftsman failed to remove a section of the background; this led us to believe that the panels were locally produced. For now, these panels are the earliest evidence for champlevé carving in Roman Caesarea, and the earliest examples known among the published examples from elsewhere.[7] The champlevé technique continued to be used in Caesarea for centuries and became extremely popular in Late Antiquity.

Between the 2nd and the 3rd century Caesarea imported a variety of plain and carved stones, including different kinds of marble, granite, porphyry, conglomerate, sand and limestone, as well as alabaster and travertine. By the 4th century the city was flooded with either raw or sculpted imported materials. From this time onwards, reusing and recycling stones, customs already familiar to the former Caesareans, gradually became a common practice. A few examples will demonstrate the systematic use of spolia in the city and its surroundings.

Remains of an impressive late antique complex were recently found next and below the northern gate of the Crusader fortification. The bases, shafts and capitals of the portico and the other compartments of the complex differ in size and shapes, and are dated not later than the 3rd century. Of the two columns, which stood at the entrance to the compartments facing the portico, for example, one is larger and made of white and reddish-brown conglomerate, the other is smaller and made of red Aswan granite. Each of the architectural members uncovered in the complex bears Greek numbering letters, but the numbering of the capitals does not match the numbering of the columns. All – measures and materials – suggest that the architectural members of the complex were

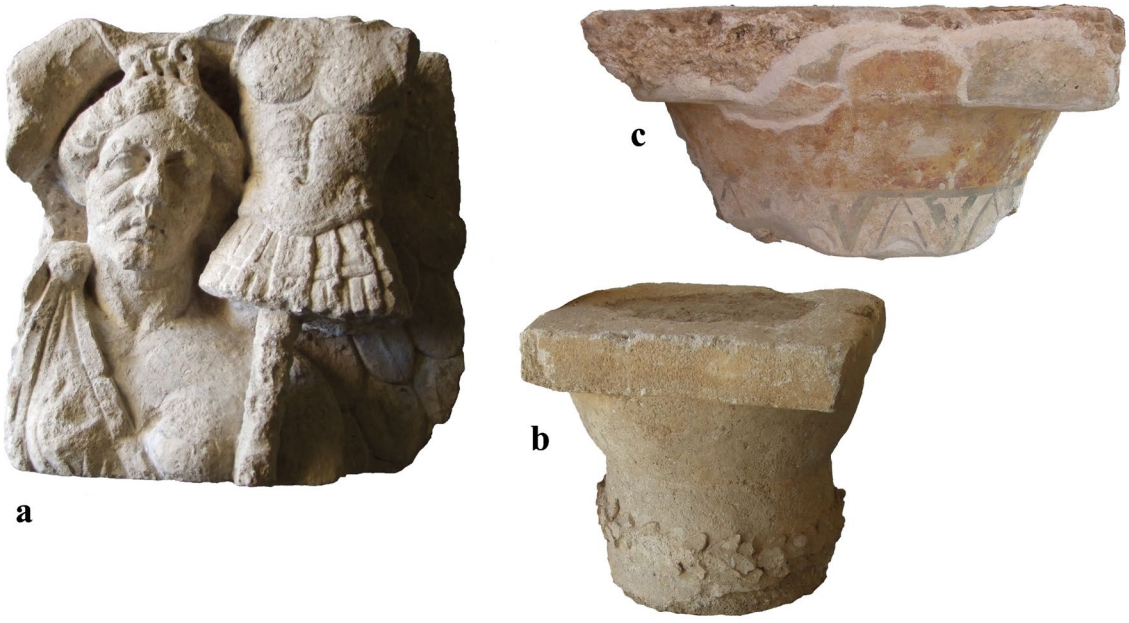


Fig. 2: (a) Victory holding trophy, limestone (b) Roman Hypogeum: stuccoed Doric capital, local sandstone, (c) Dioscuri Domus: stuccoed and painted Doric capital, local sandstone.

assembled from different sources. Some could have previously belonged to the Roman complex, which preceded the late antique one. The others – or maybe even all – could have been purchased from one of the city's second-hand building materials suppliers. Although no direct evidence for such suppliers is available, we have no reason to believe that things were more different in Caesarea than in Rome, where a guild of demolition experts (*collegium subrutorum*) was active.[8]

There is plenty of evidence in Caesarea indicating that when a building went out of use, was abandoned or dismantled, its architectural parts were modified and reused differently if they were found unfitting to be reused according to their initial function, and when they were rated as useless they were disposed in the kiln.[9] An example of such a scenario is Insula W2S3 where a Semi-public Complex replaced a late Roman bath-house during the 5th century. The eastern main entrance of the complex was then paved with recycled, locally carved limestone entablature members, all laid upside down with their frontal face hidden (fig. 4a).[10] These stones may have formerly belonged to the monument mentioned in the inscribed limestone cornice found in secondary use nearby. The nature and location of this monument, built in 165 CE in honor of Gaius Iulius Commodus, governor of Syria Palaestina, is unknown.[11]

The same method of reusing architectural members – in this case of marble – was employed in building the 5th century *Cardo Maximus* next to its intersection with the *Decumanus Maximus*. A little bit further to the west, an unfinished Corinthian marble

Fig. 3: Domus of the Dioscuri, marble panel in champlevé technique.

capital was found.[12] This and other unfinished architectural members uncovered in Caesarea clearly evince a local workmanship in raw material.

Further examples of local carving, yet of recycled materials, came from the excavations at the Crusader market.[13] The two fragmentary reliefs, which were found there, were carved into half column shafts – one of white marble, the other of cipollino marble – and were similarly decorated with a four petals flower within a rhombus enclosed by a rectangle, and a pelta-shield at each acute angle. The rectangle's corners contained a double-headed axe (*labrys*) each. Obviously the column-shafts were imported in the Roman period; the sawing and carving were carried out locally in Late Antiquity. We have no clue where the reliefs were originally placed, but assume that as a pair they meant to be used as doorposts.

Caesarea could have been a potential supplier of second-hand building materials also for the neighboring villas and settlements. In the Byzantine bathhouse at Khirbet Jābir, excavated by Orit Segal a few kilometers northeast of Caesarea, for example, the use of second-hand building materials was rather extensive. It is not unlikely that some if not all of them arrived from the neighboring Caesarea. In addition to the Roman items, which were reused in Khirbet Jābir in their original form, Roman column-shafts

were cut and reshaped into a female head and a water conduit (fig. 4b). Likewise, an Attic type profile column base was remodeled into a richly ornamented pediment (fig. 4c). Two other marble finds were remodeled from fragmentary Roman cornices, one was recycled as a bracket and decorated with a stylized head of a lion, the other was modified into a floor tile; both retained the dentils.[14]

Floor pavements and wall revetments

In Caesarea the production of tesserae and *sectile* pieces out of raw and recycled materials flourished; on the procedure of manufacturing tessellated mosaic pavement and *opus-sectile* wall panels in the city, we learned from the remains of two temporary workshops, which were located within private mansions. The owners of these mansions allocated a space for the functioning of the workshops for only the period of time needed for completing the work. Based on these finds we assume, that setting a workshop where the work was carried out must have been a common practice in Caesarea.

The tessellated mosaic workshop operated for a short period of time during the late 1st century within one of the shops of the Dioscuri Domus.[15] When the craftsmen accomplished their work they took their tools, but left behind the working surface and three ashlar boxes with unused tesserae and raw material in a variety of colors, which were clearly purchased by the owner of the domus, otherwise they would have been taken by the craftsmen. The raw material and working surface suggest that at least some of the over million multicolored tesserae needed for composing the 1,200 m^2 of tessellated pavements, were cut within the workshop itself by hammering pieces of stone onto a chisel-like blade set into a block of wood. The process is illustrated on a 4th century grave stele in Ostia.[16] The room used as mosaic workshop in the Dioscuri Domus at Caesarea backed to function as a shop immediately after the temporary workshop ceased to function and a new floor was laid atop.

The workshop for producing elaborate *opus-sectile* panels functioned in one of the rooms of the Byzantine mansion in Insula W2S4.[17] In this mansion the renovation work was never finished. The *opus-sectile* workshop was sealed shortly before the house was abandoned in 640/41. The panels, which were meant to decorate the mansion's walls, were found broken on the floor of the workshop. In this case the craftsmen left the stone and metal tools behind, apparently with the intention to return and accomplish their work. The excavation of this workshop yielded a large number of pieces cut out of recycled materials including flat slabs sawn from a spiral shaped column (fig. 5a).

Further evidence for employing architectural members for the production of *opus-sectile* shapes came from the Semi-public Complex located in the nearby insula W2S3 (fig. 5b).[18] About 10,000 pieces and more than hundred shape-types of *opus-sectile* came from this insula. Most of them were found scattered inside the ground floor of the northwest basilica, where they had been dropped in when the upper floor was

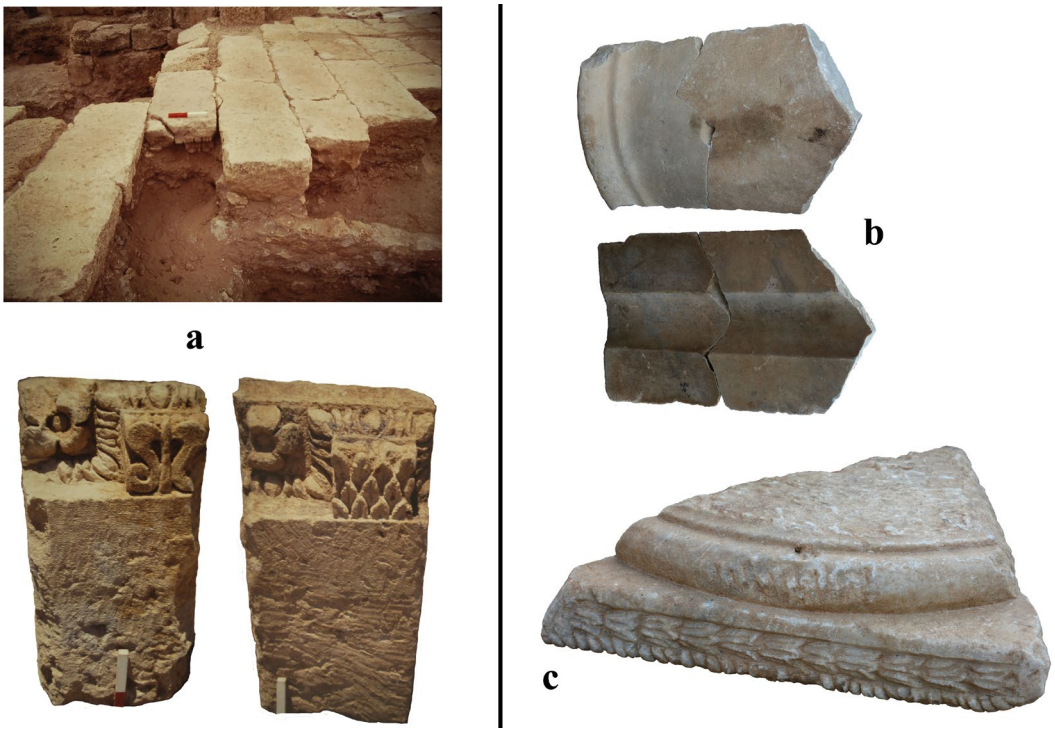


Fig. 4: Recycled architectural members: (a) Caesarea, Semi-public Complex, Insula W2S3, entablature fragments limestone (b–c) Khirbet Jābir, Byzantine Bath-house: marble conduit and pediment.

dismantled. Considering the amount of *opus-sectile* pieces needed for decorating the complex, there is no reason to doubt that an *opus-sectile* workshop, equal to the one in Insula W2S4 was also operating in this complex.

Many of the *sectile* stones bear parallel sawing marks and remains of rust on their underside (fig. 6a), the result of side-to-side movement of toothless metal blade or cord and/or of metallic abrasion tools.[19] Manual sawing of slabs by means of frame-saw with toothless metal blade or cord, and of abrasive and water combination, was well known and widely used in antiquity.[20] In Late Antiquity, in addition to the manually operated saw, water powered multi-blade sawing machines – such as those found in Hierapolis, Ephesus and Gerasa – came into use.[21] The fragments of sandstone, limestone and marble with parallel saw slits, found in several locations at Caesarea, clearly suggest that water powered multi-blade sawing machines were also active within the city or in its vicinity. The local sandstone fragment with three parallel saw slits – and remains of additional two on the sides – was found in the Semi-public Complex (fig. 6b). Another fragment, of hard limestone with five saw slits, came from another late antique complex recently uncovered next to the Crusader fortification, and all the marble fragments with different numbers of saw slits came from the excavations now conducted in the western façade of the platform of the Temple of Augustus and Roma. The thickness of the sawed slabs, as evinced from the saw slits, was appropriate

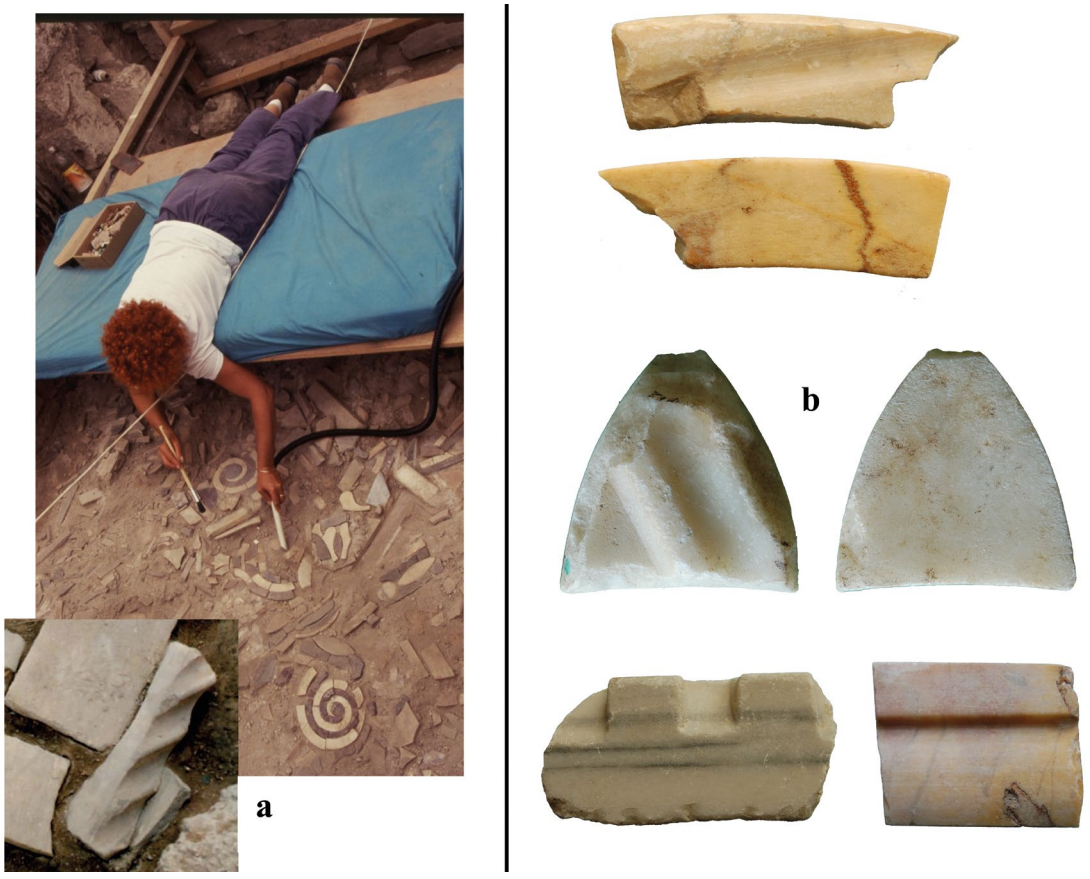


Fig. 5: *Opus-sectile* production: (a) 1993/94 excavations of the workshop in Insula W2S4, Photograph by A. Peri (b) *opus-sectile* pieces shaped of recycled architectural members, Semi-public Complex, Insula W2S3.

for wall revetments as well as for producing *sectile* pieces; evidence for both decorative elements were found in all three locations.

The next stage of manufacturing *sectile* pieces, after sawing, is the smoothing of the slabs receptive to abrasives and cutting them into shapes. Among the different forms of abrasives used by the Caesareans was pumice stone[22], as evinced by the multi-faceted pieces found in Insula W2S5 and in the Hadrianic amphitheater.

The technique of cutting the *sectile* shapes differed from one material to another, and depended on the stone's receptivity to tools. The white and gray marbles were receptive to most tools. For shaping pieces out of harder stones a hammer and flat and rounded chisels were often used, usually held at a sloping angle, mostly to avoid micro-fractures beneath the surface, but also to achieve an applicable angle for a better and easier fitting of the stone into the pattern.

Many elaborate shapes bear red pigment along their rims; this must be the result of using negative templates. A negative template is a pattern matching the piece

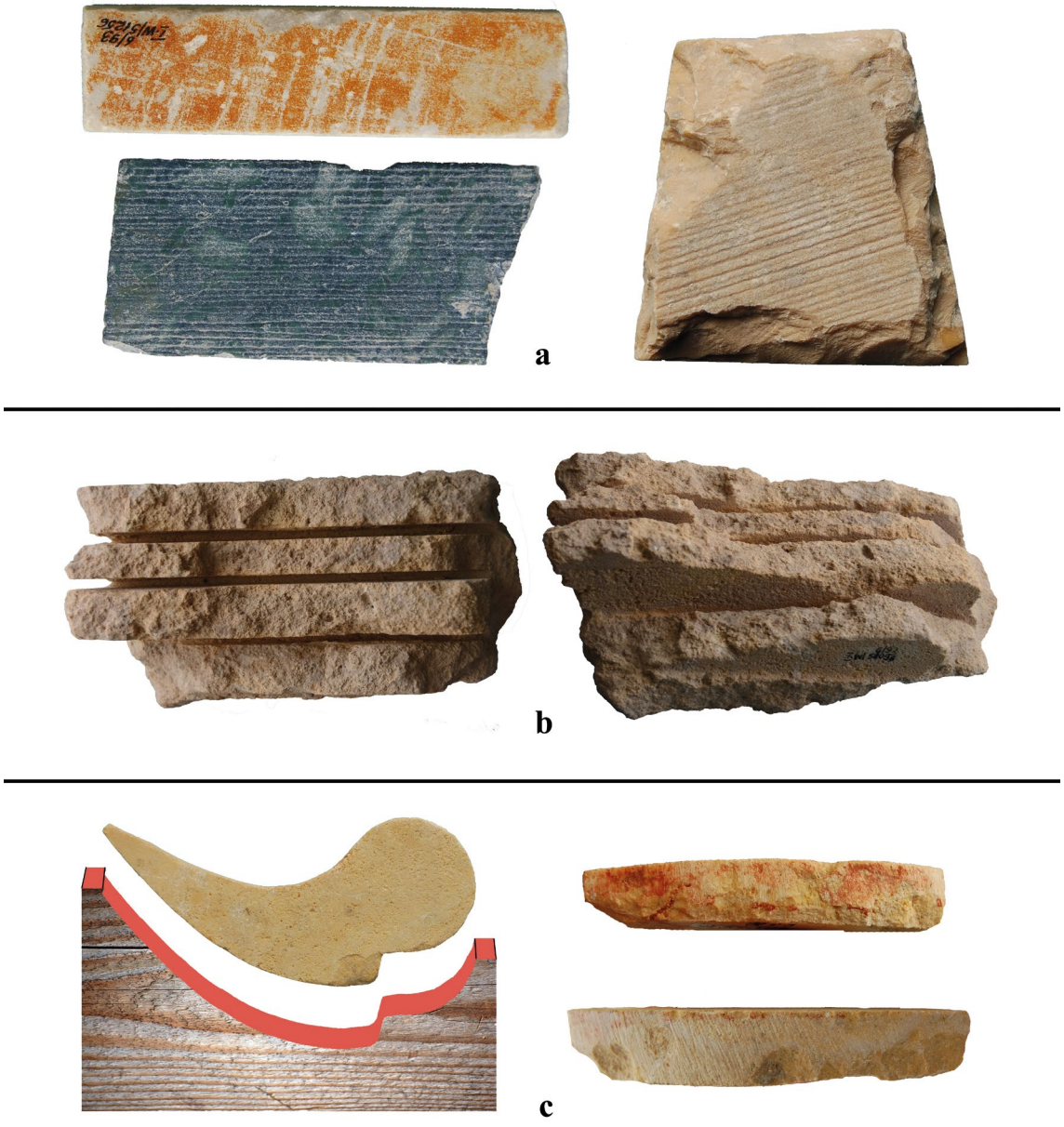
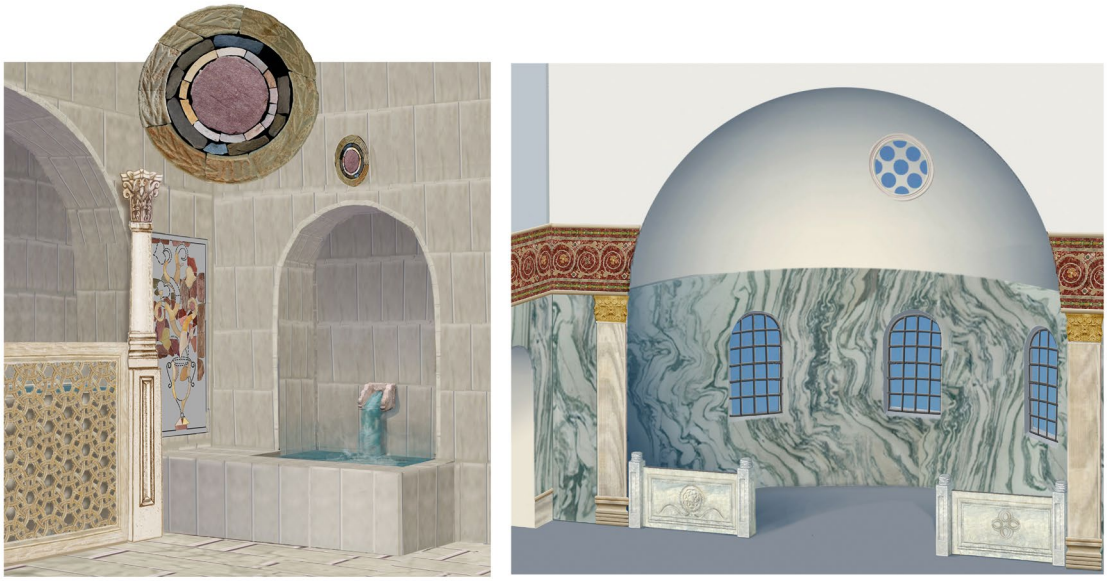


Fig. 6: *Opus-sectile* production, Semi-public Complex, Insula W2S3: (a) *opus-sectile* pieces with sawing marks and rust, (b) multi-blade sawing machine marks on local sandstone, (c) proposed reconstruction of using negative template in the *opus-sectile* production process.

tested for accuracy in size and profile. After the template was brushed with red pigment it was held up against the *sectile* piece to test it for accuracy; the process could have been repeated several times until the whole area of the rims was covered in red (fig. 6c). The final shaping was mainly done by using rasps and abrasive



a b

Fig. 7: Semi-public Complex, Insula W2S3: (a) small bath *caldarium*, reconstruction, (b) proposed reconstruction of the dismantled basilica.

stones (such as pumice). Rasps and smoothing marks are visible on almost every *sectile* piece.

The *opus-sectile* panels decorated only sections of walls; the remaining areas were veneered with marble slabs – in most cases grayish – as evinced by the large number of bronze clamps and fragments of marble slabs still visible on the remaining walls. The reconstruction of one of the caldaria of the 5th–7th century Semi-public Complex well demonstrate wall facing with both, *sectile* panels and plain marble slabs (fig. 7a).

For the walls of the dismantled basilica of this complex the cipollino marble was favored (fig. 7b). This is deduced from the large number of fragmentary cipollino slabs found scattered in the basilica's ground floor; some bear remains of a Greek inscription painted in red.

Each of the two *sectile* medallions that decorated the caldarium of the Semi-public Complex's small bath was composed of an inner small medallion within three frames. The outer frame was a laurel wreath in champlevé relief, which is another craft widely employed in late antique Caesarea. The spaces between the leaves were painted red (fig. 7a).

In the champlevé technique the relief is almost flat and the surface is smoothed or polished. After the outlines of the design are marked on the stone, about 2 or 3 millimeters of the background are carved away by uneven point chisel strokes. The background is then filled with colored material, endowing the relief the impression of a painting.

Up to this day the ruins of late antique Caesarea provided a large number of champlevé fragments with geometric, floral and figural motives; some show resemblance to reliefs

Fig. 8: Champlevé reliefs found in the: (a) administrative unit, Semi-public Complex, Insula W2S3 (b) *macellum*, Insula W2S4.

uncovered in Antioch and Cyprus. Only a few Caesarean champlevé fragments retained the remains of the colored material, mainly red ocher and Egyptian-blue. Some of the reliefs were carved into recycled slabs, which indicate a local production. The single champlevé revetment panel uncovered in the Byzantine bathhouse at Khirbet Jābir was very likely also manufactured in Caesarea.

The geometric champlevé panel uncovered in one of the rooms of the administrative unit of the Semi-public Complex was part – together with fragments of related panels found nearby – of a long narrow frieze, which probably ornamented the room where it was found (fig. 8a). The molded underside of two of the related fragments indicates that spolia was employed for carving some of the panels.

In other instances champlevé revetments were inserted into an *opus-sectile* floor or used to cover a gutter. In the *frigidarium* of a recently discovered bath in Insula E3S3, a rectangular fragment cut from about four times larger panel, was incorporated into a rather simple *opus-sectile* floor. The relief, when intact, could have been part of the architectural decoration of the first phase of the bath, or of another Caesarea building.

The fragmentary champlevé relief, reused to cover a gutter in the southwest corner of the central corridor of the late 6th century *macellum* in Insula W2S4, probably belonged

to the wall decoration of the adjacent mansion (fig. 8b). The emblematic pattern of a four petals flower within a rhombus enclosed by a rectangle and four double headed axes, one at each of the rectangle's corners, generally echoes the emblematic pattern of the two fragmentary reliefs carved into half column shafts from the Crusader market. The resemblance reinforces the idea that the late antique champlevé reliefs, like the earlier ones from the Dioscuri Domus, were carved in Caesarea. That the champlevé technique was considered a worthy decoration among the late antique Caesareans is deduced not only from the great number of revetment panels, but also from champlevé pilaster capitals and tabletops.

Conclusion

Between the 2nd and 6th centuries the port of Caesarea was the core of large-scale importation of a variety of plain blocks of stone and of fully or partially carved architectural members. Raw and partially carved stones required either temporal or permanent presence of skilled craftsmen at Caesarea, qualified to execute the carving in a variety of materials, including local stones. The availability of waste and second-hand building materials, especially in Late Antiquity, gave rise to a pragmatic and efficient recycling – public as well as private – of architectural members; enabled the paving of the streets with marble flagstones and the wealthiest inhabitants of the city to adorn the walls and floors of their own mansions and of the city's public buildings with marble columns, capitals, revetment slabs, reliefs, *opus-sectile* panels and mosaics.

Notes

[1] Stabler et al. 2008, 20 fig. 18.

[2] Raban 2008, 1671; Gendelman – Gersht 2010, 32–33 fig. 8.

[3] Lehmann – Holum 2000, cat. 49. 52. 53 figs. XL–XLII; Gendelman – Gersht 2010, 33 f. fig. 9; CIIP II, cat. 1204. 1207.

[4] Gersht 1999, 37 fig. 40; Gendelman – Gersht 2010, 28 f. fig. 1.

[5] Gendelman – Gersht 2017, 35–39.

[6] Gendelman – Gersht 2017, 39.

[7] A list of all champlevé fragments known till 2007 is published as an appendix in Boyd's chapter on the champlevé revetments found in the episcopal basilica precinct at Kourion. The unpublished plaques with standing Muses from Crete were found in a 2nd or 3rd century Roman house, but Boyd (2005, 445; 2007, 299) notes that the plaques may well be later.

[8] CIL VI 940; On supply of second hand material in Pompeii and Herculaneum, see Fant et al. 2013, 202–205.

[9] A similar scenario can be deduced from a 4th century papyrus which provides a list of architectural

members available for reuse in a city, either Arsinoë or Oxyrhynchus. The list records the materials the architectural members are made of – either local or foreign stones – their measurements, their exact context, and whether the columns are standing or lying on the ground. The later seems to be valuable information for considering the ease, which the columns can be removed with. At the end of the list small fragments are noted as suitable for the kiln (Papaconstantinou 2012).

[10] Gendelman – Porath (forthcoming).

[11] CIIP II, cat.1228. The stone was unlikely used as a statue base, as suggested in the corpus, it was more likely part of the monument's entablature.

[12] Gendelman – Gersht 2010, 29–31 fig. 4.

[13] 'Ad et al. 2017.

[14] Gersht forthcoming.

[15] Gendelman – Gersht 2010, 41 f.; 2017, 40.

[16] Dunbabin 1999, 281 fig. 287.

[17] Gendelman – Gersht 2010, 43.

[18] Our study of the decorative program of the complex was made possible through the support of the Israel Science Foundation, Grant No. 31/10.

[19] As the underside in most cases is less smoothed, the sawing marks with remains of rust are there more dominant.

[20] On sawing techniques, see Röder 1992, 132 f.; Rockwell 1993, 45–47; Kessener 2010, 283 f.

[21] On these, see Kessener 2010, 284–293.

[22] Cf. Rockwell 1993, 48; Wootton et al. 2013, 9 fig. 25.

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All photographs, apart from fig. 5a, were taken by Peter Gendelman. Reconstructions are by T. Meltsen and Peter Gendelman.

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Apollonia/Sozousa:
Its Immediate Hinterland in Byzantine Times

Oren Tal

Byzantine Apollonia/Sozousa

Located on the Mediterranean coast of Israel some 17 km north of Jaffa (ancient Joppa, south of Tel Aviv) and 34 km south of Caesarea, the site of Apollonia-Arsuf has been excavated almost continuously during the last 40 years (Introduction, above). Once a modest coastal settlement, Apollonia-Arsuf became the urban center of the southern Sharon Plain (at least its coastal strip) as early as the Persian period through the Crusader period. It is mentioned in a series of classical sources from the Roman period[1], which mostly relate to Judaea's coastal towns.

In written sources from the Byzantine period, it is recorded twice in the anonymous *Cosmography of Ravenna* in a list of urban centers of *Iudaea-Palaestina*[2], where it appears after Caesarea and before Joppa, and again between Joppa and Caesarea in a long list of the coastal cities of Sinai and Palestine.[3] Apollonia also appears in the detailed list of 25 cities of that name compiled by Stephanus Byzantius under number 13 'near Joppa'.[4] On the other hand, Apollonia does not appear in early ecclesiastical lists. Two 19th-century scholars, Stark and Clermont-Ganneau, assumed that the reason for its absence derived from the fact that Apollonia's name had been changed to Sozousa – a common change for cities named after Apollo Sōter in Byzantine times.[5] Later texts and critical editions of texts, which recount the Persian-Sassanian capture of Jerusalem, record the death of the patriarch Modestus in a city named Sozos: Sozousa in Georgian texts and Arsuf in Arabic texts.[6] Official documents of the synod of Ephesus held in 449 CE indicate that in the mid-5th century, Sozousa was a city in the Byzantine province of *Palaestina Prima* and that its Christian community was headed by a bishop. Bishops of Sozousa appear again in the records of two 6th-century ecclesiastical meetings.[7] They may have served in the church with an inscribed mosaic floor that was uncovered in Apollonia in 1962 and 1976.[8]

The importance of Sozousa in late Byzantine Palestine (6th–7th centuries CE in archaeological terms), seems to have been enhanced by the large and affluent Samaritan community that resided in the city until the Islamic conquest, as is evident from the archaeological finds.[9] Arsuf is also mentioned in connection with the Sassanian military campaign in the Holy Land.[10] As there is no evidence of destruction, it may be assumed that the city surrendered peacefully to its Persian-Sassanian conquerors.[11] The *Acta Anastasii Persae* relate that the escort conveying the relics of the Christian martyr Anastasius the Persian from Caesarea to Jerusalem in 631 – soon after the Persians evacuated Palestine – marched via Sozousa. This indicates that the name Sozousa continued to be used for Apollonia-Arsuf until the Islamic conquest.[12]

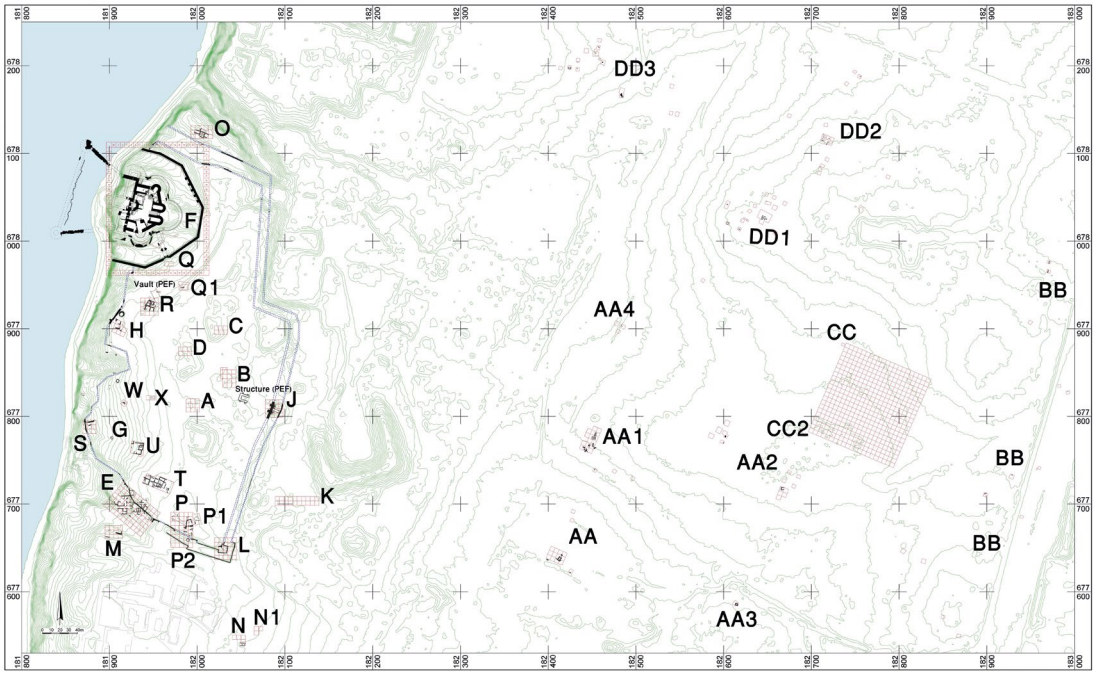

Fig. 1: Apollonia/Sozousa: Site plan with areas of excavations in the inhabited town and its immediate hinterland.

Byzantine Occupation Remains

Extensive excavations at Apollonia-Arsūf over the last 26 seasons (1977–2018) have uncovered numerous architectural remains of the Byzantine period (fig. 1). The site extended over an unwalled area of some 28 hectares – the largest area in its history of occupation. Among the architectural remains are a church[13], possibly a Samaritan synagogue[14], and industrial quarters with winepresses[15], oil presses, plastered pools, and raw glass furnaces.[16] Excavations at the site's Byzantine-period agricultural and industrial hinterland on the eastern outskirts revealed several additional architectural remains – field towers (fig. 2), wine presses (fig. 3), tombs (mostly of earlier periods) (fig. 4) and other installations – as the area was used mainly for growing crops. Refuse pits in the area were utilized for the disposal of waste from the settlement (fig. 5), and their contents served as fertilizer to enrich the soil in the nearby fields.[17]

There is every reason to believe that the medieval walled town of Arsūf occupied the core site of the Byzantine town of Sozousa. Deposition of coin finds (as well as hoards) are helpful when reconstructing site formation in the transition between the Roman and Byzantine periods and the Byzantine and early Islamic periods. The geographical

Fig. 2: Apollonia/Sozousa: Field tower (Area AA) at the site immediate hinterland.

Fig. 3: Apollonia/Sozousa: Winepress complexes (Areas AA1) at the site immediate hinterland.

distribution of Byzantine coins in excavated areas inside and outside the medieval walled town is very useful in this respect. While areas of excavations inside the walled town show a continuity in the use of Roman and Byzantine coins (e.g., Areas E and R) or alternatively show predominance for Byzantine and later coins (e.g., Areas T, U and W), those areas located outside the walled town offer a different picture.[18]

The coins, unearthed in both Area M (located on the south outside the walled medieval town) and Area O (located on the north outside the walled medieval town), suggest a 4th-century CE expansion of the site. Most coins found in the Byzantine hoard recovered from Area M are dated to the second half of the 4th century CE[19], while the remainder are dated to the 5th, 6th and early 7th centuries CE.[20] Among the 15 identifiable coins (out of a total of 34) from Area O, the earliest coin is a 3rd century CE type, followed by two 4th-century CE types.[21]

While Area K (in the east), and Area N (in the southeast), yielded few coins, the recently excavated Area CC in the site's immediate eastern hinterland lends support to this reconstruction. Large-scale excavations in this area yielded over 800 bronze (and one gold) coins. Over 260 identifiable coins were read from Area CC, and the majority of the coins (over 95%) are dated to within the 4th–6th centuries CE, suggesting that use of the area by the site's inhabitants occurred sometime during these centuries. Other recovered finds from all these areas such as fragments of pottery and glass vessels support the chronological evidence, namely occupation from the 4th century CE.

Fig. 4: Apollonia/Sozousa: Built tomb (Area AA3) at the site immediate hinterland.

As to the transition from the Byzantine and early Islamic periods, it may be noted that there is ample evidence for a reduction in the size of Sozousa in the 7th century as evidenced from all excavations areas outside the medieval fortification line – Areas M, O, K, N, as well as in CC. Excavations in these areas, located within the assumed limits of the Byzantine-period town (or right outside them), included large late Byzantine-period refuse pits (centralized town dumps, especially in Areas M, N and CC), providing evidence for the limits of the late Byzantine town, whose area can be estimated at 28 hectares (as stated above).

Pottery, glass and coins found in these dumps suggest that although no evidence of visible destruction by Persian-Sasanian conquerors in 614 CE is attested in Sozousa, many of its inhabitants abandoned the site (or found themselves victims of the invasion). This can be deduced from the fact that very few of the coins discovered in these areas postdate this event, and none of the pottery and glass finds can contradict a date of abandonment in the early 7th century CE.

Fig. 5: Apollonia/Sozousa: Town dump (Area CC) at the site immediate hinterland.

Byzantine Immediate Hinterland

Before elaborating on the immediate hinterland of the site, it should be borne in mind that the site periphery was surveyed and excavated quite often due to development works in one of modern Israel's intensively developed regions – the central coastal plain. Earlier surveys were largely assembled in the Map of Herzliyya published in the framework of the Archaeological Survey of Israel.[22] Based on this publication, it is known that the Byzantine settlement flourished during the Byzantine period as some 40 sites (including the mother settlement of Apollonia/Sozousa and some necropoleis)[23] were documented by means of surveys and excavations in the less than 10 km^2 survey map of Herzliyya in which Apollonia/Sozousa forms the north-westernmost site. These sites were distributed throughout the map area – on the coast, on the *kurkar* (fossilized dune sandstone) ridges, in the area of drained marshland and on the *ḥamra* (red loam) hillocks.[24] These site remains comprise wine presses, oil presses, potter's kilns and raw glass furnaces, attesting to the economy of the population. The intensity of the Byzantine settlement at the time probably necessitated deforestation and preparation of land tracts for agricultural cultivation, including the marshlands that are known in the region. Indeed, the 'Herzliyya Marsh'

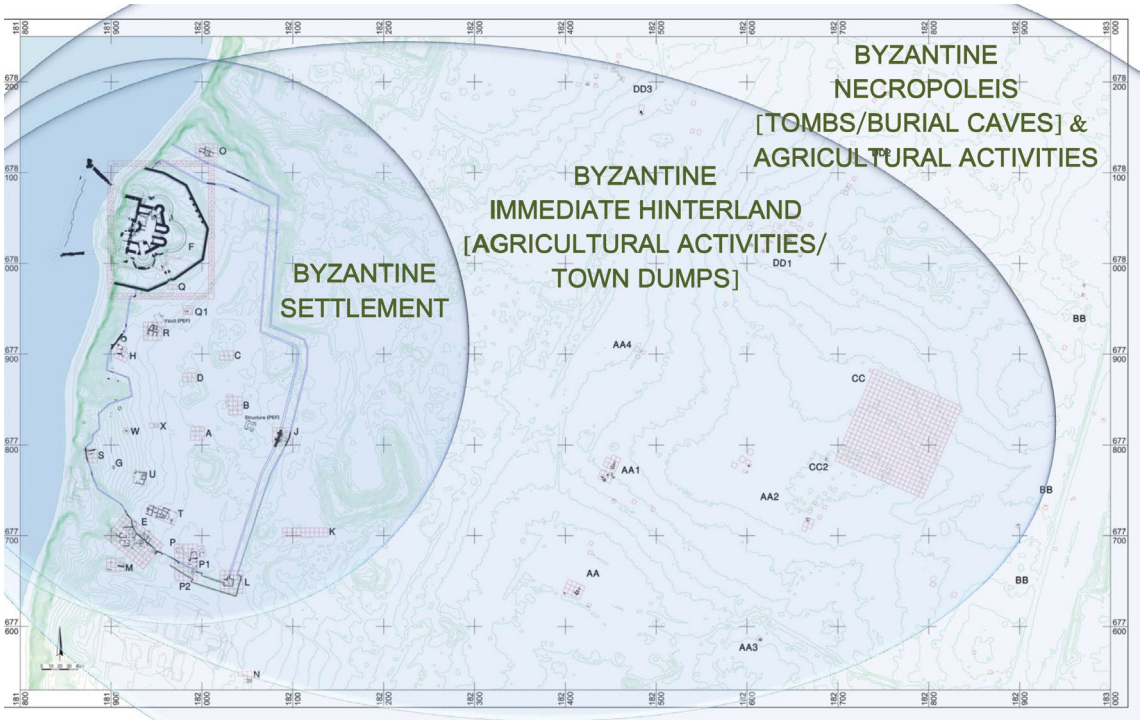

Fig. 6: Apollonia/Sozousa: Site plan with suggested functional 'belts'.

was drained in an impressive quarrying and construction operation, consisting of a tunnel 200 m long that drained the water to the sea.[25]

The large-scale excavations at the Byzantine site and especially in its immediate hinterland enabled a higher resolution of its physical division into functional 'belts' (fig. 6):

1) The Byzantine inhabited settlement, adjacent to the seacoast;

2) The Byzantine immediate hinterland, where agricultural activities in the form of field towers and wine presses were uncovered and disposal activities of human and industrial waste were unearthed in the form of town dumps on the edges of the inhabited eastern, northern and southern settlement;

3) The Byzantine period necropoleis to the east (tombs and burial caves), where agricultural (and other) activities also took place.[26]

This suggested functional division is based on the results of many excavations by either Tel Aviv University or the Israel Antiquities Authority in the course of the last four decades. The fact that Byzantine period activity was the most dominant at the site and its hinterland throughout its history encourages investigation into the physical division far beyond its inhabited perimeters.

Elsewhere we have discussed the rural nature of the area to the south of Apollonia-Arsuf on both sides of the Yarqon estuary.[27] We tried to show that the rural area between

Fig. 7: Apollonia/Sozousa: Selection of raw glass chunks (Area O).

Joppa and Apollonia-Arsuf (i.e., the central coastal plain or Southern Sharon) was heavily occupied by Samaritans (and to a lesser extent by Christians) during the late Roman and Byzantine period. This process probably started sometime after the Second Jewish Revolt and, as the archaeological evidence indicates, accelerated during the 3rd and 4th centuries CE, at a time when quite a few Jewish settlements that had been abandoned in either the late 1st or early 2nd century CE were reoccupied by Samaritans in the form of villages and farms. There were also several Samaritan settlements that had not been previously occupied by Jews. All these Samaritan settlements continued to exist well into the early Islamic period.[28] The local settlement pattern, as reflected in the better-known excavated and/or surveyed sites in this region, is composed of small- to medium-sized villages and farms. Many of these settlements existed in their "Byzantine" form until the 8th century CE, when a gradual decrease in their size and population led to near total abandonment in centuries to follow. This change can be related to the increased insecurity and sharp deterioration in the economic conditions of the Samaritans (as well as of the rest of the

dhimmīs [non-Muslims]). This process started with the Abbasid period, in the second half of the 8th century, by means of persecution by the contemporary caliphs and their governors, resulting in local revolts and disasters. Furthermore, at that time, the Muslim authorities prohibited wine drinking, which certainly caused a major economic decline in many settlements where viticulture was a main source of livelihood. Consequently, the number of rural Samaritan settlements was substantially reduced and most of the Samaritans were either concentrated in towns and cities or settled in villages in the mountainous region of Samaria.[29] The evidence from the wine press complex discovered in Apollonia-Arsuf (esp. in Areas AA1 and O) shows that a somewhat similar process occurred approximately two centuries earlier. The effects of the persecution of the Samaritans by Justinian are not totally clear in the archaeological record. However, it is possible that the Samaritan viticulture industry was abandoned in the town of Sozousa from this date on and was now concentrated in the rural Samaritan settlements of the region.

Another aspect of the economic life of Byzantine Sozousa relates to the production of raw glass (fig. 7). While evaluating the evidence at hand, it has been suggested in the past that it seems likely that the Church, as the center of political and social power in late Byzantine Sozousa, may have played an important role in the production and circulation of the raw glass produced at the site. There is, however, no direct evidence for such an involvement except for pieces of information on the economic involvement of the Church (as an administrative body) in the daily life of the Byzantine world.[30] Private entrepreneurship seems less likely given the massive scale of the production at the site.

The impact of this production at the site is apparent in the following periods of its occupation (and even in the later phases of the Byzantine occupation). Raw glass refuse is used as building materials in the early Islamic and the Crusader period building remains at the site – with the Crusader castle (Area F) being the most significant building project that used raw glass refuse in its construction.

Notes

[1] Flavius Josephus, Jewish Antiquities XIII, 395; Pliny the Elder, Natural History 5.69; Ptolemy, Geography 5.15.2.

[2] 2.14.2 and 5.7.2, Itineraria Romana, ed. by Schnetz, II, 25, 90, and 133.

[3] The *Cosmography of Ravenna* was compiled soon after 700 CE from earlier sources that go back to early Byzantine or even Roman times, see Schnetz 1942; Dilke 1985, 174–176.

[4] Stephani Byzantii Ethnicorum quae supersunt, ed. by Meineke, p. 106. It is worth noting that in Stephanus Byzantius's text, the name Sozousa (*s.v.* no. 1, p. 596) is also mentioned (see below) most probably because Stephanus used sources from different periods: one from Roman times when listing *Apollonia*, and a second source from Byzantine times when mentioning *Sozousa*. For Apollonia, see also

Stephani Byzantii Ethnica, I, 228–229.

[5] Stark 1852, 452 note 5; Clermont-Ganneau 1896, II, 337–339.

[6] *La prise de Jérusalem*, ed. Garitte, p. 55; Expugnationis Hierosolymae, ed. Garitte, 341, pp. 38, 70; 348, p. 131.

[7] Acta conciliorum oecomenicorum, III, ed. Schwartz, pp. 80, 188, and IV, ed. Schwartz, no. 1, p. 221.

[8] Birnbaum – Ovadiah 1990; Roll 1999, 31. 45.

[9] Tal forthcoming; see also Tal 2015. It should be emphasized, however, that Abū L-Fatḥ reports Samaritan synagogues in villages between Zaytā (north of Ṭūl Karem) and Arsūf, but only a Dosithean (not Samaritan) 'meeting place' in Arsuf in the early 9th century long after the Islamic conquest, cf. Levy-Rubin 2002, 69 f.

[10] Peeters 1923–1924, 13; La prise de Jérusalem, ed. Garitte, pp. 4, 42; Expugnationis Hierosolymae, ed. Garitte 348, pp. 75, 104; see also Schick 1995, 20–25.

[11] Schick 1995, 250; for the archaeological evidence cf. Tal – Taxel 2012, 499–501; Tal and Bijovsky 2017; and below.

[12] Flusin 1992, I, 105; II, 339.

[13] Birnbaum – Ovadiah 1990.

[14] Tal 2015.

[15] Tal 2009.

[16] Tal – Jackson-Tal – Freestone 2004; Freestone – Jackson-Tal – Tal 2008; see also Roll 1999, 7–10.

[17] Pines – Sapir-Hen –Tal 2017.

[18] During 26 seasons of excavations (since 1977) approximately 1250 coins were recovered from the site. To these, approxmately 900 coins may be added from excavations carried out in 2012–2013 just to the east of the Apollonia National Park.

[19] Excavations in Area M yielded 42 coins altogether and the 11 4th-century coins in the hoard are the earliest coin finds discovered in the area.

[20] Of the 36 identifiable coins found in Area M, only one postdates the recorded Persian-Sasanian occupation of 614 CE – a coin that was minted in Alexandria and is attributed to the later years of Heraclius (632–641 CE).

[21] The 3rd century CE type is a coin dated to the reign of Gallienus (260–268 CE), while the two 4th century types are coins dated to 305–311, 364–378 CE respectively. The remainder are almost exclusively dated to the 6th century CE. Three tentatively postdate 614 CE based on stylistic considerations: two coins that may be assigned to 624/25 CE and 630–641 CE respectively, and another, as in Area M, assigned to the later years of Heraclius (630–641 CE).

[22] Gophna – Ayalon 1998, 13*. See online version in: [http://survey.antiquities.org.il/index_Eng.html#/MapSurvey/21]

[23] For the latter, see Tal 1995; Agmon 2017.

[24] For the region geology see Gophna – Ayalon 1998, 8* f.; and more specifically Tal 1999.

[25] Gophna – Ayalon 1998, Site 37.

[26] Gophna – Ayalon 1998.

[27] Tal – Taxel 2010; 2015.

[28] Roll – Ayalon 1989, 137–183. 231.

[29] See, in this respect, Levy-Rubin 2002, 29–31; Schur 2002. The chronicle of Abū l-Fatḥ (dated to 1355 CE, but referring to the early 7th to early 10th centuries) mentions many Samaritan villages, most of which are identified with places in the northern and central Samaria Hills, though a few others – at least some of which were also Samaritan settlements – are yet unidentified (Levy-Rubin 2002, 183–186, Geographical Appendix).

[30] Jones 1964, 830–834, and esp. 894–910.

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Aelia Capitolina: The Roman Colony and Its Periphery

Shlomit Weksler-Bdolah[1]

After the destruction of Jerusalem by the Romans in 70 CE, the Tenth Legion Fretensis stayed in Jerusalem. Most researchers, relying on Josephus (*War* 6, 353; 7, 1–3. 5) and on archaeological finds agree, that the camp was located on the southwestern hill – the site of the Upper City of Herodian Jerusalem. This site was probably chosen because of the topographical advantages and the water supply, qualities, which assured good sanitation and health to the soldiers and made it a well-fitting site to the needs of the army.[2]

The camp was surrounded by an enclosure wall, in whose western part the remains of the First Wall from the Second Temple period and the three Herodian towers, Phasael, Hippicus and Marriame, as Josephus implied, were probably incorporated.

Inside the camp there were, likely, different structures, including the headquarters and barracks. Epigraphic finds indicate the existence of stables,[3] and a bakery.[4] The archaeological remains of structures within the camp are exceptionally few, including segments of walls, a water reservoir, water pipes, potsherds, and a comparatively large amount of broken tiles, stamped with the stamp of the Tenth Legion. Outside the camp, on the eastern slopes of the camp's hill, artifacts originating from the camp's dump were recently discovered. They include potsherds of vessels produced in the kilns of the legion in Binyanei ha'Ummah (see below), and three bread stamps with inscribed names of the centurion and the soldier-baker.[5] Remains of a long

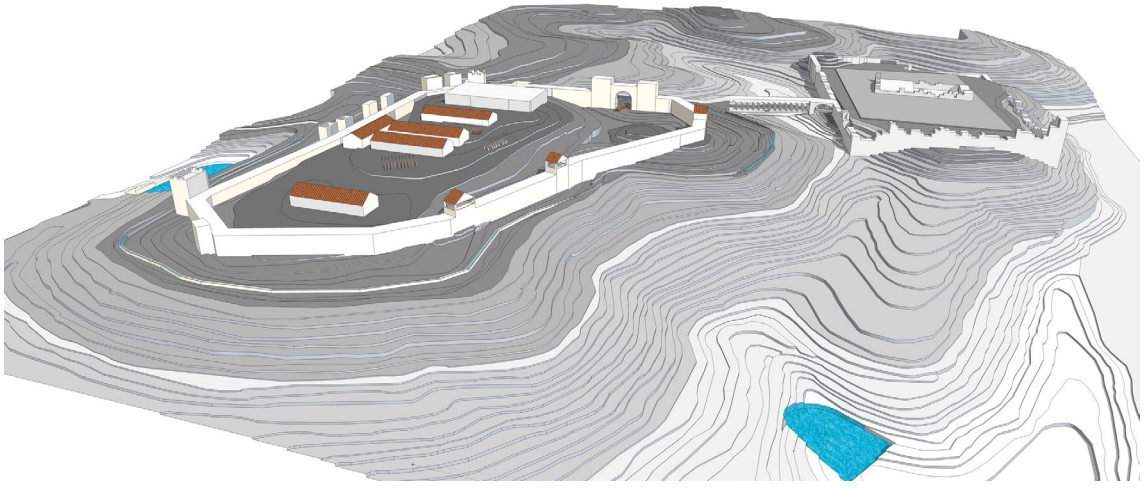

Fig. 1: The author's proposed reconstruction of the military camp of the Tenth Roman Legion, the ruined Temple Mount and the narrow bridge connecting them in the early 2nd century CE. The reconstruction of the bridge is based on the findings of excavations. The reconstruction of the army camp and the Temple Mount are suggested for illustrative purposes.

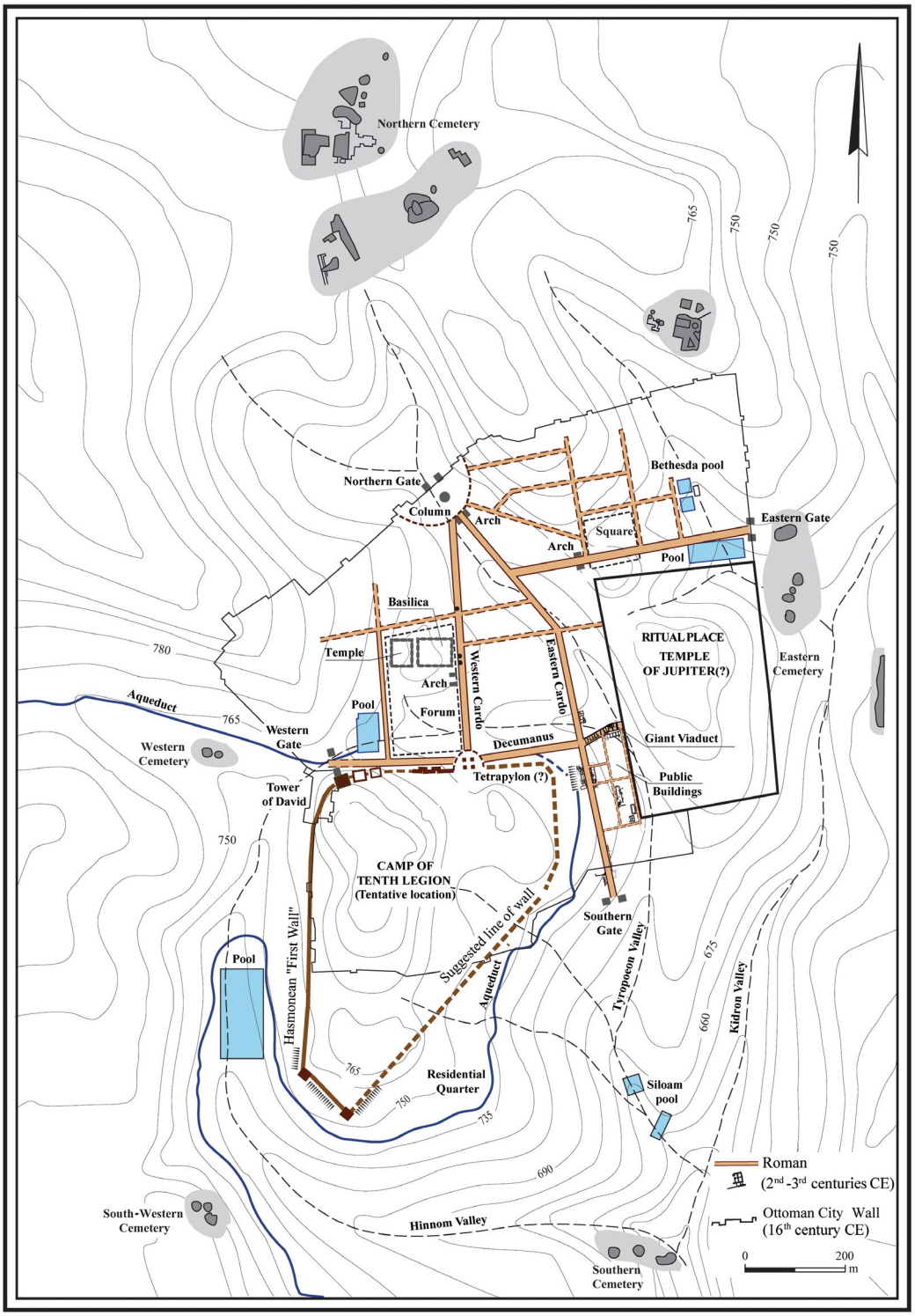

Fig. 2: The legion's camp and the city of Aelia Capitolina in the 2nd and 3rd century CE. Author's proposal.

bridge that possibly connected the camp with the Temple Mount were revealed as well (fig. 1).[6]

Around 130 CE, Hadrian built a new city on the ruins of Jerusalem, and granted it the status of a colony. Aelia Capitolina was built north and east of the camp's hill, and a prominent barrier (supposedly, a wall) was maintained between the camp and the city (fig. 2). The city's main streets were leading to the northern gate of the camp. This meeting place of the camp and the city, in front of the camp's northern gate, became, possibly, the starting point of the roads that led to and from the city in all directions.

Aelia Capitolina was a medium-sized, unwalled Roman colony, with free-standing city gates marking its limits. The Roman city was characterized by colonnaded streets, public squares and triumphal arches. Pagan temples and sanctuaries, as well as civilian public buildings and bathhouses adorned the cityscape. The water supply of Aelia Capitolina was based on pools and aqueducts of the Second Temple period that continued to be used in one form or another during the Roman period.[7]

Cemeteries were located outside the city. The common burial type was a cist tomb that was dug in the ground and lined with stone courses, or hewn in the bedrock below the surface. In addition, cremation burials, and family burial caves, with several burial troughs are known too. The cremations are usually attributed to the military, but the finds show that they were practiced also among civilians.[8]

The historical sources are clear about the decline of the periphery of Jerusalem in the wake of the Jewish revolts: "About the same time [following the fall of Jerusalem at 70 CE] Caesar sent instructions to the procurator, to dispose of all Jewish land. For he founded there no city of his own while keeping their territory, but only to eight hundred veterans did he assign a place" (Josephus, *War* 7, 216 f.). Following the Bar Kochba War Cassius Dio wrote: "Fifty of their most important outposts and nine hundred and eighty-five of their most famous villages were razed to the ground [...] Thus nearly the whole of Judaea was made desolate [...]" (Cass. Dio 69, 14, 1 f.).

The Archaeological Remains[9]

Six imperial roads led to and from Aelia Capitolina in the Roman period: north, to Neapolis (Schechem), east to Jericho, south to Hebron, southwest to Eleutheropolis (Beit Guvrin), west to Diospolis (Lod) via Emmaus and northwest to Diospolis (Lod) via Beth Horon (fig. 3) – for the Romans considered the well-organized road network as a basic element of proper administration and rule.[10] The few sites that are known to date in the periphery of the city are naturally located along these routes.

The Sites

Structures and building inscriptions of military units attest to the presence of soldiers along the main roads, apparently in forts and fortresses. One such fortress of the early 4th century, in Giv'at Sha'ul,[11] (see fig. 3) was overlooking the road ca. three Roman miles west of Aelia Capitolina. It consisted of a square courtyard surrounded with rooms, and a yet older tower that was integrated in the corner. A building inscription of the Tenth Legion was found in Abu Ghosh. It bears a Latin inscription that reads "A vexillation of the Tenth Legion Fretensis (has built this)".[12] It is reasonable to assume that the military outposts were intended to protect the security of travelers along the roads (military units, convoys of merchants), and to maintain the infrastructure of the roads in a fluent manner.

A unique military site along the western road is the workshop of the Tenth Roman Legion, whose remains were discovered in the area of Binyanei Ha'uma, two Roman miles west of Aelia Capitolina (see fig. 3).[13] The excavations exposed the kilns, the settling pools and the installations associated with the manufacture of the pottery vessels and building materials: bricks, rooftiles and ceramic pipes. Next to it, the remains of a village of the potters were unearthed. It is assumed that a unit of the Tenth Legion was stationed regularly at the site. The location of the site at a high point along the road, and the skill of pottery production that characterized the local population for centuries, probably affected the Roman decision to preserve the workshop and its workers after the destruction of Jerusalem. Based upon the finds, Levi and Beeri proposed that Jewish potters continued to manufacture pottery for the Roman army in the first years after the conquest of the city.[14]

In the village of Colonia near Tel Motza, about four miles west of the city, segments of partially preserved buildings, water pipes and cist tombs from the Roman period (late 1st/early 2nd to the 3rd/4th centuries CE) were recently unearthed.[15]

On the slopes of the tell, remains of structures decorated with wall paintings and mosaic floors were discovered,[16] and remains of a bath from the Roman period have been documented.[17] Rooms belonging to a late Roman – early Byzantine period building were also exposed.[18] The Arab name of the village, Colonia, is presumed by many to preserve its Roman origins. Some identify it with the lands granted by the emperor to 800 veterans, as implied by Josephus.

Remains of two Roman villas were partly exposed one opposite the other on the northern and southern banks of the Refa'im Valley, approximately four Roman miles from the city along the Jerusalem – Bet Guvrin (Eleutheropolis) road (see fig. 3). The southern villa is located on the slope of the valley, near the spring of Ein Ya'el.[19] The building consists of a residential core building, and two bathhouses on lower terraces. The remains include a triclinium preceded by a vestibule. The walls of the hall, which survived to a height of ca. 1 m, were decorated with a colorful fresco with human figures, flowers and geometric decorations. The floor was made of colored mosaic. In

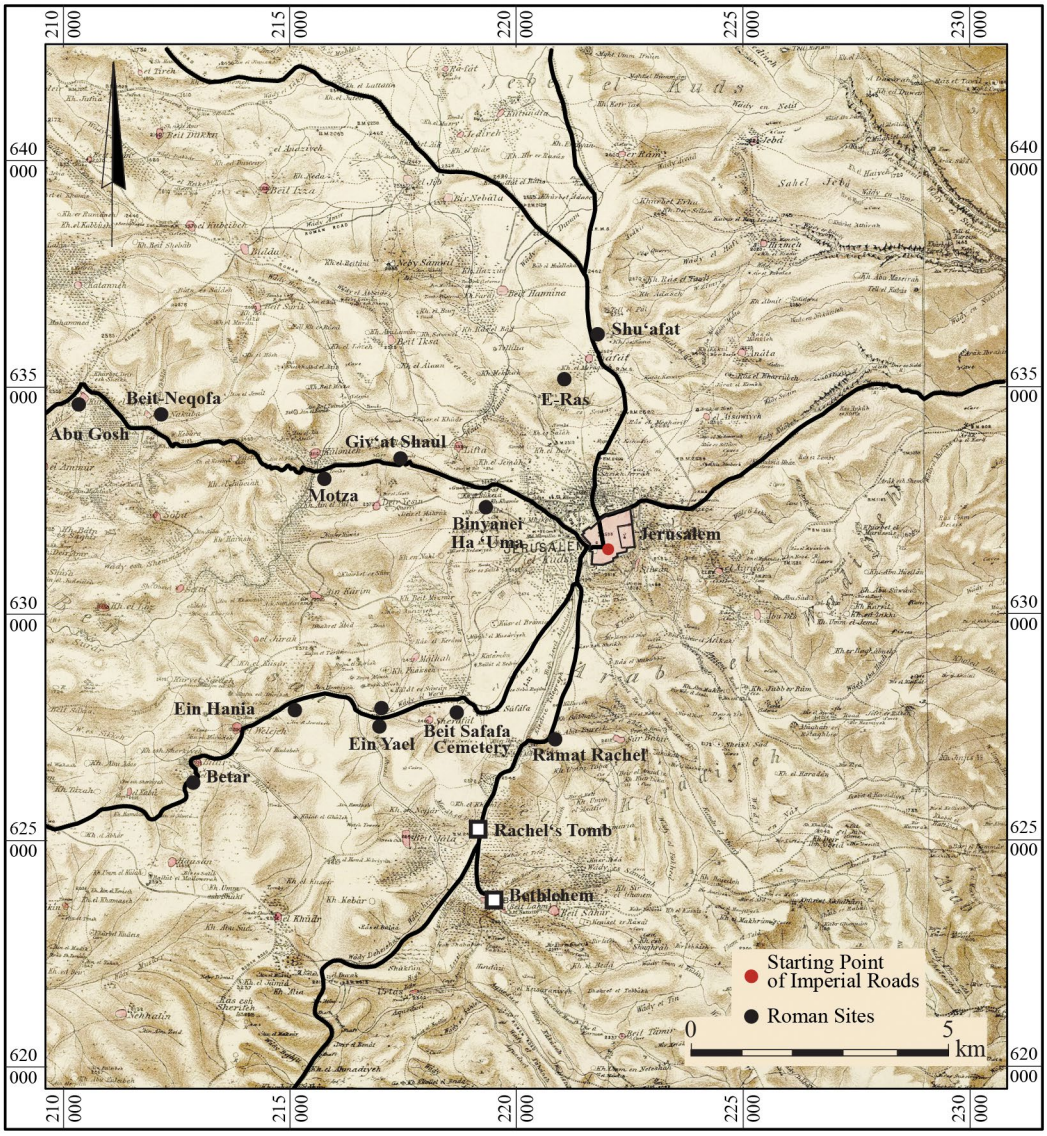

Fig. 3: Map of the Roman imperial roads leading to Jerusalem, along which are sites from the Roman period: north to Neapolis (Schechem), east to Jericho, south to Hebron, southwest to Eleutheropolis (Beit Guvrin), west to Diospolis (Lod) via Emmaus and northwest to Diospolis (Lod) via Beth Horon. The map is based on the Ordance Survey of Western Palestine (1880), Sheet 17.

the center of the triclinium is a marble slab, which formed the base of a water basin or a fountain, surrounded by a mosaic carpet decorated with mythological figures, fish and birds. Lead pipes below the floor indicate that the fountain received water from the nearby spring. The vestibule floor was decorated with four medallions with figures

representing the four seasons. An illegible Greek inscription was incorporated into the floor. Tiles and bricks in the building and in the bathhouses were impressed with the stamp of the Tenth Legion Fretensis.

Another villa was uncovered on the northern bank of the river, ca. 400 m north of Ein Ya'el.[20] A mosaic floor was preserved in a room that probably served as the entrance room to the villa. The floor was decorated with two colorful mosaic panels. The main panel depicted a variety of foods – a couple of artichokes (or pine-cones), a giant mussel and a fish – representing *xenia*, gastronomical gifts to guests, serving as appetizers, the first part of the Roman dinner.

Both villas, based on the style of the mosaic floors and the remains of their wall paintings, were dated to the 3rd century. It is possible that the patron of the villas was a Roman soldier or veteran who received a plot of land after his release from the army. The mosaics, and the integration of a Greek inscription, exhibit a synthesis of eastern and western characteristics, typical of the Roman east during that period.

Remains of another Roman villa, dated to the 2nd or 3rd century CE, were unearthed at Ramat Rachel, about five Roman miles south of the city along the Aelia Capitolina – Hebron road (see fig. 3). The residential unit consisted of a peristyle courtyard with rooms around it. Some 30 m east of the building, remains of a bathhouse with mosaic floors, a hypocaust, and water pools were discovered. Ceramic tiles and pipes with the stamp of the Tenth Legion Fretensis were discovered in the bathhouse. Aharoni suggested that the remains indicated a military presence at the site and dated them to the second half of the 3rd century CE. Lipschits et al. dated the remains to the 2nd century and suggested they belonged to a rural Roman villa.[21] However, 3rd to 4th century glass bottles found inside some of the shaft tombs in the settlement's cemetery (see below) indicate that the site was still inhabited at that time.

A rare find from this site is a small lead *bulla* (11 mm diam.) inscribed with the name *Imperator Hadrianus Augustus*.[22] The bulla probably signed a letter sent by Hadrian to a person of high rank in the army or in the Roman administration, who was either the owner of the private estate or someone staying in the military unit stationed at Ramat Rachel.

In Beit Safafa, in the vicinity of the rural villas in Naḥal Refa'im (see fig. 3), and near the villa in Ramat Rachel, cemeteries with dozens of shaft tombs were exposed.[23] These cemeteries may have been local cemeteries for the population in the periphery of Aelia Capitolina.

The spring of 'Ein el-Hanniya is located on the southern bank of Naḥal Refa'im, along the Roman Jerusalem – Eleutheropolis road, ca. one Roman mile west of 'Ein Ya'el (see fig. 3). Near the spring, the remains of a structure resembling a nymphaeum exist. The structure consisted of a semicircular niche with pilasters on both sides, which had previously been topped with Corinthian capitals. In the center of the apse there is a small decorated niche. It may have been intended for placing a statue. The structure is usually identified as a public fountain, probably of the Roman period.

If a statue of one of the gods was placed in the niche, the site may also have served as a place of worship.[24]

The remains of two Jewish settlements that existed until the Bar Kochba Revolt are partly known in the surroundings of Jerusalem: in Shʿuafat, to the north of Jerusalem, and in Khirbet el-Yahud (Betar), to the southwest (see fig. 3).

The first is a unique, apparently planned urban Jewish settlement, which was established north of Jerusalem immediately after 70 CE, and abandoned on the eve of the Bar Kochba Revolt (before 132 CE).[25] The site is located along the Jerusalem – Neapolis road, between the third and the fourth mile. A long narrow strip (length: 506 m; width: 8 m) was excavated. The remains included ritual baths, stone vessels and pottery vessels characteristic of the Jewish population during the Second Temple period. The settlement was built according to a strict Roman design, and 15 structures (insulae) of different sizes (over 10 m wide) were discovered, separated by narrow streets that extended from west to east. The site was abandoned in an organized manner, manifested by the deliberate sealing of the doors of the buildings and the burial of coin caches, which indicate a hurried departure and the hope of returning. The latest well dated coin found at the site is a small Hadrianic coin minted in Alexandria in 129/30 CE. The conclusion of the excavators is that the site was abandoned before the Bar Kochba Revolt, and did not participate in it. They offer to identify it as an urban Jewish settlement established by the Roman authorities, perhaps for a Jewish aristocracy from Jerusalem who did not participate in the Great Revolt. It is possible, however, that a military unit of the Tenth Roman Legion stayed in the site, as coins with secondary impressions of the Tenth Legion and pottery vessels produced in the kilns of the legion attest to the presence of soldiers at the site. The economy of the site was presumably based on supplying food to Roman soldiers and providing road services.

The site of Khirbet el-Yahud is located on a mountain spur surrounded by Naḥal Refa'im on three sides, about eight Roman miles southwest of Aelia Capitolina along the road to Eleutheropolis (see fig. 3). It is identified as Betar, the last stronghold of Bar Kochba.[26] Most of the remains belong to the 2nd century CE – Bar Kochba period including a wall along the site's outer circumference that was probably built hastily while the Romans were besieging the site. Pottery recovered near the wall shows that the site was inhabited from the end of the Second Temple period until the Bar Kochba Revolt.[27] It was subsequently abandoned and there is no evidence that it was ever reoccupied. Remains of the Roman offensive discovered around the site included a circumvallation siege wall preserved to the north and west and partly to the east, possibly cutting off the site from the spring that provided it with water. Beside the spring, a Latin inscription in the rock mentions two legions, "legionis V Mac[edonicae] et XI Cl[audiae]". To the south of the site, two military camps were built: A west camp, A (450 × 200 m) and an east one, B (200 × 100 m). At a distance varying from c. 1.5 to 4 km south and east of camps A and B, four other hill-top camps (C, D, E, F) were identified during the archaeological survey.[28]

Summary

Following the destruction of Jerusalem by the Romans in 70 CE, a new era began in the city's history. The Herodian, Jewish city was destroyed, and a military camp of the Tenth Roman Legion established on part of the ruins. In around 130 CE, the Roman emperor Hadrian founded a new city next to the military camp. He honored the city with the status of a colony and named it Aelia Capitolina. The new Roman city was smaller in size and had a different plan from the ruined Herodian city. It followed the traditional Roman orthogonal design. The inhabitants of Aelia Capitolina were soldiers and veterans of the Tenth Legion, and their families, citizens and merchants, followers of the army who accompanied the soldiers. Jews were not allowed to enter the city. Latin presided as the city's official language, but Greek continued to be commonly spoken. The city's religious life revolved around Greco-Roman cults and practices. The daily life and burial practices of the inhabitants of Aelia Capitolina were completely different from those of their Jewish predecessors during the Second Temple period, as is well reflected in the archaeological record.

After 70 CE, Jewish owned lands were expropriated, and the land around Jerusalem was handed probably to the disposition of the Tenth Legion, and redistributed by the Roman authorities. Archaeological data from the countryside surrounding Jerusalem for this period is limited, though evident, and was presented in short above. Despite the limited scope of remains, the romanization of the city and its periphery after 70 CE shows clearly.

The findings indicate that the city's economy could not, apparently, rely on the supply of goods from its periphery, as the number of villas and farms was too small to support the population of the city. It can be assumed that the city continued to maintain ancient trade relations, relied on the economic strength of the soldiers (i.e. on the soldiers' salaries), and enjoyed imperial support by way of allocating labor and tax funds for the development of the city.

Notes

[1] This short summary is based on a lecture given in a session devoted to cities and their periphery in Roman Palestine and Arabia. I would like to take this opportunity to thank Achim Lichtenberger, Oren Tal and Zeev Weiss for inviting me to participate in this important session. The range of topics discussed, in the context of the various cities, highlighted the diversity of the cities under discussion, and emphasized the various aspects of Roman culture in the province of Judaea-Palestine, as expressed in the archaeological record.

[2] Several studies of the city were published in the past. For the location of the military camp on the southwestern hill see, inter alia, Geva 1984; Tsafrir 1999, 124–135. For other suggestions see Mazar 2011, 1–8; Stiebel 1995; Bear 1993.

[3] CIIP I, 2, 721.

[4] CIIP I, 2, 755. 757. 761.

[5] Weksler-Bdolah 2014; Di Segni – Weksler-Bdolah 2012.

[6] Onn – Weksler-Bdolah 2017.

[7] For a summary of the historical sources referring the city see Isaac 2010, and references there. For a summary of the archaeological remains of Aelia Capitolina see Geva 1993; Tsafrir 1999; Weksler-Bdolah 2017, inter alia.

[8] See Avni 2017; Kloner 2002, inter alia.

[9] For summaries of the economic and agricultural periphery/hinterland of Jerusalem during the Roman and Byzantine period (70–636 CE), see Kloner – Klein – Zissu 2017, inter alia.

[10] For descriptions of the imperial roads around Aelia Capitolina, see Ben David 2013; Isaac 1988; Roll 1983; Roll 1994, inter alia.

[11] Kh. al Atrash (Giv'at Sha'ul), see Tzaferis 1974; Fischer – Isaac – Roll 1996, 124 f.

[12] CIIP I, 2, 722.

[13] Arubas – Goldfus 1995; Arubas – Goldfus 2008; Levi – Be'eri 2011, inter alia.

[14] Levi – Be'eri 2011.

[15] For recent excavations see Mizrahi 2015. Salvage excavations are conducted at the site from 2017 to present (2019). I thank Annette Landes-Nagar, Irina Zilberbod, Rachel Bar-Nathan, Jacob Vardi and Hamudi Khalaily, the directors of the excavations on behalf of the Israel Antiquities Authority for the information. See also Fischer – Isaac – Roll 1996, 225–227.

[16] Eisenberg 1975.

[17] Barag 1967, 267 note 105.

[18] Greenhut – De Groot 2009, 5 f.; Kisilevitz et al. 2014.

[19] Edelstein 1990; Roussin 1995; Talgam 2014, 46–48.

[20] Weksler-Bdolah 2007; Weksler-Bdolah 2016; Talgam 2014, 48 f., inter alia.

[21] Aharoni 1964, 121; Lipschits et al. 2017, 130–138, and references there.

[22] CIIP I, 2, 753; Lipschits et al. 2017, 131 f.

[23] For the cemeteries in Beit Safafa, see Zissu – Moyal 1998; Landes-Nagar 2015; for the cemetery in Ramat Rachel, see Ras 2017.

[24] Baruch – Zilberbod 2015, and references there.

[25] Bar-Nathan – Bijovsky 2018, inter alia.

[26] The site has been surveyed and investigated since the 19th century, see Tsafrir – Di Segni – Green 1994, 86 f. A trial excavation was conducted at the site, see Ussishkin 1993; Ussishkin 2008, and references there.

[27] Singer 1993.

[28] For the camps see Kochavi 1972, 24; Kennedy – Riley 1990, 100–104. For the inscription see: CIIP 4, 3198. The inscription was originally seen and published by Clermont-Ganneau in 1894.

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Fig. 1: Drawing: Yaakov Shmidov. Courtesy of the Israel Antiquities Authority. – Fig. 2: Drawing: Natalia Zak. Courtesy of the Israel Antiquities Authority. – Fig. 3: Drawing: Danit Levy and Natalia Zak. Courtesy of the Israel Antiquities Authority.

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Sepphoris:
The City and Its Hinterland in Roman Times

Zeev Weiss

In the heart of Lower Galilee, 5 km west of Nazareth, lie the remains of Sepphoris, capital of Galilee for long periods in antiquity. The city was originally built on a hill rising 289 m above sea level and overlooking the entire area. North of the hill lies the fertile Bet Netofa Valley, and to its south flows Naḥal Zippori. Excavations conducted in the city over the last three decades, mainly by the Hebrew University team, suggest that Sepphoris in the 1st centuries BCE and CE stretched across its hill and slopes, when the city had a rural appearance lacking most of the typical Roman-style public buildings.[1]

The reshaping of Sepphoris and its newly acquired status as a Roman polis, replete with civic institutions, changed the face of this Galilean city after the Great Revolt against Rome and in subsequent eras. Owing to its newfound wealth and prosperous economy, Sepphoris grew significantly and its population reached a peak of 15 to 20 thousand inhabitants. Excavations conducted on the plateau east of the hill indicate that by the end of the 1st or early 2nd century the city had expanded eastward, boasting an impressive street network arranged in a grid, with a colonnaded *cardo* and *decumanus* intersecting at its center.[2] Designed according to Roman guidelines, public buildings and private dwellings sprung up throughout the city, including a temple, forum, bathhouses, a theater, a library or archive, and another building possibly to be identified as a basilica.

Salvage excavations and surveys in the areas outside the perimeters of the city yield important information about its hinterland, however the entire corpus of data has yet to be studied together with the rich material pertaining to Roman Sepphoris. This paper will piece together the data coming from both the city and the regions beyond its borders, and will offer some preliminary thoughts regarding Sepphoris's urban infrastructure and the relationship between the two.

Sepphoris urban infrastructure and the interurban roads

Located on a hilltop and overlooking the entire area, three main intercity roads, marked by inscribed milestones along their routes, brought traffic to and from Sepphoris. One road, running from Ptolemais (or Akko) to Sepphoris from the northwest, was apparently constructed during the Great Revolt; a second, built in 120 CE, ran from Legio (or Megiddo), the site of the Roman camp of Legio VI Ferrata, toward Sepphoris; and the third ran westward, from Tiberias to Sepphoris.[3] Only a few segments of these roads have been detected, but at some distance from Sepphoris itself, making it impossible to know where exactly these roads entered the city limits or how they converged with the main arteries passing through the densely built-up areas leading to

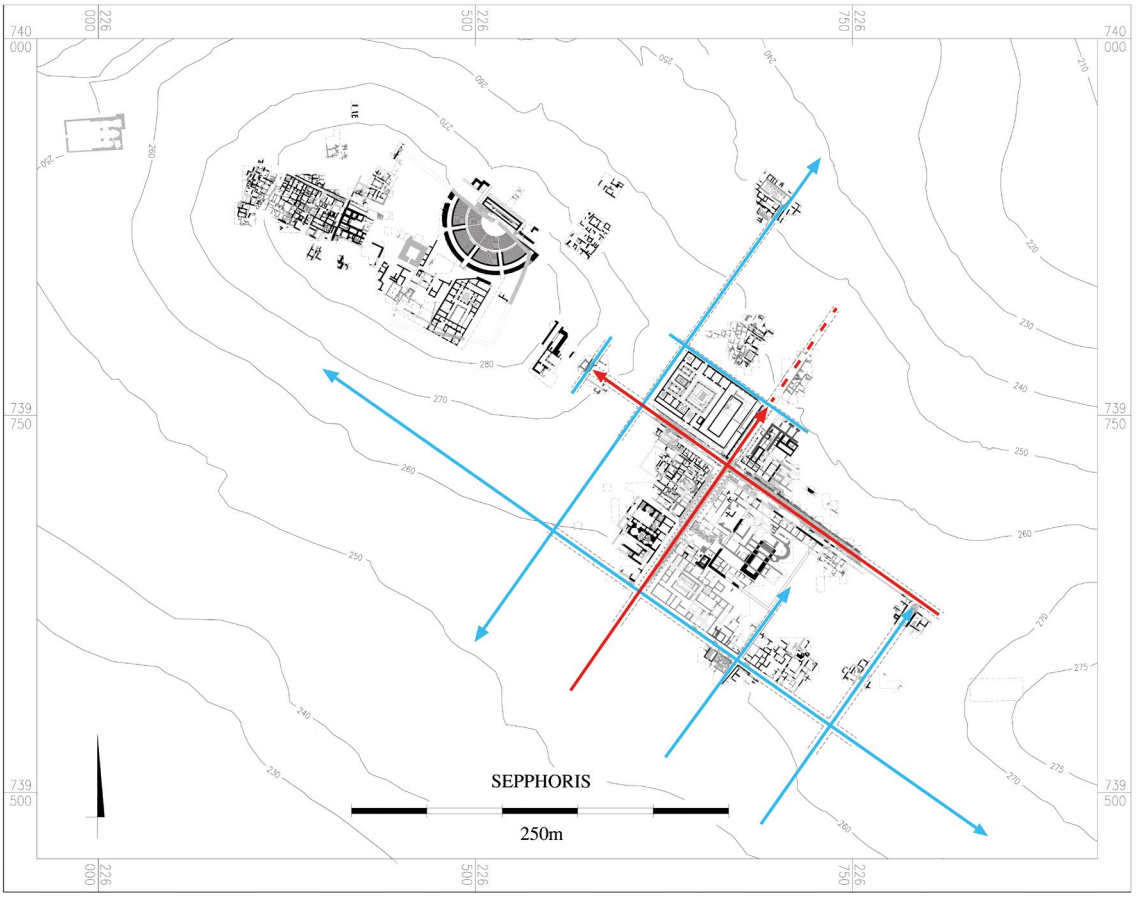

Fig. 1: Sepphoris street network indicating various traffic routes within the city.

the city's center. Theoretically, one may assume that these interurban roads connected with the two main colonnaded streets – the *cardo* and *decumanus* – and glorified Lower Sepphoris, where one could conceivably cross the city, from gate to gate – either from south to north or from east to west (and vice versa), as was the case in Scythopolis, for example.[4] An analysis of the street network in Lower Sepphoris and the probable traffic flow to and from the city may suggest that the link between Sepphoris and the interurban roads in Lower Galilee was slightly different than what transpired in other cities of Roman Palestine.

The impressive street network in the lower city, with the *cardo* and *decumanus* (measuring about 13 meters wide) intersecting at its center, includes five parallel streets on a north-south axis, and four streets on an east-west axis (fig. 1).[5] The orthogonal street network deviates by about 25 degrees in all four directions, but for our purposes I will refer to absolute directions.

The 300-or-so meters of the *decumanus* uncovered to date run from east to west across the lower city, reaching its western end at the foot of the hill. This street

may be associated with the main road mentioned in Rabbinic sources that ran from Tiberias through Sepphoris's fertile fields and eastern necropolis, and into the city.[6] In contrast, the 180 meter-long *cardo* exposed to date ran from south to north, and may well have connected with the road coming from Legio via Naḥal Zippori in the south, into Sepphoris' center.[7] The *cardo*, like the *decumanus*, did not extend much beyond the main intersection in the lower city. The northernmost section, beyond the forum, was covered with several plaster layers and not stone pavers, as elsewhere on the *cardo*, however the pottery collected in the course of our excavations suggests that this section of the street was most probably added in the Byzantine period. Furthermore, even if it could be argued that the later section was an earlier route, topographically the natural slope beyond this point descends sharply northward, so the *cardo* by no means could have run in this direction.

The streets running parallel and perpendicular to the *cardo* and *decumanus* have no colonnades or sidewalks. The street south of the *decumanus* seems to have crossed the breadth of the city, from east to west – in other words, from the fields beyond the saddle and past the dwellings on the southern edge of the hill. The two streets running east of and parallel to the *cardo* and from south to north up to the *decumanus* do not continue northward beyond this point.[8] In contrast, the street running west of and parallel to the *cardo* appears to have spanned the length of the city from south to north. Its southern section has not yet been excavated but seems to have continued into the valley south of the city, and its northern section, from the civic center to the synagogue, continued its path over a mild slope beyond the city limits.[9] Vestiges of this route can be seen in aerial photographs of the site that seem to continue northward in a straight line, beyond the synagogue and toward the ancient road in the Bet Netofa Valley. It is quite possible that a 50-meter section of a Roman road, ca. 1 kilometer north of the city, at the bottom of the hill and on the western edge of modern-day Hoshaya, is yet another branch of this route.[10] This road, or at least part of it, continued to be used by the villagers long after the decline of Sepphoris and probably until the village was abandoned in the mid-20th century, as attested by the stone walls and cacti lining both sides of the street leading to the synagogue.

A wider examination of the street network known to date in Roman Sepphoris and its possible connection with the interurban roads running to and from the city suggests that access to the built-up areas was possible from all four directions, but that the bulk of traffic seems to have used the eastern and southern routes (fig. 1). The colonnaded streets most probably connected with the far end of these interurban roads, somewhere on the outskirts of the city – the *decumanus* on the east and the *cardo* on the south – yet traffic into the city on both these routes was possible only up to the civic center. Access from the north was via one route only, whereas the other streets flanking the *cardo* and *decumanus* were open to traffic from the east and south, and flowed into various parts of the lower city. Most of

these streets probably connected with local roads leading to the farms, villas, and nearby villages in the fields outside the city. It is these secondary streets, not the colonnaded ones that crossed the city from north to south and from east to west. What becomes evident from exposing these streets in the lower city is that most of them were directed either to the east or south, indicating the direction of traffic and the interregional connections in antiquity.

Facilities and other structural elements beyond the city limits

In light of what is now known about the street network and its relationship to the hinterland and other connecting roads, mention should be made of other important finds that were found around Sepphoris within a radius of 1 or 2 km from the hilltop. Large-scale excavations were never conducted in the Sepphoris necropolis, however an analysis of the material available from salvage excavations, surveys, and random finds emerging from the site is ample for drawing some preliminary conclusions about the nature of the urban necropolis, it location, and relationship to the road infrastructure.

Clusters of several dozens of burial caves were found around the city, although only a few of them have been excavated and minimally published (fig. 2). Several caves and a mausoleum were discovered in the northwestern necropolis, however most of them were detected east, southeast, south, and southwest of the site.[11]

Burial in Sepphoris was carried out primarily in hewn caves containing either *loculi* or *arcosolia*, or both, and was less prevalent in mausolea.[12] Tombs with *loculi*, some of which were executed in very high quality, were found in several places around the site. *Arcosolia* hewn on two or three sides of a small room are recorded in the city's southeastern necropolis, but they take a variety of forms in a larger catacomb in the eastern necropolis, where the chambers appear to have been hewn in a row (fig. 3). The number of trough graves varies from place to place: some *arcosolia* are simple and contain only one trough grave, and other, expanded, arcosolia contain three to five such graves. *Kukhim* were added here as well, at times hewn beneath the *arcosolium* or into its back wall, behind the trough graves.

In most places, isolated tombs were either excavated or surveyed, so there is no way of knowing if they were part of a larger multi-chambered catacomb.[13] However, following the recent activity of antiquities robbers in the southwestern necropolis, the existence of larger catacombs has now come to light. Three burial chambers were detected around a square courtyard, and, by what we know today the entrance to the southern chamber had a doorframe with jambs and a decorated lintel (fig. 4).[14]

Burial in stone or clay sarcophagi is also evident in Sepphoris, as are ample remains of bones collected in stone or clay ossuaries after the 2nd century CE.[15] These were found inside several excavated tombs or scattered throughout the necropolis, and sometimes even embedded in the walls of the Crusader citadel.[16]

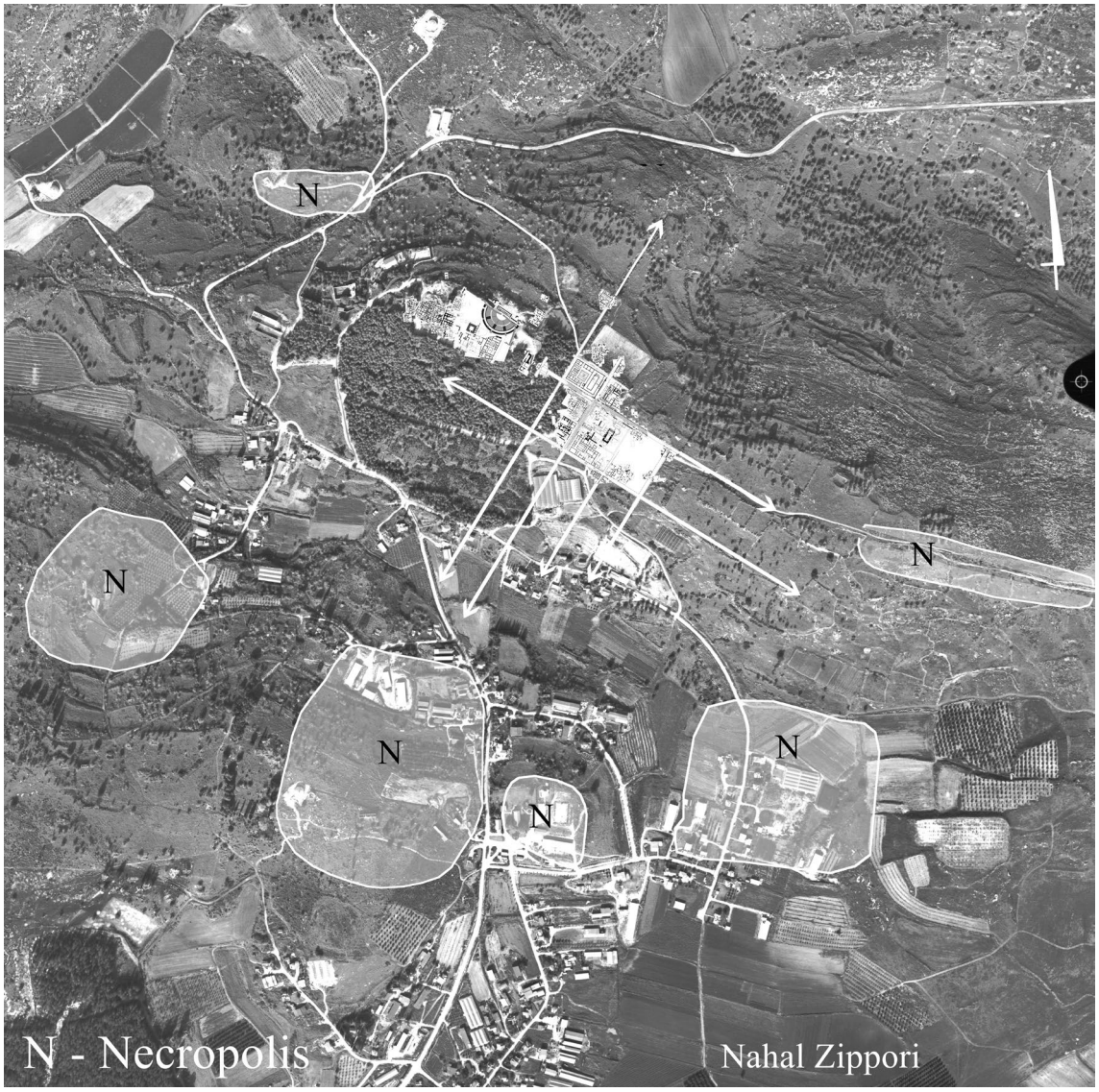

Fig. 2: Aerial photograph designating the cluster of tombs around Sepphoris and the connecting roads running to and from the city that passed through the necropoleis.

Sixteen burial inscriptions dated to the 3rd and 4th centuries CE mention the names of the interred in Sepphoris's ancient necropolis.[17] These inscriptions – either painted or carved on tomb walls and stone or marble plaques – are in Aramaic, Hebrew, and Greek, and some are even bilingual. Each mentions the burial place of an individual or a group of family members, and several also provide personal information about the deceased. Other finds attest to how the Sepphoreans decorated their burial places. The small open courtyard surrounded by burial chambers in the eastern necropolis seems to have a mosaic floor decorated with floral designs.[18] Various

Fig. 3: Chamber with arcosolia containing several trough graves inside a larger catacomb in the eastern necropolis at Sepphoris.

elements executed in low relief adorn the interior of some tombs or decorate several sarcophagi, and two marble tombstones feature a Jewish symbol, either a palm tree or a menorah.[19]

Although the finds from the Sepphoris necropolis are sparse, they nevertheless suggest, as I have argued elsewhere, that this cemetery is no less impressive and monumental than the one at Bet She'arim, perhaps even surpassing it.[20] It is characterized by quarried burial tombs and a mausoleum, decorated sarcophagi, clay coffins, ossuaries, and funerary inscriptions denoting the name of the interred, his title, and occupation in Hebrew, Aramaic, and Greek or a combination thereof. The necropolis stretches over an area extending east, south, and southwest of the city, and it is probable that the above-mentioned roads running to and from Sepphoris passed through it (fig. 2). One may assume that some tombs, especially the more elaborate ones owned by the urban elite, were located close to these roads, as was customary elsewhere in Galilee and at other sites in the region.[21] This is the case, for example, in the eastern necropolis, where some tombs were discovered close to the road leading westward, toward the city.

Other facilities were found around the site, near the necropolis or beyond it. Limestone, the most common building material in Roman Sepphoris, was locally

Fig. 4: Large catacomb with three burial chambers around a square courtyard in Sepphoris's southwestern necropolis.

quarried. In fact, one quarry was detected in the excavations conducted west of the summit, but it seems that most of the quarries used in Roman times were located outside the built-up areas and close to the necropolis.[22] One such quarry lies east of the site and north of the road leading into the city, more or less opposite the subterranean reservoir, and two others were uncovered in the southern necropolis located in the center of Moshav Zippori.[23]

Sepphoris received its water supply from two aqueducts originating in the springs of the villages of er-Reina and Mash'had, some 10 km east of the city.[24] These aqueducts converged into a single conduit and, once close to the city, again diverged on the eastern side of the saddle – the northern one flowed toward the Arches Reservoirs and the pool, both located north of the road leading into the city, while the southern one ran southward, to the subterranean reservoir.

The spring of 'En Zippori, located 2.4 km south of the site, was another water source, but its low location in Naḥal Zippori prevented the city from getting a steady water supply. A vaulted pool and several walls diverted water to the nearby fields

Fig. 5: Overview of the eastern rooms of the farmhouse located east of the site and south of the road running westward into the Lower City.

along Naḥal Zippori, some distance from the spring, and were indeed associated with the extensive agriculture that was once an important source of livelihood for the city.[25]

In addition to the agricultural activities conducted in Roman Sepphoris, there were two farmhouses on the outskirts of the city. One partially excavated unit, constructed in the 3rd century and destroyed in the fourth, is located 550 meters east of the site and south of the road running westward into the lower city.[26] It contains five rooms lying north and east of an open courtyard, as well as a nearby agricultural installation, most probably a wine press; various agricultural tools were also found in the debris of the farmhouse (fig. 5). The other unit, surveyed only a few years ago, lies approximately 1.5 km southwest of the site.[27] Traces of a white mosaic floor and some rock-cuttings are discernible beyond the wine press (fig. 6).

Other installations, including water pools, a columbarium, wine presses, a lime kiln, and rock-hewn ovens, were uncovered primarily south of the site, inside Moshav Zippori and along Naḥal Zippori.[28] These were used by the city's inhabitants, but theoretically could point to the existence of additional farmhouses scattered around Sepphoris's hinterland in antiquity.

Fig. 6: A winepress in the farmhouse located southwest of Sepphoris.

Conclusion

The finds presented above indicate a link between the road network running to and from Roman Sepphoris and the location of the city's necropoleis, pools, water systems, farmhouses, and other installations located east, south, and southwest of the city. The distribution of the roads and landmarks around the city is comparable to the evidence found in other cities and towns in Roman Palestine, where the roads leading to them passed through the necropoleis or ran close to quarries, reservoirs, and other installations. At Sepphoris, however, they seem to have been concentrated largely to the south and east.

It is difficult to know what dictated this reality. Did it begin with the early history of Sepphoris's settlement, and is it possible that some of the roads reflect routes in the region predating Roman times? Did it develop with the expansion of the city to the saddle east of the summit and the construction of the civic center there? Did the topographical differences between the north (having a slightly steep slope) and the south (having a moderate gradient) dictate the location of the access roads into the

city? Or did the type and quality of the rock in the area determine the location of the tombs and quarries? Alternatively, did the existence of fertile fields owned by the city's inhabitants dictate the location of the roads to and from the city? Whether one or more, or all, of these factors influenced the configuration of the city and its hinterland, Roman Sepphoris undoubtedly succeeded in maintaining its socio-religious, economic, and cultural ties with communities in its immediate vicinity, including those in the Bet Netofa Valley to its north such as Shiḥin. Judging by the city's street network, the conjectured roads running to and from it and the various facilities located in its vicinity, the interurban connections to and from Roman Sepphoris were directed primarily to the south and east. It is hoped that future excavations, surveys, and random finds will shed further light on Roman Sepphoris and its hinterland, and will either confirm, reject, or offer an alternative to our above analysis.

Notes

[1] Weiss 2007b, 392–407.

[2] Weiss 2015 and Weiss 2017, with references to earlier publications regarding this site.

[3] Roll 2009, 12*–13*.

[4] Tsafrir – Foerster 1997, 93–95; Weiss 2002, 223–230. The connection between the interurban roads and the street network is well attested in other cities of the Roman east and beyond; see Macdonald 1986, 5–31.

[5] Weiss 2015, 61–62.

[6] See, e.g., Leviticus Rabbah 16, 1 (Margulies 2003, 348). Traces of the road were detected in several places; see Shenhav 1984; Roll 1994, 39–40.

[7] Hecker 1961; Roll 2009, 12*–13*.

[8] Weiss 2007a, 225–229.

[9] Weiss 2005, 9–11.

[10] Covello-Paran – Tepper 2011.

[11] Aviam – Amitai 2014, 4–12; Weiss forthcoming.

[12] Weiss – Netzer 1996, 35–36.

[13] See, e.g., Druks 2005.

[14] The cave was visited in July 2016 with Michal Peleg, inspector of the Israel Antiquities Authority.

[15] Gal et al. 2002, 147–149.

[16] Waterman 1937, 5 pl. III, 2.

[17] Naveh 2005; Aviam – Amitai 2014, 9–12.

[18] Tsuk 1995, 75–76.

[19] Weiss and Netzer 1996, 35 fig. 13; Waterman 1937, 5 pl. III; Sukenik 1945–1946; Naveh 2005, 113*.

[20] Weiss unpublished.

[21] Weiss 1994, 237–240.

[22] Meyers – Meyers – Gordon 2018, 18.

[23] Porath 2010; Gur 2014; Raban – Shemesh 2016, site no. 15.

[24] Tsuk 2002; Tsuk 2011.

[25] Zidan 2014.

[26] Weiss 2003.

[27] Unpublished. The site was visited in July 2010.

[28] Porath 2009; Porath 2010; Tepper 2013; Zidan 2015.

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The Chora of Gerasa/Jerash

Achim Lichtenberger – Rubina Raja

Introduction

The city of Gerasa is situated in the fertile hill country of northwestern Jordan (fig. 1).[1] It was founded in the 2nd century BCE, as "Antioch on the *Chrysorrhoas*, the former Gerasa" and flourished in the Roman, Byzantine and Early Islamic periods until it was destroyed by an earthquake in 749 CE.[2] Subsequently the city was largely abandoned and reduced immensely in scale.

Gerasa belonged to the Decapolis, a term of the Roman period, covering nominally only a group of cities located in what today is modern day southern Syria, Jordan and Israel.[3] These cities, including Gerasa, displayed profound Greco-Roman urban layouts and were modelled on the Greek *polis* model (fig. 2).[4] The *poleis* of the Decapolis – as other Roman cities in the Greek east – had autonomous administrations with civic institutions and a territory (*chora*) with clearly marked boundaries.[5] Some of the territories were quite large and not static, but changed over time. Within the territories, villages and hamlets were situated and these settlements were administered by the cities, and the inhabitants of the hinterland counted as citizens of the respective cities. These territories, the hinterlands, were the economic backbones of the cities, which relied heavily on agricultural production.[6] Often the territories concurred with the actual topography of the land, where rivers, wadis as well as mountain or hill ranges acted as natural limits.[7]

To determine the size of city-territories in the southern Levant, a combination of sources must be taken into consideration. Literary sources such as Eusebius and Jerome sometimes mention villages and places belonging to a specific city. Also Josephus occasionally refers to villages as belonging to specific cities. These mentions, however, occur by chance, and the ancient authors were not interested in a systematic description of city territories. Sometimes they were concerned with biblical topography for example and therefore describe circumstances rather anachronistically. Another important group of evidence are the epigraphic sources. In past scholarship, Roman milestones were used to determine the extent of city territories.[8] Since they mention the distance of the milestone to or from a city, it has been postulated that this positioning indicates an administrative belonging to the city. However, it has become obvious that this is not a reliable methodological approach and therefore, it is not used any more as a determining criterion for measuring the hinterland's extent. More reliable for the determination of city territories are inscriptions, which use specific dating eras. Each city had its own era. In the Decapolis region most cities had an era, which went back to the Roman conquest by Pompey the Great in 64/63 BCE.[9] When Trajan established the province of Arabia in 106 CE, non-Decapolis cities in the region belonging to this province used an era starting in 106 CE. Therefore, dated inscriptions found in villages

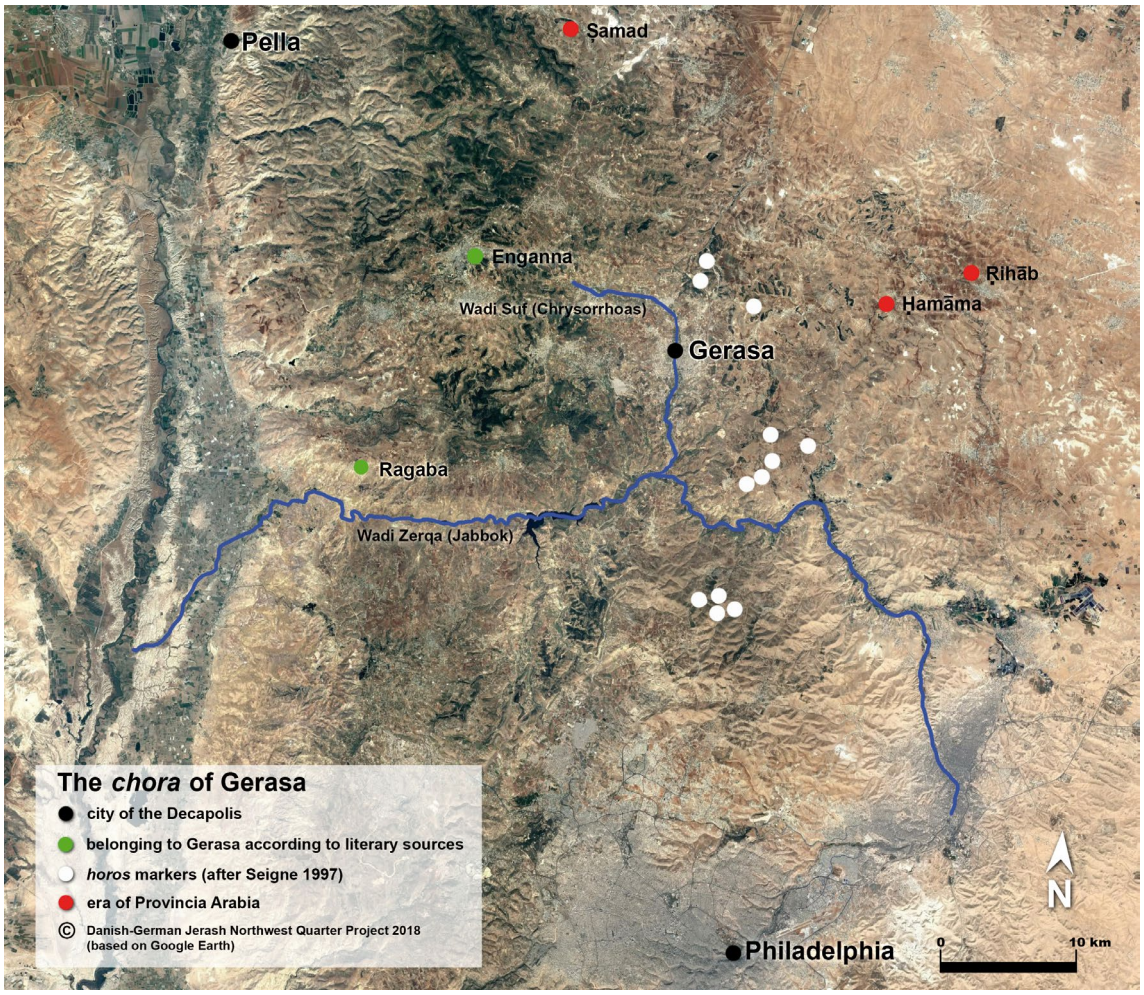

Fig. 1: Map of hinterland of Gerasa.

can help to decide whether a particular village belonged to a city of the Decapolis or to the province of Arabia. And finally, in rare cases so-called '*horos* markers', inscriptions that outline the territory of a city, help to establish the size of a given city's hinterland. Such inscriptions are extremely rare, but in the case of Gerasa, some are available and provide good evidence for borders.[10]

The limits of the *chora*

Since we must assume that all the fertile land in the region belonged to cities during the Roman period, the borders of the *chora* of Gerasa are also defined by the borders of the other Greco-Roman cities adjoining the territory of Gerasa.[11] To the south, Philadelphia is generally assumed to be the next *polis*, and until '*horos* markers' were

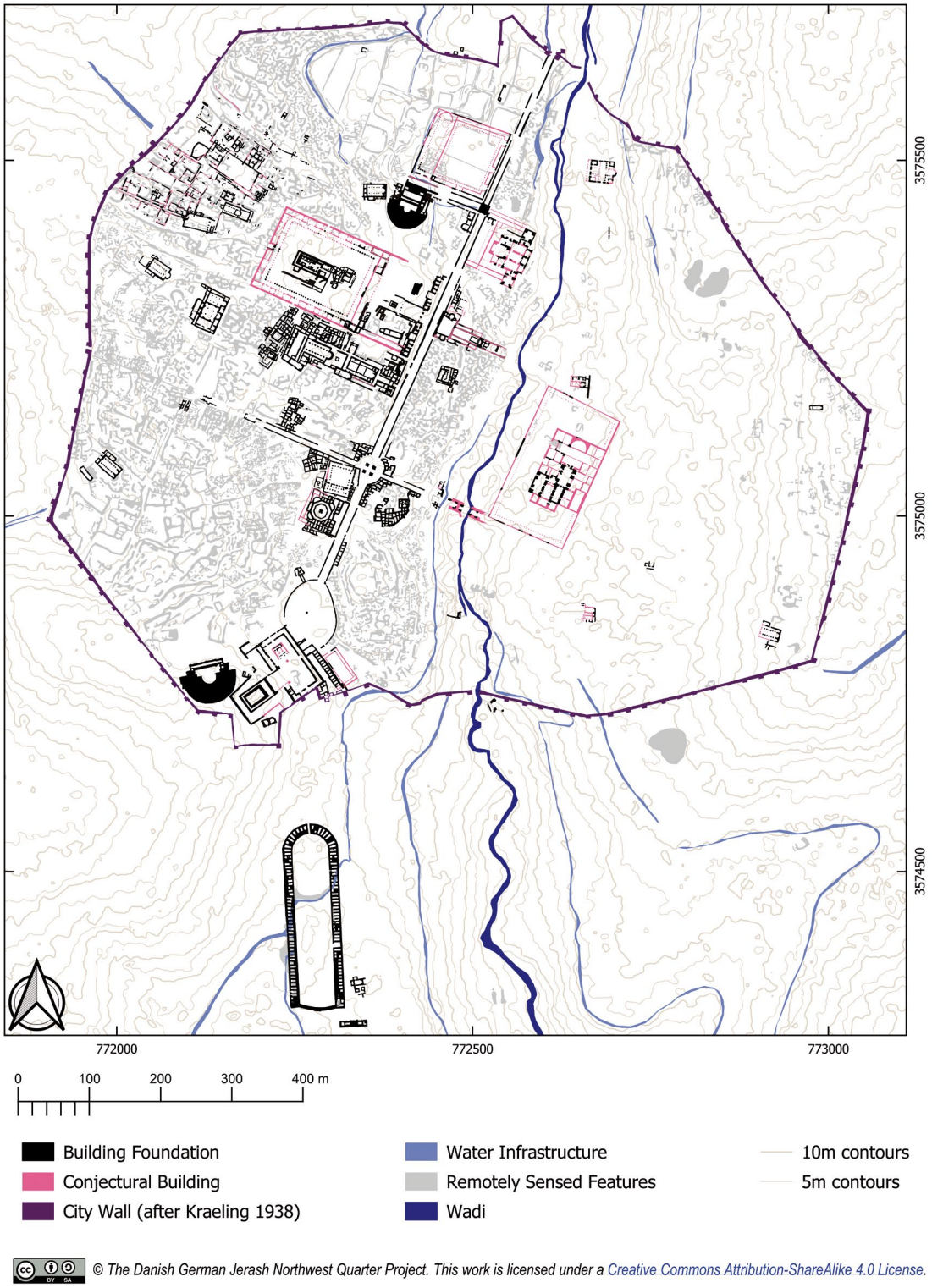

Fig. 2: Map of Gerasa.

Fig. 3: Springs of the river *Chrysorrhoas* at Suf.

found, it was generally accepted that the Wadi Zerqa was the border between the two territories.[12] To the west, Gerasa bordered with the Jewish Peraia, and Ragaba is attested to have been a fortress settlement within the territory of Gerasa.[13] In the north, Pella and the territories of other northern Decapolis cities or of a city from the province Arabia (Samad) must have been the limit of Gerasa's territory, although natural borders are not easily recognizable.[14] To the east, the watershed and the transition zone to the desert would have constituted a natural border, and indeed, the modern villages of Rihab and Hamama have yielded inscriptions that are dated according to the era of the province Arabia, proving that these places belonged to a city which did not use the Pompeian era, and therefore definitely did not belong to Gerasa, who used it.[15]

On the basis of this general description and summary of the known evidence, we can roughly outline the territory of Gerasa.

The '*horos* markers' that were found by Jacques Seigne in the territory of Gerasa help to get a more precise picture of the territory of Gerasa.[16] These markers consist of Greek inscriptions cut into bedrock in different locations marking the PO(lis) GE(rasenon) ("city of the Gerasenians"). Find spots north and east of Gerasa show that the territory of the city probably did not extend far into the transition zone towards the desert but was restricted to the area of the so-called 'Jerash-basin' around the river *Chrysorrhoas*. However, it is remarkable that the '*horos* markers' also extend to the south of the Wadi Zerqa, an area that earlier was assumed to have belonged to the city of Philadelphia. It is clear through the '*horos* markers', that Gerasa also owned territory south of Wadi Zerqa, although by now we do not know how far west along the southern bank of the river this territory extended.

Gerasa was part of the extensive Roman imperial infrastructural system. Due to Roman milestones and physical evidence of actual Roman period roads, several roads connecting Gerasa with other cities of the Decapolis are well attested.[17]

The river *Chrysorrhoas*

Situated in the center of the *chora* of Gerasa was the river *Chrysorrhoas*, today called Wadi Jerash and/or Wadi Suf.[18] This river, which crossed the civic center of Gerasa, was even integrated into the name of the city. When the city was founded in the 2nd century BCE by the Seleucids, the city was named "Antioch on the *Chrysorrhoas*". Also in later periods the river figured prominently in the images projecting the civic identity of the city, representing the river that also was venerated as a deity – a common Hellenistic and Roman tradition. The urban fabric of the city center was also heavily shaped by the river, which literally cut the city into two parts – an eastern and a western part. Several bridges were therefore needed to cross from one side of the city to the other.

The river had its main springs at a village, today called Suf, about 6 km northwest of Gerasa – as well as the catchment basin further north – from where it flowed towards the city (fig. 3). After leaving the city walls, the river continued for about another 6 km to the south and flowed into the Wadi Zarqa. Especially the upper part of the wadi – between Gerasa and modern Suf – was and is fertile and rich in water and soils. This area was managed through terraces (fig. 4). It is this area of the upper wadi, which probably is mentioned in a Roman period inscription located in the northern theater in Gerasa. This inscription speaks about the "gardeners of the upper valley" and it is remarkable that these gardeners formed an association,[19] underlining the fact that they were no ordinary gardeners but rather landowners, who had their fertile lands in the territory of the city. This underlines the agricultural significance of the valley of the *Chrysorrhoas*, and it shows how the agricultural structures of the hinterland impacted the social organization of Gerasa. It is testimony for the city-hinterland relationship, a relationship in which the hinterland not necessarily was marginalized but fully participated in the socio-political life of the urban center.

Fig. 4: Modern terraces in Wadi Suf.

Villages, hamlets, forts, sanctuaries, quarries and water supply

Hitherto, the settlement structure of the hinterland of Gerasa has not been systematically investigated, although much detailed work has already been done.

D. Kennedy and F. Baker surveyed the immediate surroundings of the city and documented numerous single sites and also the deterioration of these sites, mostly due to modern construction work.[20] What is lacking, however, is a general study of the overall settlement structure of the hinterland of Gerasa.[21] The most comprehensive study was done by Kennedy in 2004, who compiled previous surveys, but mostly restricted himself to a quantitative count of sites and not a qualitative interpretation of settlement structures.[22] What is clear, however, from his study – taking into account the work done very early by Nelson Glueck and Siegfried Mittmann – is that there are numerous ancient sites located in the *chora* of Gerasa.[23] Most of them are described only as sites with pottery and some ruins. Still, these early surveyors found notable settlement remains in numerous locations including Tell Faysal,[24] Khirbet Ain Shara,[25] Khirbet el-Bediye,[26] Khirbet el-Msherfe,[27] Khirbet wl-Mrabba,[28] Khirbet Safsafa,[29] Suf,[30] Der Amud,[31] Rugm,[32] Khirbet es-Sabata,[33] Khirbet Zuqrit,[34] Qasr Sabihi,[35] Hele,[36] Chlal,[37] Ras el-Qwem,[38] Mesar Tokh,[39] Khirbet Abu Harasi,[40] Mehbethah,[41] Chatla,[42] Medwar,[43] Khirbet el-Qre,[44] el-Hute,[45] Geba[46] and Khirbet Qurei.[47] It is difficult to gain a clear

Fig. 5: Pools at Birketein.

picture of the nature of these settlements but chronologically they usually range from the Hellenistic to early Islamic periods, with a middle Islamic resettlement period as well. The character of the sites is difficult to determine, since we usually do not know whether they only were small hamlets such as the villas discussed by Sapin[48] or large villages including several structures. Some of the sites have remains of houses, tombs, cisterns, oil presses and churches. It would certainly be worthwhile to investigate these sites further in the future, especially since Glueck and Mittmann did not undertake systematic intensive surveys but extensive surveys, covering points of interest.[49] A more systematic survey has been undertaken along the road from Jerash to al-Husn,[50] but an intensive survey of a larger area of the *chora* of Gerasa is still lacking.

Some of the sites, such as Ragaba at the eastern end of the *chora*, had a fortificative function, as attested by literary sources.[51] Among the known sites within the *chora* of Gerasa, there are also rural, extra-urban sanctuaries attested at Birketein (fig. 5)[52] and Mehbethah.[53] The latter is hardly known or investigated. Furthermore, some of the sites in the immediate vicinity of the city center are quarries, and the stones were used for constructing the monuments of Gerasa.[54] Other infrastructural installations are water pipes and channels leading to the city center. Some of them led from the spring area in Suf to Gerasa, and in recent years a lot of progress has been made about the water supply of Gerasa due to the work of D. Boyer[55] and the application of LIDAR data and historical air photography analysis (fig. 6).[56]

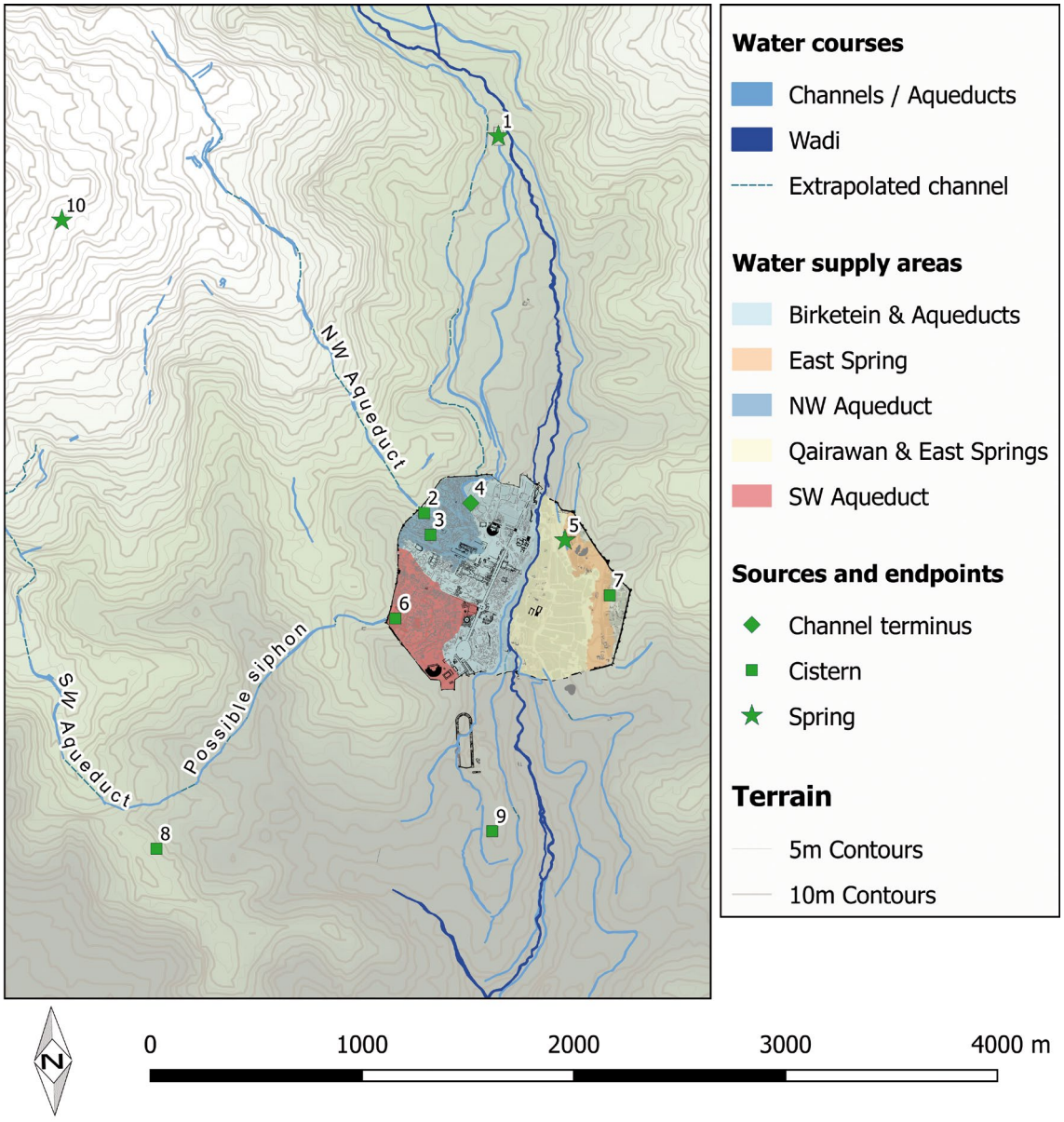

Fig. 6: Water supply system at Gerasa.

Suburban Gerasa

The city of Gerasa was enclosed by city walls, which walled an area of approx. 84 hectares.[57] Gates at various points in the walls provided access to the city. These walls and gates were clear limits between the city's core and the territory outside. However, also immediately outside the city, monuments were erected, and these monuments were directly related to the city. As in most Greco-Roman cities, *necropoleis* were located

Fig. 7: The so-called 'Hadrian's Arch'.

outside the city and this is also true for Gerasa, were tombs lined the streets leading to and from the city.[58] Many of these tombs have been documented. They mostly count *hypogaea*, underground tomb chambers, but also some monuments located above ground have been investigated. Such tombs not only lined the roads outside the city, but they were found also beyond the roads all around the city. This extra-urban area was surveyed by David Kennedy and his team and they not only found tombs in the immediate vicinity of Gerasa but also agricultural installations such as oil presses and basins.[59] This mix of structures underlines that although the world of the dead was separated from the settlement by the city walls, there was not a sharp division between graves and production sites, and that agricultural and economic activities took place close to burial grounds.

Other monumental structures were also erected in the suburbs of Gerasa. The most impressive monuments are visible when entering the city from the south. A monumental gate (the so-called 'Hadrians Arch') was built approx. 250 m south of the south gate. This gate was purely representative and served as an honorific monument (fig. 7).[60] It was constructed on the occasion of the visit of Hadrian in 129/30 CE and welcomed visitors from the south and marked their vicinity to the city center. Similar extra-mural gates were also built in other places of the region such as Gadara.

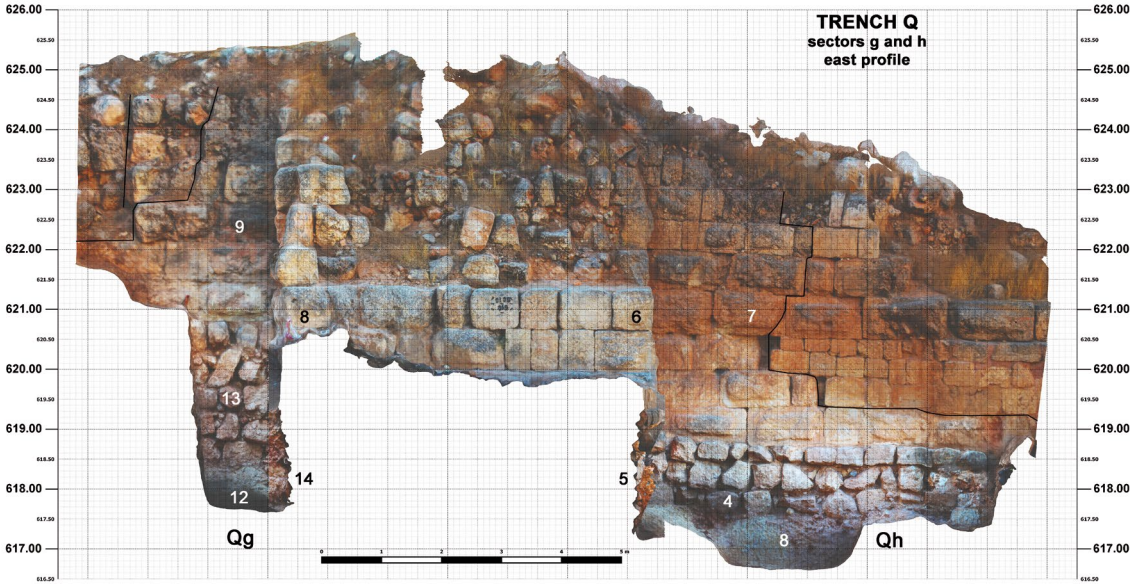

Fig. 8: Beam holes at the outer face of the city walls.

Between 'Hadrians Arch' and the south gate of the city another suburban monument was constructed. This monument, the hippodrome, is one of the largest in Gerasa.[61] The hippodrome was constructed in this location most likely because this was the only suitable flat area for such a large monument in close vicinity of the city center. After the hippodrome fell out of use, which it did soon after it was constructed, in the late Roman period, it was used for burials and for workshops – a fact which again underlines that a sharp division between the world of the dead and the living did not apply to the liminal suburban zone in antiquity in this region. In the Byzantine period, chapels and churches were erected there as well.

Due to encroachment of the modern city of Jerash, we only have little information about other structures situated immediately outside the city walls, but recently an octagonal Byzantine church was unearthed outside the north gate.[62]

There is, however, also a substantial amount of ephemeral architecture along the outside of the city walls of Gerasa. When the walls collapsed in the earthquake of 749 CE, the lower parts of the outer faces were buried. Whenever excavations uncover the outer faces, beam holes and seams are found along the walls, hinting at sheds, roofs or other ephemeral constructions along the outside of the walls. These structures have not yet been investigated, but during the excavations in the northwest quarter done by the Danish-German Jerash Northwest Quarter Project, we documented such beam holes in trench Q (fig. 8). It is, however, difficult to date such structures, but due to their locations we can assume that they antedate the earthquake and relate to ephemeral constructions.

Epilogue

Although extensive and intensive archaeological field survey has taken place in the hinterland of Gerasa, a systematic study of the *chora* still remains a research desideratum. Outside the city walls of Gerasa different zones of hinterland occupation can be traced spanning from urban structures in immediate proximity to the walls over infrastructurally important sites in the vicinity that served for quarrying and water supply to forts at the borders of the territory. There is a variety of locations related to agricultural production within the hinterland, and as David Kennedy and others have emphasized, it would be worthwhile to undertake a systematic investigation of the whole hinterland, to better understand the economic resources of the city. This paper is only a modest summary of some of these features and has demonstrated that very differing sources must be brought together if we want to understand the extent and nature of Gerasa's *chora* in detail.

Notes

[1] Kraeling 1938; Zayadine 1986; Kennedy 2007; Lichtenberger – Raja 2018a.

[2] On the earthquake and the consequences cf. Lichtenberger – Raja 2019 with further bibliography.

[3] On the term "Decapolis" in history cf. Lichtenberger 2003, 6–20.

[4] Raja 2012, 137–189.

[5] In the following cf. Avi-Yonah 1977, 127–129; Isaac – Roll 1982, 11 f. Kennedy 2004 takes a different approach to determining the city territory.

[6] Tietz 2015.

[7] On Gerasa in a regional and geographical setting, see most prominently Kennedy 1998; Kennedy 2004; Kennedy 2007.

[8] Lichtenberger 2003, 29 note 27.

[9] Stein 1990.

[10] Seigne 1997.

[11] On the chora of Gerasa cf. Avi-Yonah 1977, 175–177; Lichtenberger 2003, 194 f.

[12] Euseb. On. 102, 19–22. See e.g. the map by Bietenhard 1977.

[13] Ios. ant. Iud. 13, 398. Cf. Mittmann 1987; Lichtenberger 2003, 195 note 1730.

[14] Lichtenberger 2003, 194.

[15] Avi-Yonah 1977, 175 f.; Lichtenberger 2003, 194.

[16] Seigne 1997.

[17] Mittmann 1964; Rasson-Seigne – Seigne 1995; Sapin 1998, 125–133.

[18] Cf. in the following Lichtenberger – Raja 2016; Lichtenberger – Raja 2018b.

[19] Gatier 1985, 310–312; Lichtenberger – Raja 2016, 110 f.; Seigne 2004, 176.

[20] Kennedy – Baker 2009; Baker – Kennedy 2011.

[21] For prehistoric sites, cf. Kirkbride 1958 and Hanbury-Tenison 1987, as well as the site catalogues of Glueck 1945–1949 and Mittmann 1970.

[22] Kennedy 2004. Another compilation of previous surveys was done by el-Khouri 2009.

[23] Glueck 1945–1949, 57–89. 231–235; Mittmann 1970, 73–119 nos. 176–310. See also Augustinovic – Bagatti 1951.

[24] Palumbo et al. 1993.

[25] Mittmann 1970, 73 no. 178.

[26] Mittmann 1970, 84 no. 209.

[27] Mittmann 1970, 85 no. 211.

[28] Mittmann 1970, 86 no. 214.

[29] Mittmann 1970, 93 no. 234.

[30] Mittmann 1970, 95 no. 240.

[31] Mittmann 1970, 97 no. 248.

[32] Glueck 1945–1949, 66 f. no. 278; Mittmann 1970, 99 no. 254.

[33] Mittmann 1970, 100 no. 258.

[34] Mittmann 1970, 100 no. 257; Smadi – Melhem 1997.

[35] Mittmann 1970, 102 no. 265.

[36] Mittmann 1970, 103 no. 268.

[37] Mittmann 1970, 105 f. no. 277.

[38] Mittmann 1970, 108 no. 282.

[39] Glueck 1945–1949, 68 f. no. 284.

[40] Glueck 1945–1949, 69 no. 285.

[41] Glueck 1945–1949, 89 no. 266.

[42] Mittmann 1970, 115 f. no. 302.

[43] Mittmann 1970, 116 no. 303.

[44] Mittmann 1970, 117 f. no. 306; Sapin 1998, 118.

[45] Mittmann 1970, 118 no. 307.

[46] Mittmann 1970, 119 no. 309.

[47] Leonard Jr. 1987, 369–373.

[48] Sapin 1998, 118–120.

[49] See also Kennedy 2004.

[50] Leonard Jr. 1987; Palumbo et al. 1993.

[51] See above note 13. See also the structure at Tell Faysal (Palmubo et al. 1993) which is interpreted by the excavators as a fort, but which also could have been an agricultural estate.

[52] Lichtenberger 2003, 214–219.

[53] Glueck 1945–1949, 89 no. 266.

[54] On the quarries cf. Hamarneh – Abu-Jaber 2013.

[55] Boyer 2016.

[56] Stott et al. 2018.

[57] Lichtenberger 2003, 193 note 1703.

[58] For the most recent survey cf. Pogoda 2018.

[59] Kennedy – Baker 2009; Baker – Kennedy 2011.

[60] Bührig 2008.

[61] Lichtenberger 2003, 194 note 1710.

[62] Michel 2001, 274 no. 98.

Image Credits

Fig. 1–8: The Danish-German Jerash Northwest Quarter Project.

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A Cultural Landscape Characterization of the Petraean Hinterland in Nabataean-Roman Times: An Overview

Will M. Kennedy

Researching Petra's rural environs is highly crucial for understanding the complex history and development of the city itself – particularly when considering the geostrategic disadvantageous positioning of Petra.[1] Situated in a steep valley, Petra's location is extremely vulnerable to both devastating flash floods and drought, rendering the control of its water sources and water flow absolutely vital. Surrounded by high mountain ranges, military control of the city and its environs was only possible through use of a well-functioning communication system with its hinterland and organization of the landscape around the city in general. Specifically, the increasing monumentalization of Petra as a capital in the course of the 1st century BCE and the shift from a nomadic lifestyle of the Nabataeans to a more "state-like" organization[2] required increased technological and infrastructural efforts in order to secure a comfortable and safe living environment not only in Petra itself, but also in the city's hinterland – an aspect that, compared to the extensive archaeological explorations in Petra's urban environs, was so far heavily underresearched.

The aim of this paper is therefore to give a brief summary of the author's recently completed doctoral research which provided an extensive archaeological landscape characterization of Petra's rural environs offering new insights into overall strategies of spatial organization of the city's hinterland. From a diachronic perspective and following a state-of-the-art landscape archaeological approach, a vast amount of archaeological data was investigated in order to discuss various aspects of rural life in Petra's surroundings.[3]

The core archaeological dataset is based on 14 archaeological surveys that have been carried out in the Petra area since the 1970s – all of varying intensities and geographical extent, but providing important spatial and archaeological information on rural Petra.[4]

Although significantly less data was available than is considered here, recent studies have already synchronized the archaeological data of preselected surveys in the Petra hinterland. However, these concentrate mainly on rural civilian settlements and changes in land use only.[5] Therefore, an overall in-depth archaeological and culture-historical contextualization of the now almost overwhelming amount of various archaeological sites recorded in the Petra area remains missing.

Methodology

Following P. Kouki's definition of the Petra hinterland, the study area is understood as a 20 km radius around Petra covering a vast geographical area measuring over 1,250 km^2

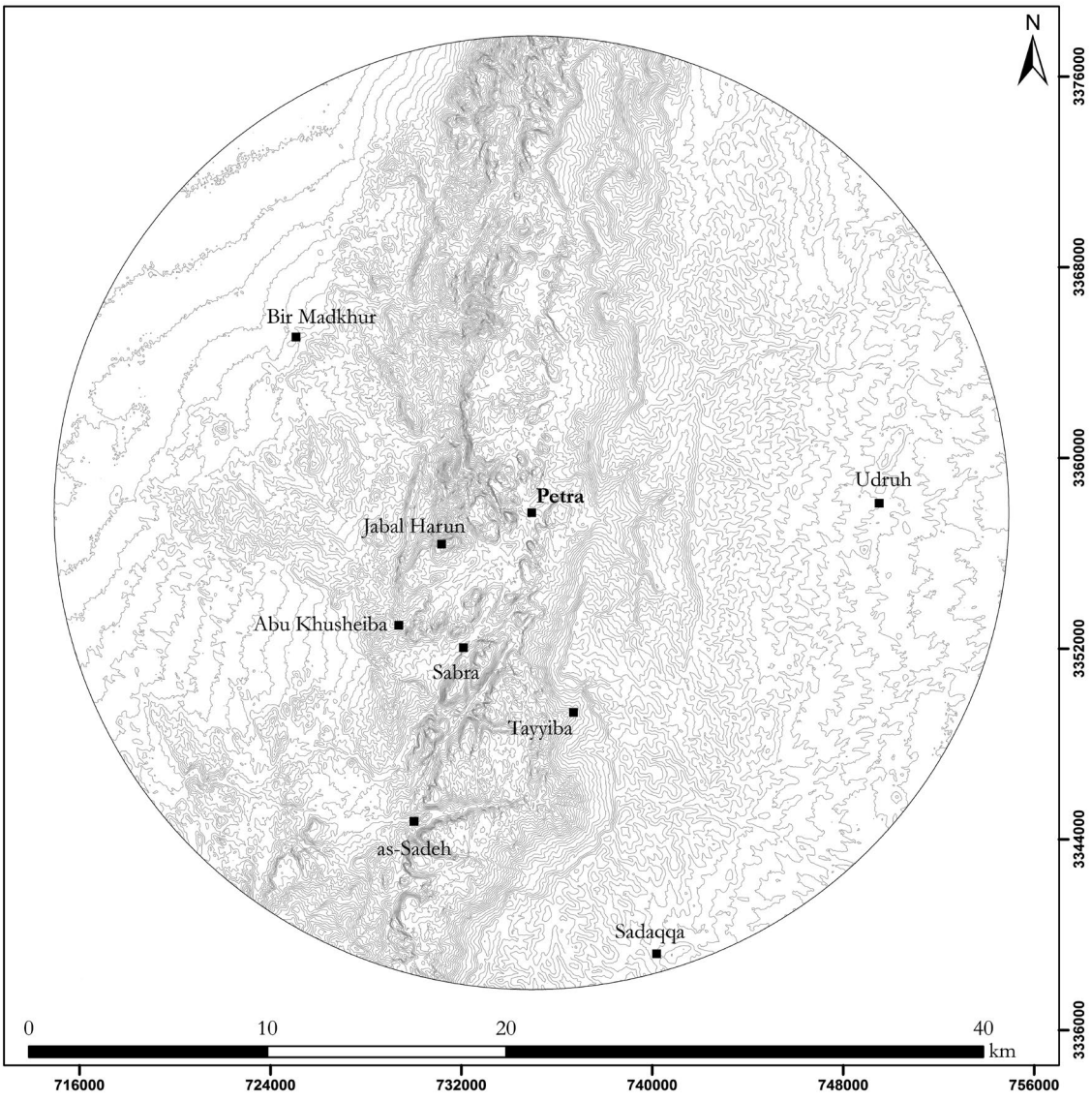

Fig. 1a: Map of study area (20 km around Petra) with major sites in the region.

and featuring all unique topographical and environmental characteristics of the Petra region (fig. 1a and b).[6] The study area includes an extremely large archaeological dataset of over 1,700 sites.

Methodologically, the vast amount of archaeological data validates the substantial use of complex and quantitative spatial methodologies including GIS-based cost-surface and visibility analyses as well as the spatial statistical method of *point pattern analysis* that objectively delineates, characterizes and evaluates explicit processes that may have caused particular spatial distributions of archaeological sites. This includes density-based approaches such as *kernel density estimations* or

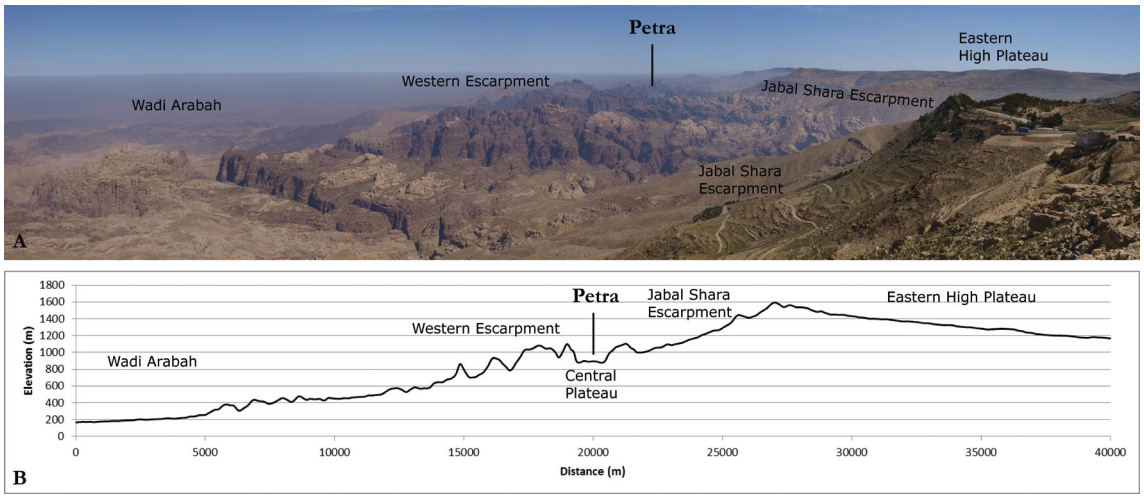

Fig. 1b: Overview of the Petra region with E–W elevation profile.

the statistical *Pearson correlation* test as well as distance-based evaluations in order to discern conspicuous point clusters.[7]

These landscape archaeological analyses were employed critically as useful quantitative tools for investigating intricate spatial characteristics of the available archaeological dataset and for studying the relationship between the various archaeological sites and the natural landscape in order to supplement farther-reaching archaeological and culture-historical discussions.

Before being able to conduct the aforementioned analyses, however, it was necessary to address two major methodological challenges. Specifically, these were the differing archaeological site typologies as well as the chronological uncertainties inherent to the original survey data.[8] The clarification of these core methodological issues was crucially important for assessing the interpretative and argumentative basis of the study.

Concerning the differing site typologies, the detailed evaluation of the original survey data has shown that even from the few surveys that do offer at least some indication of their defined site classes, almost 800 differing site types (nearly half of this study's entire dataset) were worked out. Of these, there is no indication whether they were recorded as the same site type following comparable definitions or not. In consequence, the original site typological information provided by the various surveys were largely unsuitable for a comparative approach and necessitated a critical reassessment of all available archaeological information for each recorded site. Moreover, and more importantly, this called for the establishment of a new, rigid and strictly structured site classification system based on generally acknowledged site typological definitions fitted to the archaeological particularities of the Petra region.

It then also became apparent that the original dating of archaeological sites do not follow a coherent and standardized chronological system. While there is a general

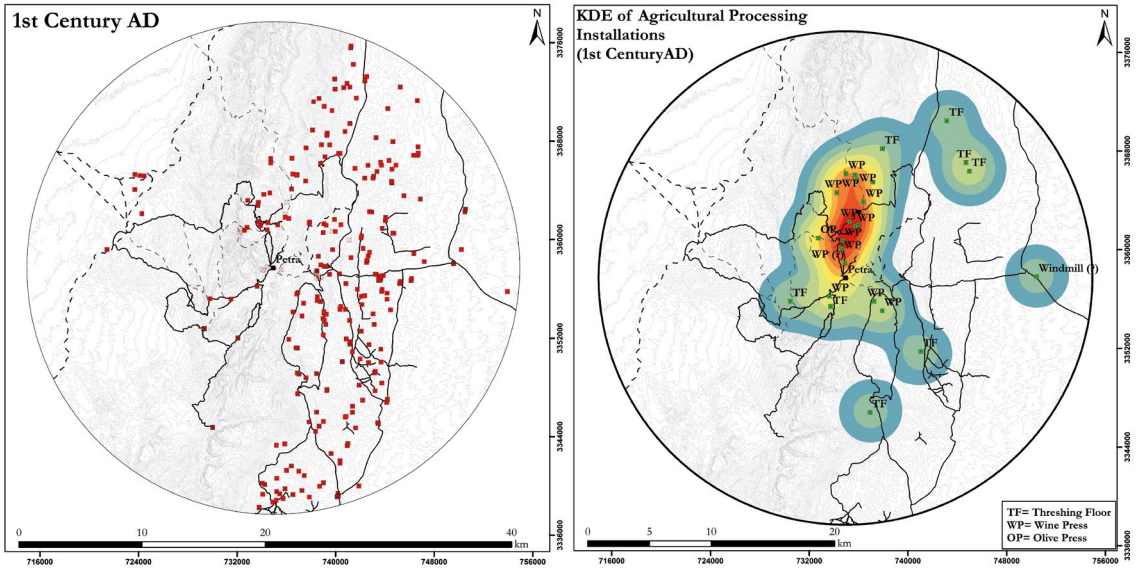

Fig. 2: Left: Distribution maps of rural civilian settlements dating to the 1st century CE. Right: Cluster analysis (kernel density estimation) of agricultural processing installations evidenced in the Petra hinterland for the 1st century CE.

agreement on culturally defined time periods, the chronological definition of these periods by the different surveys can vary significantly – if they are defined at all. This is a methodological issue that renders any diachronic analysis highly problematic if not approached from the beginning. By means of statistical calculations, it was therefore necessary to establish a quantifiable chronological system respecting the differing datings of sites. The dating uncertainties inherent to the original survey reports were thus made transparent and, on this basis, it was possible to further investigate the data recorded in the Petra hinterland by century-based intervals.

Concluding this brief methodological prelude, the following presents the most significant insights gained into the landscape organization of the Petra hinterland during the Nabataean period.

Economy, Infrastructure and Trade

Concerning the pattern of rural settlements, an overall increase was observed from the 10th century BCE onwards that may correspond to the rising Edomite kingdom, with settlements concentrating along the Jabal Shara escarpment and eastern high plateau. However, by the 5th century BCE an extremely dramatic decrease of settlements is noted that possibly reflects the political vacuum and overall instability of the area after the collapse of the Edomite kingdom.

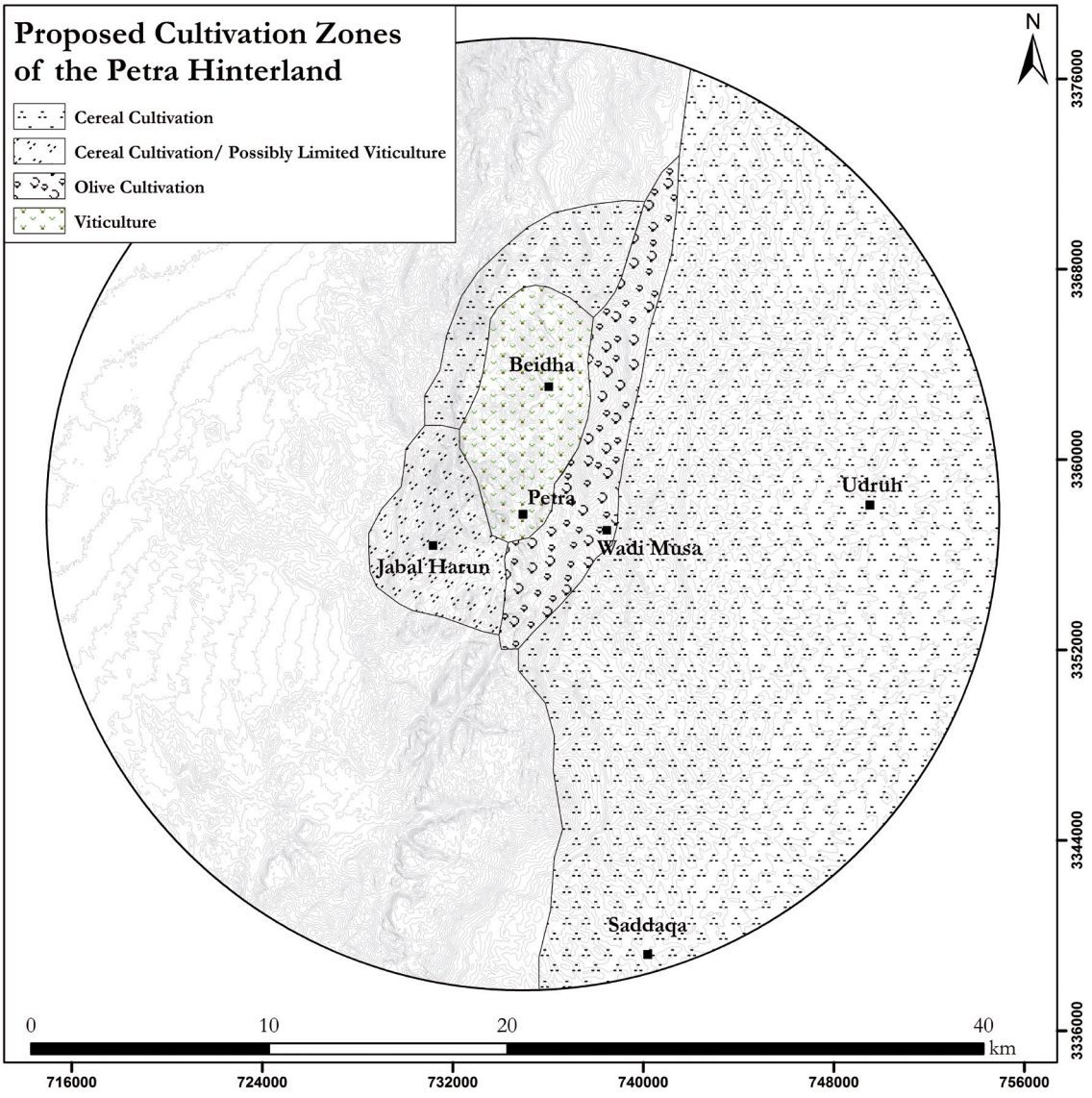

Fig. 3: Suggestive cultivation zones of the Petra hinterland.

It is only by the 1st century BCE and most dominantly by the 1st century CE (fig. 2) that an explosive increase in the overall count of rural settlements in the Petraean hinterland is evidenced corresponding to the Nabataean sedentarization process and increasing need for agricultural goods to meet the demands of heightened trade activities and a growing urban and rural population.[9] Particularly the striking increase of farms suggests that the main economic subsistence strategy in Petra's hinterland was based on agriculture.

A similar trend was also observed for the evidenced agricultural installations: Particularly agricultural terraces, wine and olive presses as well as threshing floors peak during the 1st century CE as well (fig. 2). Not only does this confirm a largely

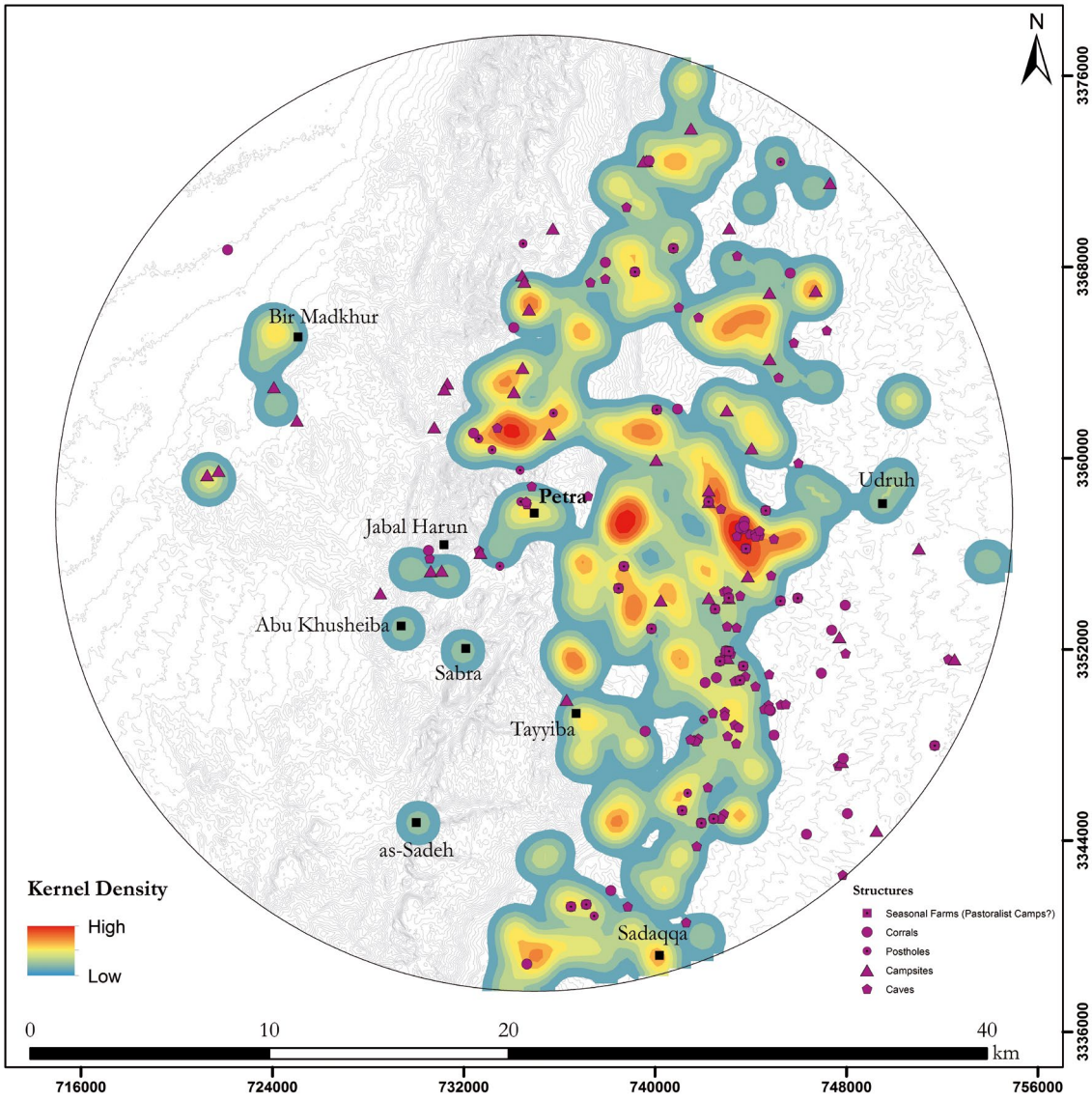

Fig. 4: Distribution map of structures possibly pertaining to a pastoral lifestyle in the Petra hinterland laid over the kernel density estimation of rural civilian settlements dating to the 1st century CE.

agriculture-based rural society, but it could also be shown that, as early as the 1st century BCE, run-off cultivation was predominantly practiced along the slopes of the extended Jabal Harun area, the al-Begh'ah plain in the Beidha area as well as in the ad-Thankia region. There is now a solid argumentative basis for claiming that these regions were mostly used for viticulture as evidenced by the numerous wine presses, while the threshing floors recorded along the eastern high plateau suggest that this area was mainly used for cereal cultivation. Olives were mainly cultivated along the slopes of the

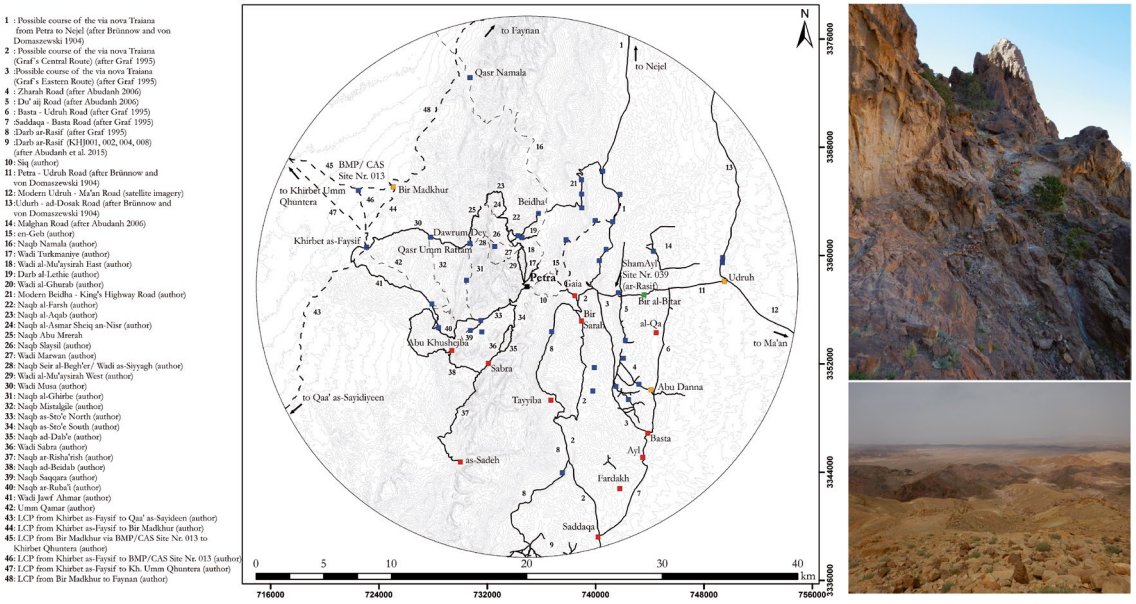

Fig. 5: Left: Overview map of all evidenced roads/routes in the Petra area. Upper right: Detail photo of Naqb Slaysil. Lower right: Detail photo of Naqb ar-Ruba'i.

Jabal Shara escarpment west of modern Wadi Musa/ancient Gaia. On the basis of the distribution of the various agricultural installations evidenced in the Petra hinterland, it was therefore possible to roughly map specific cultivation zones (fig. 3), which seems so far confirmed by recent archaeobotanical evidence from urban Petra as well.[10]

While the aforementioned correctly points to a strong sedentary agriculture-based society, it is also crucially important to highlight first, direct archaeological evidence from within the Petra hinterland that a *pastorally* organized rural population constituted a significant part of the study area as well.[11] For example, the evidenced camp sites and corrals (fig. 4) clearly indicate that pastoralism was a vital subsistence strategy in addition to farming, which is not only a major economic factor to consider, but which also carries important social implications.

Finally, one major contribution of this study were the insights gained into rural Petra's route network (fig. 5): It was established that the routes for larger *camel caravans* avoided steep slopes and circumvented the difficult volcanic *al-Somrah* stone when possible in order to avoid injury to the soft feet of the camels.[12] Such camel routes were classified as Class A routes. Other routes, which only allowed pedestrian, donkey and/or mule travel, cross more difficult terrain and can pass through volcanic stone more frequently than Class A routes. Such routes were defined as Class B routes. This shall be highlighted by elaborating briefly on two routes – Naqb ar-Ruba'i and Naqb Slaysil:

Leading from Petra's immediate southwestern hinterland, Naqb ar-Ruba'i heads towards the important road station of Khirbet as-Faysif in the Wadi Arabah, generally following comparatively easy slopes and circumventing the volcanic *al-Somrah* when

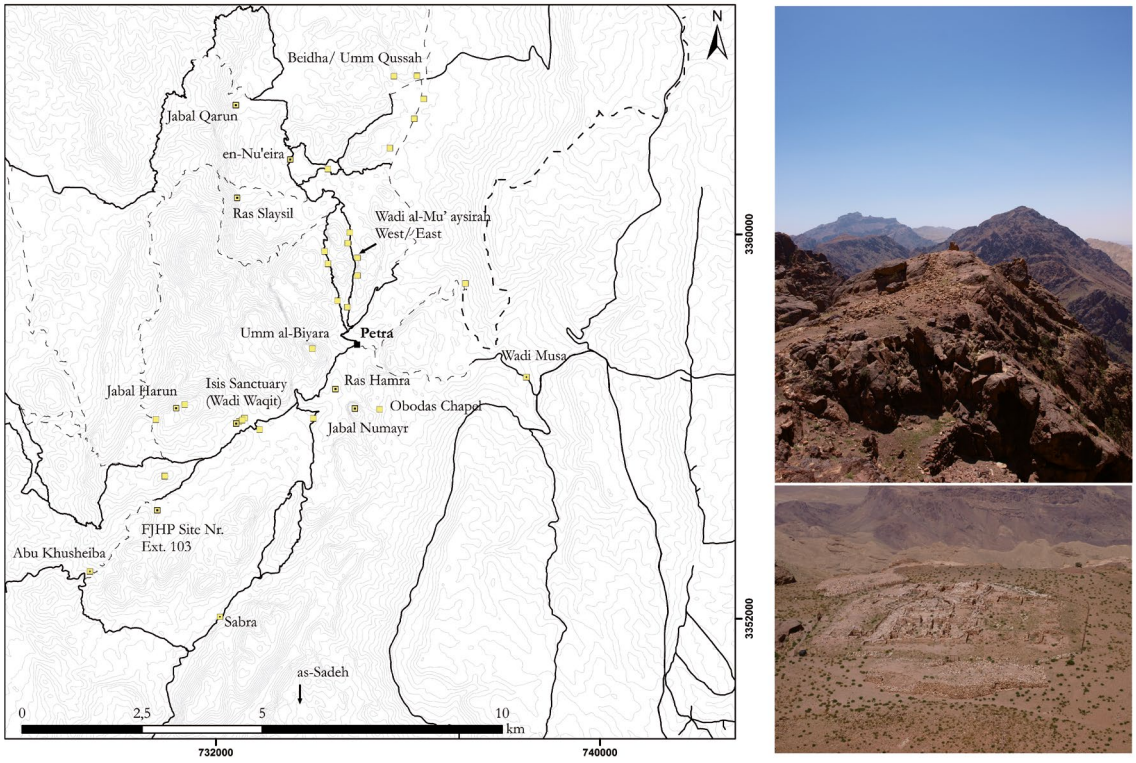

Fig. 6: Left: Distribution map of the evidenced religious structures along the different route types. Upper right: Small sanctuary at ad-Dahune Slaysil. Lower right: Nabataean sanctuary and later Byzantine monastery of Jabal Harun.

possible.[13] This route provides the environmental prerequisite for a good camel route. In contrast, Naqb Slaysil not only completely crosses the *al-Somrah*, but also descends extremely difficult slopes rendering it impossible for a camel to pass.

These observations not only offer important insights into practical issues of ancient caravan trade in the Petra region, but also explain the location of important Nabataean settlements such as Sabra or Abu Khusheiba, as well as route stations and caravan halts such as Khirbet as-Faysif, Qasr Umm Rattam or Dawrum Dey.[14]

Society, Culture and Religion

Investigating rural Petra's religious landscape bears interesting insights not only into specific religious structures – which appear during the 1st century BCE as in urban Petra – but they also imply important indications for the *social* organization of the Petra area.

Interestingly, more publically accessible rural sanctuaries (fig. 6) such as Jabal Harun, Ras Hamra, ad-Dahune Slaysil or Jabal Qarun are situated along Class A routes.[15] In

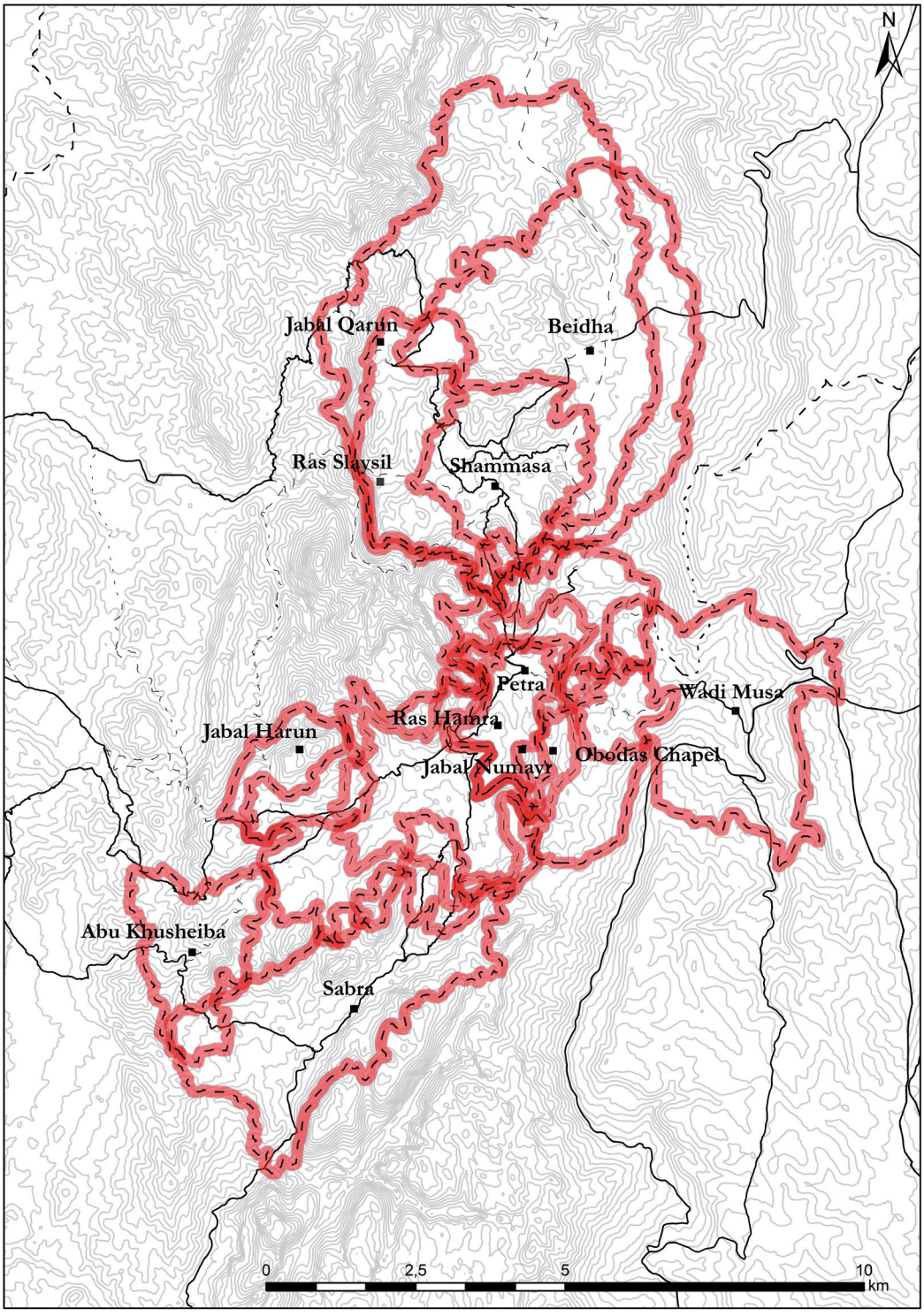

Fig. 7: Suggestive site-catchments of major hubs in the Petra region demarcating hypothetical territories of different social groups.

contrast, rural sanctuaries of more 'private' nature such as the so-called Obodas Chapel, the Isis sanctuary in the Wadi as-Siyyagh or the *triclinium* on top of Jabal al-Farasha are not as easily accessible.[16]

Such private, ritual gathering places were also important social gatherings, where it can be assumed that only specific Nabataen tribes, families or other social groups regularly convened. This exclusive use of such distinct 'social spaces' falls within the general community-based, spatial concepts of Nabataean culture and which can be referred to by the Foucauldian term *heterotopiai* as these describe *"[…] closed spaces, where only restricted and well-defined people or groups of people are granted access"*.[17]

Whether one accepts the term *heterotopiai* or not, particularly the secluded and more private religious structures not only reflect upon Nabataean religious practices, but are highly significant for understanding the complex and intricate social structure of Nabataean culture that is deeply rooted in family, clan or tribal traditions.

Based on the situation in urban Petra where different social groups were identified that collectively commemorated a specific deity, and were organized within spatially distinct social "districts"[18], it may be argued that specific religious structures and other "heterotopical" sites may have demarcated specific *social* landscapes within the wider Petra hinterland – therefore comparable to what is assumed for urban Petra.

Certainly, without further in-depth archaeological investigations, such modelled territories as shown in fig. 7 remain entirely hypothetical and suggestive, but they nevertheless visualize the undoubtedly complex and intricate tribal-based social structure of Petra's immediate rural environs.[19]

The Military Disposition

This study has laid forward the first comprehensive overview of all structures with possible military function in the Petra hinterland to date. However, researching these structures has proven to be particularly difficult. While evaluating the archaeological information provided by the various survey reports, it became clear that there is often little, or only inconclusive, archaeological evidence to support the identification of specific sites as military structures. In many survey reports, military terms such as "fortresses" and "forts" were frequently used arbitrarily, without following any pre-defined criteria. No structural or functional distinction between such terms was claimed and the archaeological information was generally quite limited.

In order not to follow a too militaristic view, it was therefore necessary to critically assess the available information, but due to the problematic archaeological identification of military structures, it is difficult to postulate any comprehensive conclusions on the military organization of the Petra hinterland without further research.

Nevertheless, it was shown that while only few military structures are evidenced for the Iron Age Periods, the majority were constructed in the Nabataean Period and

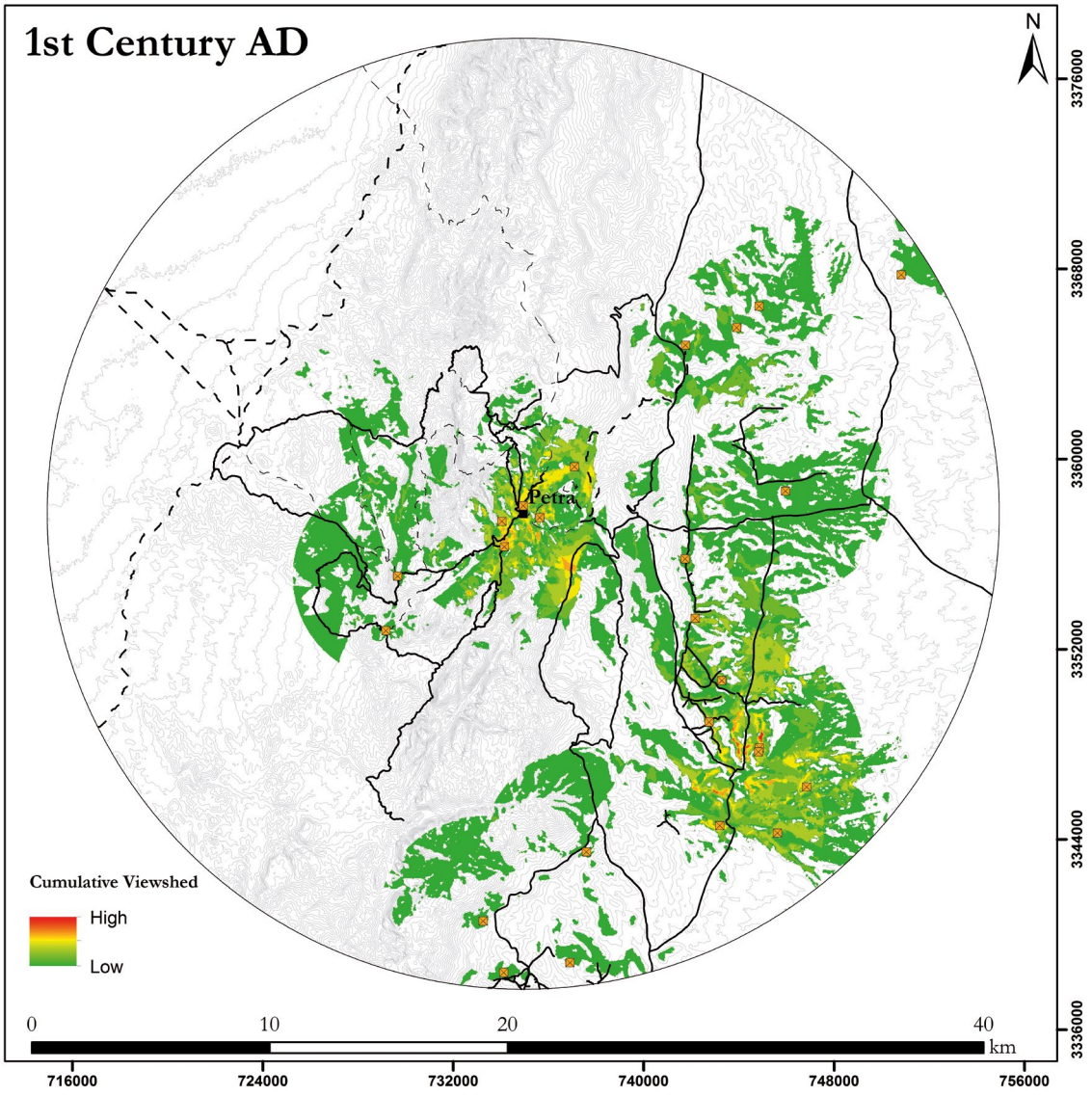

Fig. 8: Cumulative visibility analysis of all evidenced watchtowers dating to the 1st century CE.

most of these continued to be used during and immediately after the Roman annexation in the early 2nd century CE. Also, by conducting GIS-based visibility analyses, it was possible to propose a 'visual hierarchy' of military structures: Larger structures such as forts and fortlets commanded only limited visual control over the Petra area compared to the evidenced watchtowers, which exerted the most far-reaching visibility over the Petra landscape. Particularly for the Nabataean Period, the cumulative visibility analyses highlight an intervisible network of watchtowers that specifically concentrates around urban Petra as well as large stretches of the eastern high plateau (fig. 8).[20]

Generally, the evidence suggests that – in contrast to a large, permanently stationed army – policing and controlling the Petra hinterland was one of the key functions of the Nabataean military.[21] The evidenced military structures are comparatively small with only a minimum of infrastructure suggesting smaller and more mobile military units which were tasked with different duties. These arguably included of local security services for civilian settlements and the protection of local water sources, the monitoring of activities along important roads and routes to guarantee safe commercial traffic as well as the protection against potential bandits.[22]

Conclusions

This paper hopefully demonstrated the broad range of different archaeological site types investigated in this study – most of which certainly require more detailed and farther-reaching research. However, as it was not possible to give a full and detailed account of the Petra hinterland in Nabataean-Roman times within the limits of this paper, the aim was instead to offer a brief, but representative overview and critical re-assessment of Petra's socio-political and administrative, military, economic and infrastructural area of influence over its rural surroundings. The issues raised here can only provide a first glimpse into a larger study that provides a unique, modern and up-to-date synthesis of the spatial organization of the Petra hinterland, which will hopefully provide an essential contribution for future research projects aiming at further understanding Petra's rural surroundings.

Notes

[1] Recently discussed e.g. in Kennedy 2016 with further references.

[2] For a concise overview of the urban development of Petra, see e.g. recently Schmid 2012.

[3] The author's doctoral thesis entitled *Terra Petraea. An Archaeological Landscape Characterization of the Petra Hinterland in Nabataean-Roman Times* is currently being prepared for publication, in which rural settlement patterns and subsistence strategies, aspects of rural water management, the extensive infrastructural network, the funerary and religious landscape, the military disposition, as well as the industrial potential of the Petra region are discussed in detail.

[4] For a complete list of the archaeological surveys conducted in the Petra region to date, see e.g. Kennedy – Hahn 2017, 66–67 pl. 1.

[5] Most importantly, see the seminal work of Kouki 2012.

[6] Kouki 2012, 17 based her definition on previous claims expressed by M. Lindner (Lindner 1992, 266), who assumed a similar extent of a 'Greater Petra,' and on the 6th century CE Petra Papyri mentioning that the settlements of Udruh and Saddaqa were still under the jurisdiction of Petra in the Byzantine Period. For a more detailed introduction into the environmental conditions of the Petra region, see e.g. Besançon 2010.

[7] For an introduction into the method of point pattern analyses including kernel density estimations and Pearson correlation tests, see e.g. Baddeley et al. 2016; Nakoinz – Knitter 2016 and Keron 2015.

[8] Compare recently Kennedy – Hahn 2017.

[9] Compare also Kouki 2012, 84–100. Generally on the sedentarization process of the Nabataeans and early settlement activities in Petra, see e.g. Wenning 2013; Graf 2013 or Schmid 2001.

[10] On the archaeobotanical evidence from Petra and its surroundings, see e.g. most recently Bouchaud et al. 2017 as well as Tenhunen 2016 and 2013.

[11] More on the non-sendentary lifestyle of rural Petra, see Kennedy in press.

[12] Compare also Kennedy 2016.

[13] Also see Ben David 2013 and 2012.

[14] Most recently on Sabra: Tholbecq et al. 2016; on Abu Khusheiba: Lindner 2003a; on Khirbet as-Faysif: Hughes 2014 and Smith 2010 and on Qasr Umm Rattam: Lindner 2003b and Lindner et al. 2000.

[15] On Jabal Harun: most recently Fiema et al. 2016; on Ras Hamra: Parcak – Tuttle 2016 and Hübner 2002; on ad-Dahune Slaysil: Lindner – Gunsam 1995 and Jabal Qarun: Lindner 2003a.

[16] On the Obodas Chapel: e.g. Tholbecq – Durand 2013; on the Isis sanctuary in the Wadi as-Siyyagh: Merklein – Wenning 2001 and the triclinium on top of Jabal al-Farasha: Kouki – Silvonen 2013.

[17] Schmid 2013, 251.

[18] Nehmé 2013.

[19] The modelled territories are based on simple site-catchment analyses.

[20] For a more detailed elaboration on the analytical basis of the conducted GIS-based visibility analyses and for some preliminary thoughts on Nabataean watchtowers, see Kennedy 2013.

[21] General remarks on the Nabataean army, see e.g. Graf 1994.

[22] On banditry in the Nabataean realm, see Isaac 1984.

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Fig. 1–8: by the author.

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Elusa – Urban Development and Economy of a City in the Desert

Christian Schöne – Michael Heinzelmann – Tali Erickson-Gini – Diana Wozniok

Elusa was the most important urban center in the northern Negev during the Roman and Byzantine periods. Situated on a rock plateau at the confluence of two wadis, Nahal Besor and Nahal Atadim, ca. 45 km south-east of Gaza, the site provided year-round availability of groundwater that was made accessible by deep wells. Elusa was also located on a significant intersection of two important trade routes: the Incense Route, also called the Petra-Gaza Road, which led from the Arabian Peninsula via Petra to Gaza, and an older inland route running parallel to the Mediterranean coast, referred to as the Way of Shur (fig. 1). The site was originally founded by the Nabataeans during the 3rd/2nd centuries BCE as a caravan station. From the Early Roman period, this well-situated station developed into the administrative, economic and cultural center of the entire region. However, the decline of Nabatean long-distance trade in the Middle Roman period brought about an economic realignment in which the intensive agricultural exploitation of the area took place, possibly aided by improved climatic conditions with slightly higher precipitation and the development of a sophisticated system of water management. The latter included the development of run-off farming, spread over an area of 2000 km² with high yields, created in a semi-arid environment. One of the most profitable products was wine that was exported throughout the eastern Mediterranean in significant quantities even reaching Italy, Gaul and Britain.[1] Several of the former caravan outposts in the region such as Shivta, Mampsis, Oboda, Nessana and Rehovot-in-the-Negev, turned into prosperous agrarian settlements with spacious homes and richly-endowed churches, but remained at a village or proto-urban development status. Elusa was the only site that emerged as a veritable *polis*, eventually covering ca. 45 hectares of an urban area with approximately 5,000 inhabitants (fig. 2). Its urban character is emphasized by the existence of the only theater in the region, probably constructed in the 2nd century CE, large thermal baths, and lavishly paved streets partially flanked by porticoes. The role of Elusa as an administrative center in Late Antique sources corresponds to the fact that from the 4th century CE it became a bishop's see and was home to a well-known school of rhetoric. In addition, in this period it became an important station on the major Christian pilgrimage route to the Sinai.[2]

Against the background of the precarious situation of a city on the semi-arid fringe of a desert, the large population and urban dynamics of Elusa are remarkable, especially in a period of increasingly difficult political and economic conditions. Only later in the 6th century CE a gradual process of degradation became apparent, possibly reinforced by a decline in population as a result of the so-called "Justinian Plague" and changes in climate. The Islamic conquest of the region in the 7th century CE took place when Elusa

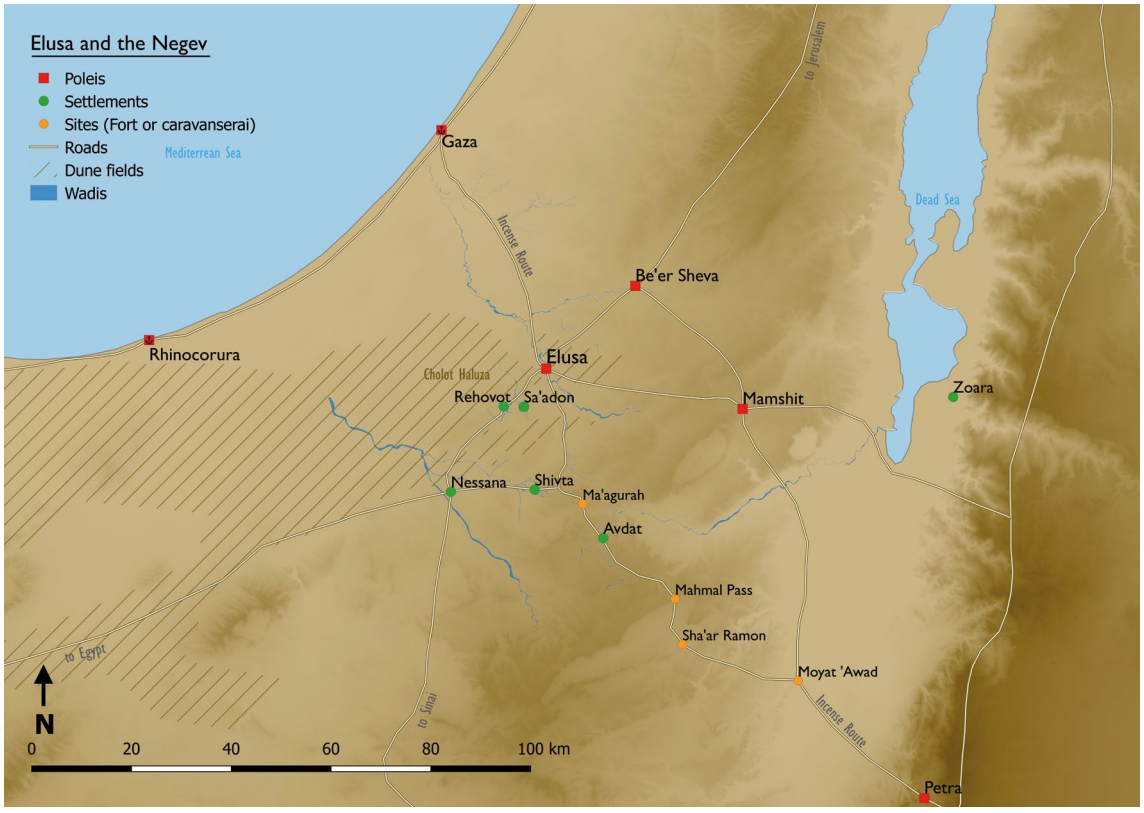

Fig. 1: Sites and routes in the Negev.

was in a phase of ruralisation and urban decline. The city was apparently abandoned by the second half of the 8th century CE.

Archaeological Exploration of the Site

Investigations in Elusa, identified as early as 1838 by E. Robinson, have been infrequent until recent years.[3] The most important findings were those of A. Negev,[4] who was able to detect and excavate the theater and the supposed cathedral of the city. However, a systematic and diachronic study of the city was not carried out until recently. Thus, the aim of this project is to understand the structure and long-term development of the city against the background of the historical and economic conditions of the Hellenistic, Roman, Byzantine and Early Islamic periods. To investigate the site, a multi-disciplinary approach was followed that included a combination of extensive geophysical prospections, a systematic archaeological survey, the evaluation of aerial and satellite images and the creation of a high-resolution digital terrain model (DTM). In addition, targeted stratigraphic excavations were carried out at selected points

Fig. 2: Elusa. Aerial overview from South.

in the city in order to verify the results of the geophysical prospections in order to gain chronological information. All find categories are systematically being analyzed with a special interest in the economic development of the city. Furthermore, a geo-archaeological component is dedicated to the question of land use in the surrounding area. A total of four seasons have been conducted in the site between 2015 and 2018.

In 2018, the geophysical prospection of the city, conducted since 2015, was completed, covering the entire 45 hectares of the city (fig. 3). The processing of the resulting data is as yet incomplete, but some preliminary assertions about the urban layout can be made. The city measures approximately 800 × 600 m. Structures and streets cover the entire area without a gap with only a few visible open spaces. One of these is a square in front of the atrium of the presumed cathedral of the city.[5] Interestingly, the other spaces are in the urban fringes, situated at the termination of main streets and marked by gaps in the waste mounds surrounding the city. They may be connected to trade and caravan activities that served as areas for loading and unloading goods. The preliminary map of Elusa (fig. 4) shows an irregular layout. There is no orthogonal street system, but some level of organization can be observed: long streets are oriented south-east to north-west, connected by smaller alleys, forming more or less rectangular *insulae*. Along some of the main streets porticoes are present, as have been ascertained by a number of sondages. All the streets are contorted and change direction and width. Additionally, many streets are cul-de-sacs, ending in residential quarters. This feature has been revealed in other, smaller settlements in the Negev and has been interpreted as indicator for clan based social structures with one extended family inhabiting a whole quarter.[6] Thus, the structure and layout of the city may be a hybrid of Mediterranean influences and local rural traditions.

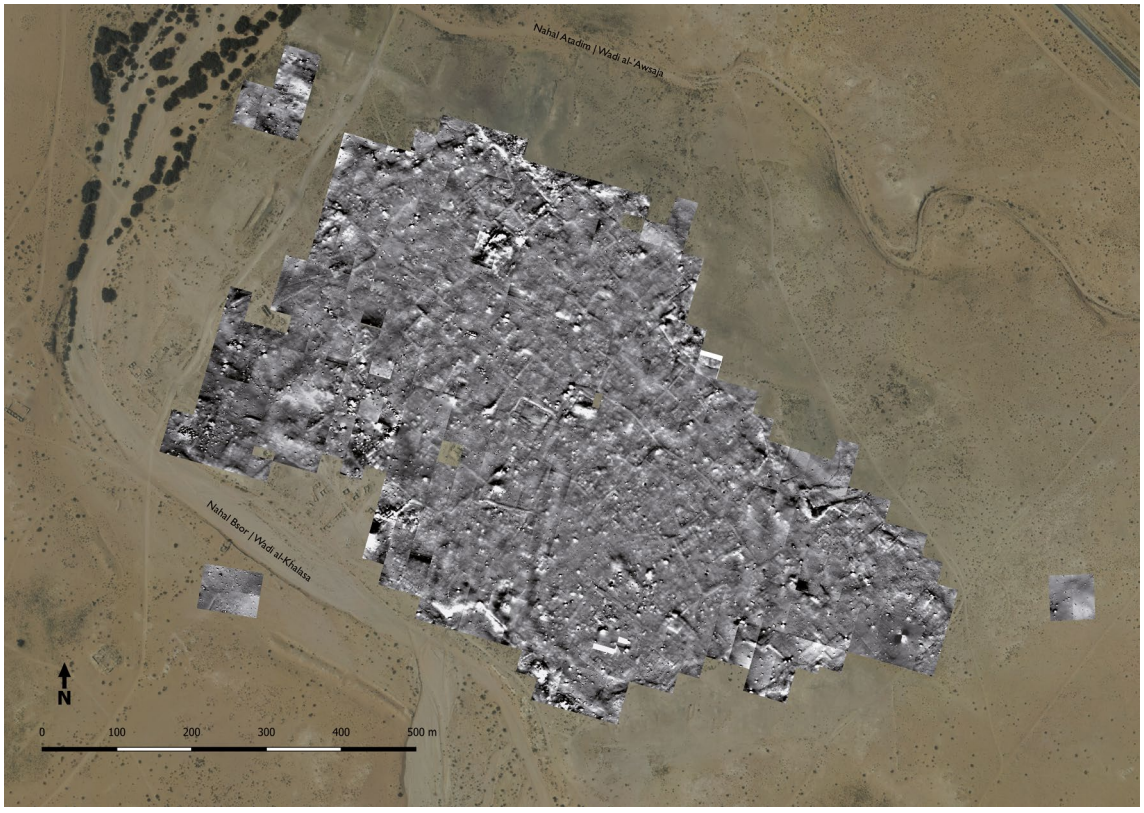

Fig. 3: Preliminary results of magnetometry mapped on aerial photo.

Another approach implemented is archaeological survey. Instead of an intensive ceramic survey, our survey focuses on the collection of several groups of indicative materials (fig. 5). For example, bricks seem to occur solely in relation to furnaces, kilns or bathhouses. Roof tiles always seem to be related to churches while the secular buildings in Elusa had flat roofing. The appearance of a large number of glass-tesserae in the survey is striking. These may be ascribed to mosaic decoration inside churches and their provenance together with tiles and fragmented marble is a very strong indicator for extant churches. These findings have enabled us to identify several additional churches and at present, at least nine churches are indicated. Both geophysical and archaeological survey benefited greatly from today's flat surface of the city due to the previous spoliation.

Our research at Elusa has benefited from the ancient and early modern spoliation of the site. Based on both the geophysical and archaeological survey, several small-scale stratigraphical sondages were conducted to investigate selected points to get information about emergence and chronology of the site. Where the virgin soil or bedrock was reached, the stratigraphy from ancient times to modern surface is approximately 4.5 m in height.

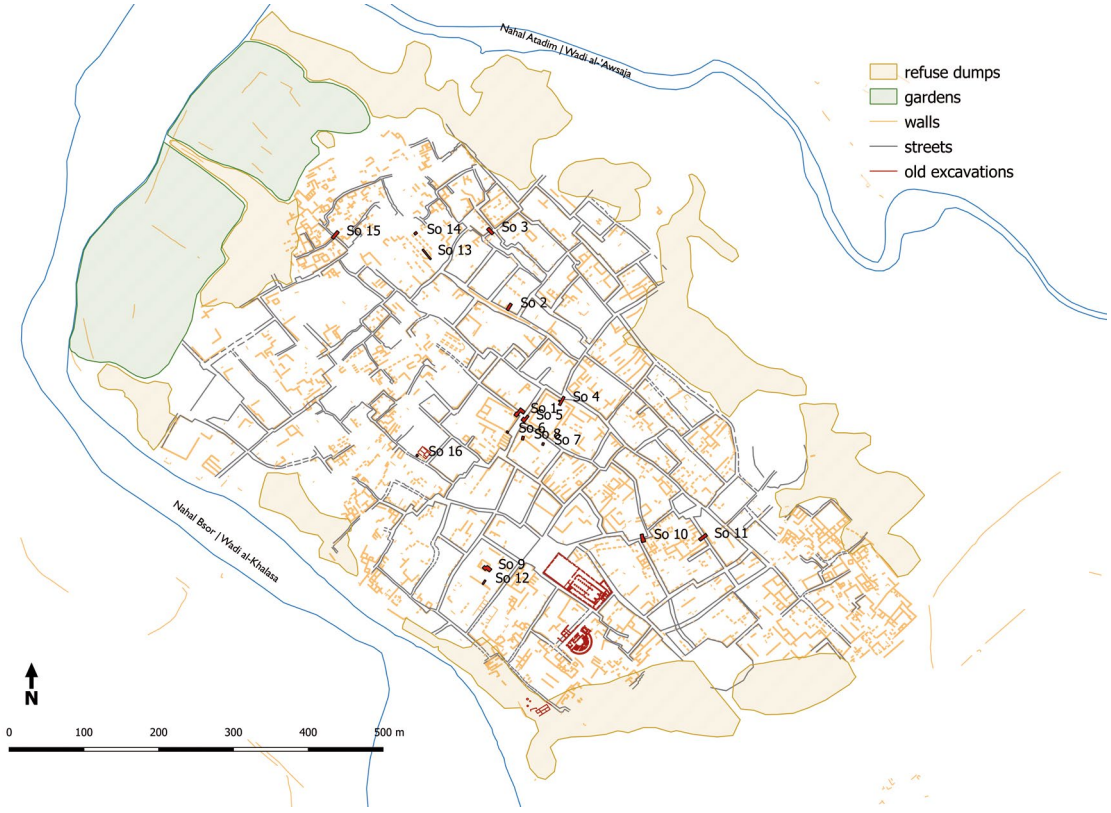

Fig. 4: Preliminary layout of the city.

Development of the city

The earliest ceramic evidence found in Elusa dates to the 3rd century BCE. An inscription found by L. Woolley and T. E. Lawrence was dated to the 2nd century BCE.[7] These early traces may underline the establishment of a trade outpost at the site in this early period but hard evidence for the beginning of settlement activity is still missing.

The first settlement phase with clear evidence dates to the 1st and 2nd centuries CE. At this time, massive building activity started with the construction of streets. These early streets mostly consisted of compressed limestone-chips that created a very hard surface. Typically, brownish layers of waste are deposited over them, followed by the next street layer made of the same limestone-chip technique. In combination with the dated pottery finds, this clearly documents periodic street-renewals every 20 to 25 years creating a stratigraphy of several dozens of layers of use on top of one another. In the 1st and 2nd centuries CE, the first known buildings were erected. The excavations prove a distinct phase of the city's prosperity in the 4th to 6th centuries CE. In this period, several spacious buildings, some public and some private, were erected, renovated or replaced. These include a structure with a central courtyard surrounded by a peristyle

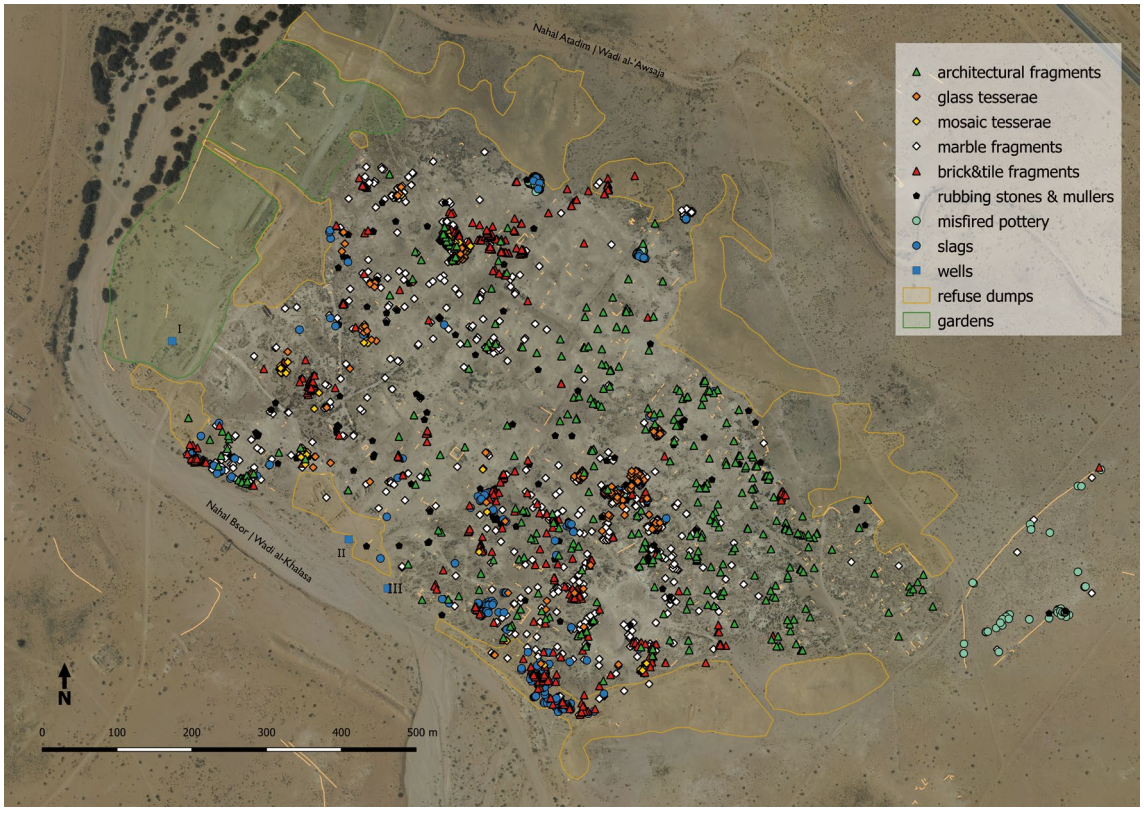

Fig. 5: Mapping of survey data.

and several uniform rooms, investigated in Sondages 4 and 5. The courtyard was paved and contained a large cistern, as indicated by magnetometry. A portico was added along the main street during a later phase of renovation. The large quantities of amphora sherds found may indicate some connection to trade activities, possibly as an emporium.

Two other structures are tower-houses: rectangular multistory buildings with massive stone walls with blocks up to 1.77 m in length. They are incorporated into large building complexes and appear to lie adjacent to courtyards, as magnetometry points out. The first excavation of a tower-house was completed by Sondage 9. Surprisingly, ceramic finds dated its construction to the 5th century CE, later than expected. To prove these results, another investigation of a tower-house was conducted in a later campaign. This second tower-house was previously excavated by A. Negev in the 1980s but was never published. Here, Sondage 16 revealed an undisturbed stratigraphy. Ceramic finds from the foundation trenches dated to the 4th century CE.

A particularly remarkable feature is the extensive street pavement (fig. 6), which was discovered in trenches at several points of the city (Sondages 1, 2, 3 and 5). It appears to be extant throughout the city and was also constructed in the mid-5th century CE. A number of sondages revealed that some of the larger paved streets were adorned with

Fig. 6: Sondage 1. Example for the city-wide street pavement.

porticoes. This type of high-quality street construction found throughout the city is a strong indicator for the economic strength of Elusa. It also attests to the necessity of a high level of public administration in which the streets were periodically renewed. Consequently, some sort of organized waste-management and street cleaning must have taken place in ancient Elusa that prevented the accumulation of new layers of waste. This evinced by the presence of several waste mounds on the urban periphery. They are clearly visible in the DTM and at present they cover over 14 hectares, reaching heights of up to 12 m. The mounds contain mostly sand, ashes and pottery, forming a fine, undisturbed stratigraphy. They also contain organic remains including bones, seeds and coprolites. Thus, they are archaeological archives with enormous potential as

Fig. 7: Sondage 3. View inside the open sewer and onto the complex street stratigraphy.

can be seen in recent investigations carried out by Bar-Oz, Weissbrod and Erickson-Gini (2016).

A related element is the elaborate water collection system in the site. This includes the inclination of the street pavement towards the center of the city, creating a gigantic surface that collected rain water and conducted it towards several cisterns. Additionally, the basic water needs were supplied by a number of wells that tapped the ground water accessible only a few meters below the surface. This source appears to have been brackish water used for animal husbandry and agricultural purposes.

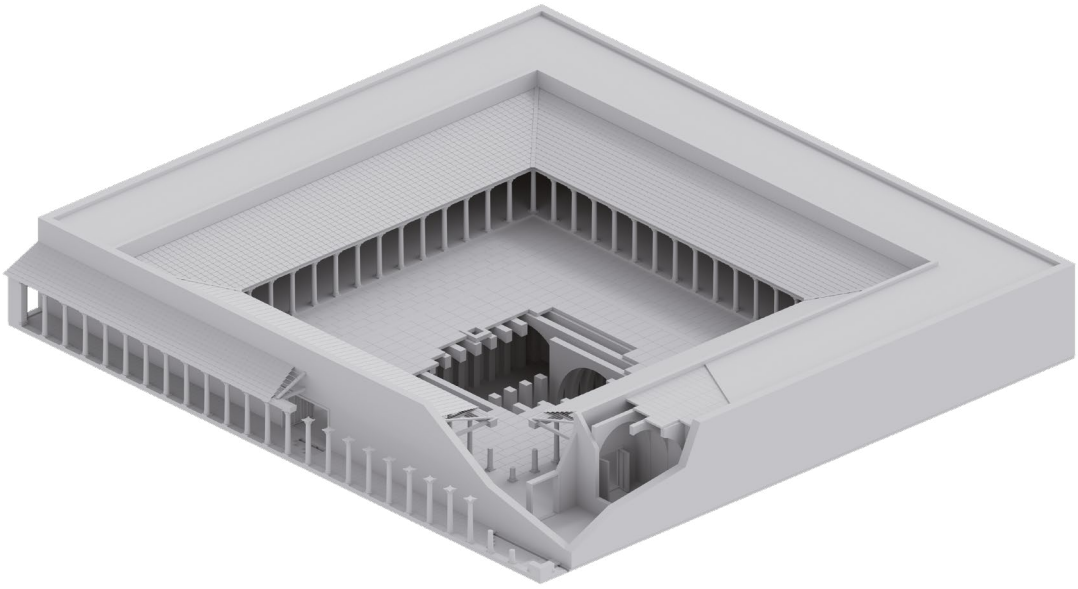

Fig. 8: Peristyle building. 3D-visualisation.

Another significant element was a massive sewer-system constructed in the later phases below the streets. The first evidence for this was detected in Sondage 3 (fig. 7), where a well-maintained sewer channel was discovered that was fully accessible to a length of at least 85 m. Several buildings on both sides of the street drained into it. The construction of this sewer channel is apparently related to the large public bathhouse along the same street. It conducted water to garden areas in the periphery of the city where it was used for agricultural purposes. The scale of the sewer channel may also indicate heavy rains. A second sewer channel was uncovered during the most recent field season. There is a distance of 500 m between these two channels and it is not yet clear as to whether there was a city-wide system or two local channels. However, this will be investigated further in the following campaigns.

Our excavations show clear signs of transformation processes later, during the 7th century CE. All of the excavation trenches revealed traces of the destruction of buildings and wall collapse are common. Often spoliation took place. The occurrence of thick layers of aeolian sands in between the collapses of the 7th century CE, indicate a huge input of sand during this period that is a very interesting feature during these late phases. In between the collapsed structures there is clear evidence for continued settlement activity. For example, two olive presses were revealed on top of streets, indicating the relocation of agricultural installations into the urban space, a feature that may indicate ruralization. Apparently, by the second half of the 8th century CE, the city was completely abandoned.

Based on these approaches, several conclusions can be drawn which are related

to the settlement's infrastructure or its relationship to its surroundings including the production of goods, the supply of services and trade.

Craft production

There are several instances of craftsmanship inside the city. One pottery workshop was excavated and investigated in detail in the late 1990s.[8] Seven additional pottery kilns were discovered in the recent archaeological survey. These were all situated in the periphery of the city, often on the slopes of the waste mounds. Several additional findspots with misfired pottery in the near suburban surrounding of Elusa may indicate further pottery workshops, something which has yet to be verified. Furthermore, there is clear evidence for ironworking in Sondage 2. Glass processing is also indicated although as of yet no workshop has been identified. Both milling stones and mullers occur ubiquitously on the site, indicating both domestic grinding in all households as well as specialized mills that point to the existence of commercial bakeries.

Trade

Trade played a major role during the early phases of the settlement and it certainly continued throughout the history of the site, albeit at a reduced scale. International trade was eventually replaced by local production that became the object of trade. Marble was imported in high amounts to the city. Probably the most valuable export was wine, which was exported in high quantities throughout the eastern Mediterranean, even reaching Italy, Gaul and Britain.[9]

Similar to the peristyle building (fig. 8), many structures probably had mercantile functions. Several similar structures lie along the periphery of the city, often next to the open spaces. These are most probably closely related to trade. Two levels of trade can be assumed, first: the local interaction between the city of Elusa and its surroundings. Locally produced crafts were traded for rural goods, that were mostly agricultural in character. Husbandry may have also played an important role. The second level is long-distance trade, for example, there is clear evidence for imported fish from the Mediterranean and the Red Sea.[10]

Interestingly, there is no evidence for *tabernae* inside the city. This may be related to the small scale of the archaeological investigations but also may indicate other forms of organization of trade. Most of the streets are 7.5–8 m wide, a width that permits for spaces that could have been used for crafts, exchange and social interaction while also providing shade. Multi-functional use of exterior urban space is known in many arid regions.[11] Special or high-quality goods may have been traded in buildings like the peristyle building.

Services

The provision of services for both its citizens and the surrounding population is a typical urban feature. The high level of cultural services is well represented by the theater, the only structure of its kind in the Negev. Elusa was famous for its school of rhetoric, something that indicates a high level of local education, as antique sources evince.[12] Furthermore, the city became a regional center of administration and jurisdiction, as can be seen in the Nessana papyri.[13] A courthouse is historically verified to have been located in the city,[14] and a professional lawyer was resident of the city.[15]

The city also became a religious focal point, with as many as nine churches inside the settlement, one of which was a cathedral. The city was known to have been a bishop's see from at least the first half of the 5th century CE.[16] It also provided lodging for the many pilgrims travelling to and from Sinai.

Further professional services, such as medical care, have yet to be found but can be assumed with a high probability.

Agricultural production

In the near vicinity of the city land was used for agricultural production. Several hectares of gardening areas have been identified next to the wadis, and flood and waste water was used to farm grain, vegetables and fruits on the fertile loess soil. Household wastes were used to manure these gardens. In the wider suburban terrain, several dozens of small sites were identified in the survey that may have been farms. Often, cisterns were found at these locations that will be investigated further in upcoming campaigns. Interestingly, many of these areas with presumed farms are not suited for run-off farming. A high quantity of large swine bones found inside the city point to swine raising within or next to the city. Because pigs consume high amounts of water, this seems rather extraordinary.[17]

In the Early Islamic period transformation processes took place and agricultural production moved into the city, as proven by the wine presses in Sondages 3 and 11, an indication of as change towards a more rural character of the site.

Conclusions

The multi-disciplinary approach with a combination of geophysical prospections, archaeological survey and small-scale stratigraphical excavations provides a wide spectrum of information regarding the structure and development of Elusa,[18] covering the complete period from its foundation in the 3rd/2nd centuries BCE until its final abandonment in the 8th century CE. However, past investigations have already proven

the importance of Elusa as a significant economic hub in an arid region. In order to further verify these conclusions and gain deeper understanding of the interactions of the city, further investigations of suburban and supraregional areas are scheduled for upcoming seasons.

Notes

[1] cf. Evenari et al. 1955, 231–268; Negev 1983, 208–214; Erickson-Gini 2010, 51–53. 65–77; Röhl 2011, 258–275; regarding the climate McCormick et al. 2012, 185–199; Enzel – Bar-Yosef 2017.

[2] Mayerson 1983, 47.

[3] Robinson – Smith 1860, 201 f. Cf. also Elliot 1982.

[4] Negev 1976; Negev 1983; Negev 1993.

[5] Basilica A was investigated by A. Negev as well as H. Goldfus, B. Arubas and P. Fabian: Negev 1993, 379–383; Arubas – Goldfus 2008, 1713–1715.

[6] Röhl 2011, 89. 145.

[7] Woolley – Lawrence 1914/1915, 138 f.; Negev 1993, 1715; Hackl – Jenni – Schneider 2003, 379 f.

[8] Arubas – Goldfus 2008, 1713–1715; Goldfus – Arubas – Bowes 2000.

[9] cf. note 1.

[10] For a more detailed report on the archaeozoological finds see also S. Lehnigs contribution: Heinzelmann et al. 2017.

[11] Shepperson 2017, 91.

[12] Keel – Küchler 1982, 151.

[13] Kraemer 1958.

[14] Kraemer 1958, 89.

[15] Seeck 1906, 131.

[16] Keel – Küchler 1982, 152.

[17] For a more detailed report on the archaeozoological finds see also S. Lehnigs contribution: Heinzelmann et al. 2017 (in print).

[18] For more detailled reports on the project: Pickartz – Tezkan – Heinzelmann 2015; Heinzelmann – Erickson-Gini 2015; Heinzelmann et al. 2017.

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Fig. 1–7: Elusa Project Archive. – Fig. 8: D. Hinz.

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Session 8 | The role of the city in the ancient economy: urban infrastructure, relations between town and country

While already for several decades, survey archaeology and the investigation of city – hinterland relations have been in the focus of Mediterranean archaeology, the systematic implementation of this method in the southern Levant, is not commonly practiced. Only a few cities in this region were investigated by systematic intensive or extensive field surveys. This volume is dedicated to urban infrastructure and it aims at exploring the relationships between cities and their urban peripheries and hinterlands. It focusses on some southern Levantine major and secondary administrative centers of Judaea/Palaestina and Arabia under Roman and Byzantine rule (1st to 7th century CE). While investigating the historical geography of the southern Levant has a long tradition, today research questions have changed, and in many cases the study of micro-regions with their hinterlands are the focus of field projects. Such studies can only be undertaken in a systematic way, using multi-disciplinary approaches and high-resolution analyses looking at all kinds of zones of urban settlements and connections within the site and its periphery and hinterland. The contributions of this volume present a first attempt to look at urban settlements in the southern Levant from a comparative perspective.

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