

In Centro

Collected Papers
Volume I

Motion, Movement and Mobility

Editors:
Guy D. Stiebel
Doron Ben-Ami
Amir Gorzalczany
Yotam Tepper
Ido Koch



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Central Region



TEL AVIV UNIVERSITY

The Sonia and Marco Nadler Institute of Archaeology

The Jacob M. Alkow Department of Archaeology and Ancient Near Eastern Cultures

The Chaim Rosenberg School of Jewish Studies and Archaeology

The Lester and Sally Entin Faculty of Humanities

Proceedings of the first annual “In Centro” conference
held by the Central Region of Israel Antiquities Authority,
the Department of Archaeology and Near Eastern Cultures
and the Sonia and Marco Nadler Institute of Archaeology of Tel Aviv University
on April 26, 2018 at Tel Aviv University

Cover photograph: Illusions of Arabia © George Steinmetz

Graphic design: Ayelet Gazit

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ISBN 978-965-266-066-4

Printed in Israel 2022

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Yotam Tepper and Ido Koch

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Preface

“All entities move and nothing remains still”

(Plato, *Cratylus*, 401d)

“Consciousness is only possible through change;
change is only possible through movement”

(Aldous Huxley, *The Art of Seeing*)

“When there is in nature no fixed condition,
how much less must there be in the life of a people,
beings endowed with mobility and movement!”

(Jose Rizal)

We are delighted to announce the launch of a new series: the proceedings of the annual “In Centro” conference. It is the outcome of cooperation between the Central Region of the Israel Antiquities Authorities and the Department of Archaeology and Ancient Near Eastern Cultures and the Sonia and Marco Nadler Institute of Archaeology of Tel Aviv University. The aim is to focus on one central theme at each annual conference and to examine it through a spectrum of scholarly approaches and in a cross-periods viewpoint and to consider its manifestation in a variety of cultures and geographical locations.

The first conference, which took place in 2018, was dedicated to the theme of the “Triple M”—Movement, Motion and Mobility—and the present volume, the outcome of that conference, reflects this theme. The participants and contributors discussed aspects of movement of humans and animals, as well as of artifacts, in space and time, against the backdrop of a fundamental comprehension of

change as movement in time. The volume brings to the fore the recognition that movement and motion in nature have cyclic aspects of constant rhythms. Thus, the movement of celestial bodies, the annual shifts of seasons, the seasonal migration of animals and the change of flora all form a kind of natural clock that functioned, to a great extent, as a “calendar” of sorts for groups of hunter-gatherers and for sedentary communities alike. In the words of Jeremiah: “Even the stork in the sky knows her appointed seasons, and the dove, the swift and the thrush observe the time of their migration” (Jer 8:7).

From the earliest days of the field of archaeology, aspects of movement, motion and mobility were considered in an attempt to elucidate cultural changes. Supporters of the paradigm that was dominant in the first half of the 20th century, “Culture History,” attributed materialistic and cultural changes to mechanisms of diffusion that consisted of migration and invasion of external factors and entities into a given cultural space. Criticism of this line of thought, which emerged in the 1960s and 1970s in the form of the “New Archaeology” (processual archaeology) paradigm, stemmed, among other things, from the perception of culture as a functioning system and regarded archaeology as a science that included the use of contemporary ethnographic observations—namely, ethnoarchaeology. Criticism by the subsequent paradigm of “post-processual archaeology,” also known as “contextual archaeology” or “interpretive archaeology,” led to the expansion and intensification of the discussion regarding symbolic and ideological components of human activity, including that of the individual, who may be referred to as the “cultural agent,” and not least for bringing these aspects to the forefront of the scholarly discourse of past culture. This paradigm and approach gave room to an introspective viewpoint and granted an important place to the background of the scholars themselves and gave a voice to populations and groups that used to be in the periphery of scholarship and of societies, past and present.

The opening paper of this volume, the outcome of decades of research by Prof. Adrian Tanner (Memorial University, Canada), examines the multiple symbolic layers that are interwoven in the activities of the Canadian sub-Arctic groups, and serves as an outstanding example of these approaches.

Recent technological developments in the archaeological sciences and new methodological tools offer new opportunities in the examination of old debates. Suffice to mention petrographic and archaeometallurgic studies, which not only permit the identification of chemicals and physical fingerprints that provide indications for the sources of raw materials, but also make it possible to trace the movements and distribution patterns of artifacts. The harnessing of molecular chemistry to residue analysis studies has opened up new research possibilities, while the particular “hot topic” of ancient DNA contributes greatly to our understanding of the movement of humans and early hominids, not to mention that of animals. These movements were discussed in the conference and are reflected within the pages of this volume.

It is clear that the archaeology of movement, motion and mobility, which examines the means and vehicles as well as the routes along which people moved has made great strides in recent years, following the use of remote sensing devices, such as drones, satellites and underwater sonars. Much progress has been made in the study of transportation—most notably, the documentation of routes and the more institutionalized roads, including the accompanying installations both on land and at sea. The past decade, prior to the eruption of the COVID-19 epidemic, was characterized more than anything by the movement of individuals, groups and populations. Against this backdrop it is worthwhile to reexamine the paradigms linked to cultural changes and to observe not only their mechanisms and processes but also the agents that participate in them. Recent anthropological and sociological studies, as well as the examination of the material culture of the multi-layered activities of refugees, particularly in refugee camps, will undoubtedly have a major impact on the way we observe, study and perceive the past in general and aspects pertaining to movement in particular.

The opening session, “The Way of All Flesh,” consisted of a discussion between Prof. Adrian Tanner and Prof. Ran Barkai (Tel Aviv University) on the fabric of relationships and the interface between animals and humans with an emphasis on movement and mobility among the Inuit and Cree people in the northern Canadian subarctic.

The first session, titled “By the Way,” focused upon roads and trails in the desert, as well as in the settled land, and most notably upon the urban space, with an emphasis on ritual and liminal approaches. The second session, “Through the Land—Societies on the Move,” presented a variety of methodological approaches to the study of the early hominids, based upon newly acquired data of ancient DNA as well as climate and environment reconstruction as a background and infrastructure for such movement. In addition, funerary customs were considered as a reflection of the immigration of populations, and the evolution of dance was discussed.

A special place was designated in the conference to young scholars in the TED-like session titled “Short and to the Point,” during which a variety of movement-related themes were presented. These covered a wide range of topics and periods, including the return of hunter-gatherer groups to their favored locations in the Lower Paleolithic landscape, Chalcolithic burial practices and the first steps towards an urban settlement in the Early Bronze Age I, Hellenistic bathing customs, sensory archaeology that was applied to the “stepped street” in Jerusalem, and a charm used to bound horses in the hippodrome of Antioch. The afternoon sessions opened with a discussion devoted to objects on the move, titled “Animals, Plants and Inanimate Objects.” In this session movement of domesticated animals, based on ancient DNA findings, was discussed, alongside functional and symbolic changes in the use of pack animals during the Bronze and Iron Ages. A discussion of new finds concerning the use of plants in Abbasid Jerusalem was followed by a consideration of the antiquities trade in the Early Islamic period, concluding the session.

The final session presented the maritime sphere and was titled “Via Maris—Maritime Transportation and Trade.” It consisted of lectures discussing the methodology and maritime activity in the Bronze and Iron Ages, the Greek presence along the 7th-century BCE coast and a Roman wreckage from Caesarea Maritima. The final lecture in this session was devoted to maritime trade relations in the Mamluk and Ottoman periods as gleaned from a study of the pottery of Ramla.

The book consists of eleven papers—six in English and five in Hebrew—organized according to three themes. The first three studies explore the interface between humans and animals. Adrian Tanner focuses on the movement of hunter-gatherers of the Canadian sub-arctic—movement that is based on their intimate acquaintance with the environment and its perception as a holistic entity forming part of the constant cycle of nature. Meirav Meiri and Israel Finkelstein's paper provides a summary of the new data emerging from a comparative study of the DNA of bones of *sus* and *bovid* species in Israel and in Greece, reflecting the movement of animals in the Bronze and Iron Ages. It is followed by a paper by Lidar Sapir-Hen, who examines the economic and symbolic changes on the status of pack-animals during those periods from an archaeozoological point of view.

The second theme, “Everything Flows (*panta rhei*),” deals with aspects of the evolution and change processes of installations and settlements. Gilad Itach's paper explores the nature and function of a circular stone feature from the Chalcolithic period uncovered in the vicinity of Lod. It is followed by an essay by Yitzhak Paz and Itai Elad, presenting the centrality of the settlement at 'En Esur (Asawir) during the Early Bronze Age I and the route of urbanization. Abraham Tendler devotes his paper to “flowing habits” and the Hellenistic bathtubs, from which, according to the author, the Jewish ritual bath (*miqweh*) developed. This is followed by Hagit Torgë's paper, which presents the antiquities trade of Ushabti figurines during the Fatimid period.

The third theme deals with the interface of the coast with the maritime sphere and includes four papers. Ron Be'eri, Nimrod Getzov and Yair Amitzur present administrative and ritual aspects on the shore of Nahariya. Daniel Ein-Mor, Michal Mermelstein and Federico Kobrin detail the archaeological expression of the Greek presence at Meşad Ḥashavyahu, on the basis of their recent excavation at the site. The material culture uncovered in the Roman wreckage from Caesarea Maritima is the focus of Jacob Sharvit and Bridget Buxton's paper. In the closing paper of the volume, Edna Stern presents the imported ceramic material culture found in Ramla and sheds light on the relations with Jaffa's harbour and its environs during the Mamluk and Ottoman periods.

We would like to express heartfelt thanks to all those who enabled and assisted the conference and contributed to the production of these proceedings. Thanks are extended to Eli Escosido, General Director of the Israel Antiquities Authority, to Mr. Israel Hason, General Director at the time of the conference, to Prof. Gideon Avni, Chief Scientist of the Israel Antiquities Authority, and to Dr. Amit Shadman, Head of the Central Region of the Israel Antiquities Authority. Our gratitude goes to Prof. Oded Lipschits, Director of the Sonia and Marco Nadler Institute of Archaeology of Tel Aviv University, to Prof. Ran Barkai, who served as Chair of the Jacob M. Alkew Department of Archaeology and Ancient Near Eastern Cultures at the time of the conference and to its current chair, Prof. Yuval Gadot, for their unlimited support. We are grateful for the financial support that helped us to carry out the conference and made the publication of the proceedings possible. Our deep gratitude goes to Prof. Eyal Zisser, Vice Rector of Tel Aviv University, whose support enabled us to host our keynote speaker, Prof. Adrian Tanner, in Tel Aviv. We are indebted to the Advisory Board of the series, and particularly to Prof. Ran Barkai and Dr. Peter Gendelman. Words are insufficient to thank Ms. Nirit Kedem of the Institute of Archaeology and her team of students; her meticulous organization and unique touch were discernable throughout the conference. Thanks are due to Yoni Amrani and Efrat Nidam of the Israel Antiquities Authority, who provided much technical assistance in the conference, and to Itamar Ben-Ezra of the Institute of Archaeology, who designed the poster. Our gratitude is extended to Salome Dan-Goor of the Israel Antiquities Authority for her invaluable assistance in coordinating the dialogue with the contributors. Last but not least, our heartfelt thanks go to Tsipi Kuper-Blau, Director of Publications at the Institute of Archaeology, for her meticulous language and style editing of the English papers and for overseeing publication of the volume, and to Ayelet Gazit for the painstaking graphic design. The final result before you is due to their professionalism.

Despite the above claim that change is the only constant in nature, we hope that the conference and accompanying volumes will become a permanent tradition.

The Editors

Travelling with Subarctic Hunter-Gatherers

Adrian Tanner | Memorial University

Introduction

There is a common diurnal pattern whereby people alternate between indoors and outdoors; they spend nights indoors and move about or travel when they are outside. In this paper I will examine what I consider to be the special nature of these kinds of daily movements in one particular hunter-gatherer society. In agricultural and industrial societies, movement out from and back to habitations may be routinized, perceived as merely commuting to and from the day's more central and important activities. In a hunter-gatherer society, however, travel itself has a more central and essential role in the lives of hunters and their families.

Among hunter-gatherers we can distinguish two aspects to this pattern of travel. First, they undertake journeys for a specific purpose, like going to a harvesting site and returning, or visiting another group for socializing or trade. At the same time, hunter-gatherers usually harvest whatever they may come across along the way. Their travel also involves observing and learning from their surroundings, in part for indications of future harvesting possibilities.

* I am grateful for all the help I received in my work, most especially over the years by more of the Mistissini Eeyou than I can possibly name. Of these I only mention Charlie Jimmiken, whom I accompanied on many hunts and who taught me much of what I learned. I received many helpful suggestions on earlier drafts by Ran Barkai, Marguerite MacKenzie and Brian Craik. Any remaining errors are my own.

For those hunters who move their residence periodically, quickly assessing the land and the signs of animals and plants in a new area—one they may not have visited for some time—is an important aspect of their travel through the area. Travelling with an eye out for potential “gifts from the land” involves a particular way of moving and a special kind of relationship to the environment.

This paper is about the Eeyouch¹ of the subarctic boreal forest region of Canada, east of James Bay, also known as the East Cree. As noted by one author with respect to the Anishnaabwe, or Northern Ojibway, of two centuries ago, “Within each hunting range, emphasis was on efficiency of movement; the light, birchbark canoe, toboggan, sled, bark wigwam, and hemispherical hut were essential to this peripatetic settlement pattern” (Chute 1998: 12). To this I would add snowshoes and dog teams as other key components of traditional indigenous subarctic travel. By the 20th century canvas had replaced birch bark for canoes and the coverings of tents and lodges, but otherwise the technology of Canadian subarctic hunters was little changed at the time of my research with the Eeyouch, around 1970. In the paper I use the past tense to signify that my observations about travel refer to that period.²

Eeyou Hunting Trips

At the time of my research almost all the Eeyou families of the community of Mistissini, northern Quebec, were full-time hunters. They lived in small groups of several families in isolated winter hunting camps from about September to June of the following year, while in the short summer months they were based at the village of Mistissini, from where they would go to camps for such activities

1 Today the former East Cree prefer to be known by terms from their own language. While there are various spellings, I use the forms Eeyou (singular and collective adjective) and Eeyouch (plural) in this paper.

2 Since that time there has been widespread adoption of snowmobiles and other forms of motorized bush travel by the Eeyouch. However, recent research by Guidon has demonstrated that much of the Eeyou knowledge that I discuss here is still maintained (2013).

as fishing, berry-picking and the harvesting of waterfowl. Some had winter camps close enough to the village that people were able to make occasional trips there during the hunting season, although most were too far away for this. These more distant camps were visited by aircraft, usually once in mid-winter, by a trader who would bring in supplies and take out furs.

The hunting groups were distributed over the land, each on its own territory, within which a group moved camp every month or two. However, they did not always return to the same areas every year. The boreal forest zone is subject to various forms of environmental instability, including forest fires, diseases that periodically may affect certain plants or animals, and some fairly regular and predictable predator-prey cycles of abundance. Hunters and their families, including pre-school children, lived in tents or, for the coldest two months, in communal log-walled lodges. If they planned to be away from main camp for several days, hunters took small tents, made overnight shelters, or in suitable weather they even slept in the open, next to a fire.

Travel was central to the Eeyou conception of hunting. For most journeys there was a specific purpose, such as harvesting game, gathering forest resources, going to and from a large animal kill site to transport the meat back to camp, or moving camp. In most cases the intention was to return to camp before nightfall. However, every such trip provided the opportunity to investigate the land along the way, as well as to harvest game opportunistically. There were also journeys that were only indirectly related to harvesting, as when people visited an old camp site—either one they had used in the past or one that had been used by an ancestor—or when hunters went to a location that offered a panoramic overview of the land. While on the trail, hunters would sometimes stop, make tea and just enjoy the rest. Whenever travelling, either in a group or alone, each hunter would make sure they were fully self-sufficient, each with an axe, a gun, a fire lighter, some food and a tea pail. Should they have become separated or for some reason been unable to return to camp, each hunter would normally have been able to find food from the bush, make a fire and a shelter, and survive comfortably.

The term for “he/she hunts” is *nttuuhuu*³ in the Eeyou language. This contrasts with the English language term, with its connotation of “searching”; the verb literally means “he/she goes out to fetch something.” It is thus similar to the English term “harvesting” and applies as much to trapping as to hunting or fishing. *Minaahuu* is the general term for “to gather.” while there are more specific terms denoting what is gathered, such as *nikuhteu* for gathering firewood, *naatischeu* for gathering moss for insulation and diaper material, *naataasteu* for gathering boughs for the tent floor (added every few days) and *maausuu* for gathering berries. The root of the term for gathering is also found in the term for a good hunter (*souchiminaahuu*), literally “someone who harvests well.” Hunting failures occurred when hunters neglected to respect the animals, who consequently avoided the hunters. While hunting success required certain conservation practices, the above terms support the general notion that Eeyou hunters did not rely on luck but employed particular skills in order to be prepared to accept the gifts that the animals give of themselves to humans.

Travel by Eeyou hunters also involves a particular perception of the environment. Like many other hunter-gatherers, the Eeyou do not have a concept of “nature” in the sense of a domain distinct from human society. They do, however, have terms that distinguish between humans (*iyyuuch*) and animals (*wesiis*), between the camp (*kapeshuwin*) and out on the land (*nuuhchimiihch*), and between inside a dwelling (*pihtikamic*) and the outdoors (*wiyiwiiitimihch*). The term *nuuhchimiihch* also contrasts with village (*itaawin*), the place where the hunting groups assembled each summer. The general Eeyou term for land (*aschii*) encompasses the mountains, the rivers, the lakes and the rapids. The main geographic features, like lakes, rivers and mountains, were all named, and in many cases these names signal the specific relevance of the feature for travel or for harvesting.

3 For the Eeyou terms and orthography used in this paper, see The Eastern James Bay Cree dictionary; <https://dictionary.eastcree.org/> (last accessed on December 9, 2018).

For most urban Canadians, the subarctic boreal forest environment is a vast wilderness with a harsh climate. For the Eeyou it is home, a familiar patchwork of countless local mini-environments. Many of the animals that the Eeyou hunted were camouflaged (e.g., the arctic hare, the *ptarmigan* and the spruce grouse), but experienced hunters were able to pick them out from their surroundings. Similarly, hunters paid attention to signs of game animals, like studying animal tracks or observing such details as where twigs had been browsed by a moose, even by just a glance while walking past on snowshoes. A hunter's familiarity with the land was built up over a lifetime, as most returned, usually annually, to a specific hunting territory.⁴

This territory system ensured that resources were fairly evenly distributed. Membership in the particular hunting group associated with a territory was usually stable from year to year, while leaders of hunting groups might also invite others to join them. Occasionally the group did not use its own territory for a season, in order to allow animals and plants to regenerate. At such times group members became guests of groups occupying other territories. Anyone travelling through another's territory could harvest game on the way, although they were expected to acknowledge, in some way, the priority of the leader of the territory. Those territories in the northern parts of the Mistissini lands are large enough that groups usually went to different parts each year, sometimes only returning to a particular region after several years, by which time the local environment would have changed.

Hunters were continuously reacquainting themselves with the environments they occupied or through which they travelled. While much of this knowledge was equivalent to that of science, it was organized using the Eeyou non-Western ontology. In this world view, animals are persons with intention and memory, who can communicate with humans. Spiritual knowledge about animals,

4 After a period of scholarly controversy over the origins of this form of land tenure, ethnohistorians have shown that family hunting territories were in use in the earliest days of European contact. While prehistoric evidence of their existence may be difficult to establish, the territory system is indigenous, in the sense that it has no similarity to European land tenure practices.

which hunters and their families acquired from their dreams and through various divination techniques, was taken into account, along with whatever new environmental information was observed. The dreams themselves are understood as journeys, the out-of-body travels of the soul.

This environmental and spiritual knowledge was used in planning a winter's activities. Other factors could influence the making and carrying out of these plans, such as social obligations and other kinds of inter-community relations. The plans were not just of relevance to the groups themselves, but they were shared with those who would be hunting on nearby territories. The boundaries of hunting territories, which at the time of my research were fixed on government maps, were in practice somewhat more flexible, so that it was important for neighbouring groups to share plans for the upcoming winter, particularly with respect to the boundary areas. Plans were also shared with the trader, who undertook to visit camps at a specific lake and on a specific date—although it was only the earliest date to which the trader would commit, while most years the aircraft was late, and the Eeyouch would remain there, unable to go hunting for fear of missing this exciting event. This illustrates something of the role of planning in the lives of Eeyou hunters. While the groups would be moving camp many times during the winter, they were able to plan with certainty to be at a specific lake on a specific date, several months in the future. Calendars were used through the winter to tick off the days, partly since, for religious reasons, the Eeyouch observed certain restrictions on their hunting activities on Sundays.

Hunting groups were usually physically isolated all winter, since it was rare to visit another hunting group, except while passing through another's lands, or to seek assistance in the event of severe food shortage, an accident, or sickness. Despite this isolation, neighbouring groups and far distant friends remained part of a group's social world, as subjects of conversations and speculation as to their hunting success. Once in mid-winter, when I was on a hunting trip with an Eeyou hunter, we climbed to a lookout place, from where we could see a troop of caribou in the distance. I asked my companion if we should go

after them. Noting the direction in which the caribou were travelling, roughly towards the camp of a neighbouring group, he responded, “No, let George have those caribou.”

At the time of my research Eeyou hunters and their families were generally literate in their own language, using the syllabic script, and at times people would write letters. In some cases, letters arrived from friends or relatives with the trader’s visit. Letters might be sent out, for example if a traveller would be visiting another hunting camp. On the major trails used by several hunting groups, messages were sometimes left at cairns for others who would later pass that way. In the past a system of message sticks had been used for the same purpose, indicating to those who came later a group’s direction of travel and other pertinent information (Skinner 1911: 47–48).

In some cases hunters did not spend a winter on one specific hunting territory, but would travel and hunt further afield. In the early 20th century there had been a period of widespread shortages of many of the main animals on which Eeyou hunters depended, so that many families were forced to roam far and wide, beyond the boundaries of a territory, in order to subsist on whatever small game or fish they could find (Tanner 1978). Some hunters travelled and hunted over even longer distances, partly for the experience of seeing distant places or to trade where prices were better. Such travel included visiting relatives, who, through the common practice of intermarriage between regional groups, would have been living at far distant locations. Marguerite MacKenzie recounts an incident when she was working with a Naskapi elder in Schefferville, at the middle of the Quebec-Labrador peninsula, having herself just travelled by plane from Chisasibi (a large Eeyou village on James Bay) to Goose Bay, Labrador, and would be continuing to Davis Inlet (on the coast of Labrador). His response to her travels was: “I have seen all those places, but I walked!” (personal communication).

Spiritually, *nuuhchimiich* (“the outdoors”) was considered to be clean. Although camps were always kept tidy, as an area of human habitation it was spiritually polluted. This can be seen in the treatment of the inedible remains of

game animals. These were sacred materials, and as such, the bones of animals were not allowed to be discarded on the ground of the campsite. Skulls and other bones of land animals were hung in trees or on a special bone platform, while those of the water animals were returned to the water, out of the reach of dogs or other scavengers. Along with their animist beliefs and practices, most Eeyou were also converts to the Anglican faith. At the time of my research most Eeyou saw no conflict between their animism and Christianity. Because the spiritual aspects were associated with the bush, while travelling, hunters are not just on the alert for signs of the physical existence of animals, but also for indications of their ethereal presence.

Winter Travel

Movement was a central aspect of all of the most important hunting activities of the Eeyouch. In the period from October to the following June, snow covered the ground, the lakes were frozen, as were most rivers, except where there were waterfalls or large rapids. In urban Canada, a heavy snowfall disrupts the normal functioning of most forms of travel, at least for the time it takes to remove the snow from roads and parking lots. For Eeyou hunters, however, such snowfalls hardly disrupted normal activities. Fresh snow around the camp was simply trampled down by snowshoe, and some of the new snow was piled around the tent walls as added insulation. For the Eeyouch, winter was in many ways the time of plenty, in no small part due to their ability to travel easily on snowshoes. While wearing them hunters could walk virtually anywhere they wished, unlike in summer, when, in addition to the annoyance of the insects, they may have been excluded from certain areas, such as where the forest was too dense or where the land was too boggy. In winter, however, the frozen-over lakes, rivers and boggy areas were ideal for travel by snowshoe.

Eeyou hunters often spoke of their travel in terms of being on a trail (*yiskinuu*). This term was used whether they followed a path already in existence or one that they created by “breaking trail,” that is, by being the first to use that particular

route through the snow that winter. Breaking trail in snow requires more energy than following an already established one. The term *yiskinuu* thus referred to both a trail and a travel route.⁵ In winter, animal tracks would show up in the snow, and since there were usually snowfalls every few days, hunters would know how fresh the tracks were. However, when tracks of game animals were encountered along the same route as the hunters were travelling, they would walk alongside them, but not on the tracks. This was in order to avoid offending the animal, as well as to learn what they could about the animal's direction and speed by carefully observing the tracks.

The Eeyouch hunted both individually and in groups. On most days, individual hunters would go off in different directions, each setting traps and snares and checking previously set ones. At other times, two or three hunters would leave together, particularly when it was felt there was a chance of harvesting big game along with each of the hunter's individual trapping activities. Finally, when conditions were right, there would be communal hunts, when a group's hunters would go together for moose, caribou, or bear.

On the trips involving either individuals or small groups of hunters, new beaver colonies would be discovered, often by simply noting the frozen surface of a pond while walking past. If this surface, even under several meters of snow, had a concave appearance, hunters would go on their way without further investigation. If, however, the surface of the snow on the pond was flat, this indicated that there was an active beaver colony. The beaver builds and maintains a dam to keep the water level in a pond artificially stable, whereas in a natural pond the level drops as the water drains during the first part of the winter, giving the frozen surface a concave appearance.

While the big game animals, moose, caribou and bear, were generally hunted communally at particular times during the winter, beavers were harvested more

5 Today, long-distance snowshoe walks are of great symbolic significance to northern Canadian indigenous people, first as a form of healing to address social disfunction and more recently as a form of political action in support of indigenous rights and cultural survival (Everett-Green 2014).

regularly. Beaver was a key food item for the group, eaten almost daily, while its fur was also their main trade item. Each adult beaver brought in an average of 13 kg of meat, of particularly high nutritional value. This was because, unlike most northern game animals that lose their fat over the course of the winter, the beaver continues to feed every day on the supply it has stored at the bottom of the pond. Beavers thus maintain their thick layer of fat all winter long, and this is an especially prized form of food for the Eeyouch.

On these trips, other small animals or game birds were harvested opportunistically. The Eeyouch preferred not to travel at night, so that these daily journeys were generally of limited duration in the mid-winter period of short daylight hours, but later in winter, there would be long hours of travel. Each evening in camp the hunters would exchange information as to what they had encountered that day. The Eeyou language has a particularly elaborate vocabulary for geographic features and a grammatical structure that allows individuals to describe with precision places that are out of sight (Neacappo 2012).

Snowshoe Travel

Winter travel means walking on snowshoes (*asaam*). A basic ability is easy to acquire, but with experience hunters were able to use them with great facility. Some Eeyou snowshoers could do some amazing tricks while wearing them. Several styles of snowshoes are made in the hunting camps, some of which were mainly for use around the camp. But for travel the longer narrower snowshoes, called *chaahkuhweusaam*, were most suitable, particularly for breaking trail in fresh snow. A variety of skills came into play in snowshoeing, including manipulating them to take account of the appearance of the snow, in order to avoid hazards, like the hidden hollow areas next to trees. In addition to paying attention to all their surroundings, hunters had to continually watch where they put their feet. Running on snowshoes was a little more challenging, acquired with practice. The importance of snowshoeing in Eeyou culture was marked by a child's first walk on them, which was ritually celebrated.

Long days of snowshoeing, in some cases while pulling a loaded toboggan, also called for endurance, which for the Eeyouch was as much a psychic skill as a physical ability. Eeyou youth were taught to ignore tiredness, hunger and muscle pain. However, hunters did not need to practice such endurance every day. Some days only light work was done around the camp, and there were many other times when the whole camp did nothing but feast or rest, although the women did at least some work each day.

Snowshoeing is a moderately energetic activity, such that when walking with them the body generates heat. Consequently, except in cold weather (below -20°C), Eeyou hunters only needed to wear jackets without hoods, allowing them to be more aware of their surroundings than if they had been wearing hooded parkas. In fact, when travelling hunters often complained when the temperature rose higher than -5°C, because the snow became sticky and clogged the snowshoes. At such times the term *chichikamushitesihhk* is used when a person's ability to walk was impeded, referring to hard little balls of snow that would become stuck under the foot on snowshoes. Users had to stop frequently to remove clogged snow, often with the exclamation "It's so hot!" The Eeyouch have a number of rituals designed to change the weather, and those most commonly used in winter were directed to the spirit of the North Wind, to make the temperature colder. However, when stopping on the trail, hunters generally kept warm by making a fire and drinking hot tea.

Travel for the Eeyouch involved many kinds of skills. Trails over frozen lakes and rivers or through areas without trees was often more convenient than travelling on land, because it avoided hills or the need to hack a path through the trees. However, travel in open areas was not without hazards. During periods of blowing snow, visibility sometimes became restricted to near zero by whiteouts, to the point that even following an established trail became difficult. In such circumstances hunters would find their way by feeling where the snow had been compacted by the tracks of people previously travelling the same route, in some cases even after the trail had been covered by fresh snow. Small trees were sometimes planted at intervals alongside a trail, to help people

find their way on the return trip. Sometimes the wind blowing the snow left a slightly lighter sky on the horizon, which the hunters could follow using their knowledge of the landscape. There was also the danger of the wind freezing a person's cheeks or nose before they became aware of it, so that groups of travellers periodically checked each other's faces.

Hunters would judge the thickness of river or lake ice, even when covered with a thick layer of snow, to see whether it was dangerous to walk there. They did this by tapping the ice surface through the snow with a pole. The same technique was used to find the underwater entrances of a beaver lodge, where traps were set. The ice was thinner where the animals swam each day from the lodge back and forth under the ice, and hunters located these under-ice paths by listening to the sound made by tapping the ice with a pole. Walking on ice could be particularly hazardous during freeze-up and breakup, especially at the edges of lakes and rivers, and again travellers tested the ice to find places where they could cross.

Some winter travel by Eeyou hunters, particularly when moving camp or hauling the meat of large game animals to camp, involved the use of dogs for pulling toboggans or sleds. There were sets of dog commands, only one of which, *kuisk*, meaning "go straight ahead," is an Eeyou word that means the same in other contexts too. At times a toboggan was pulled jointly by a hunter on snowshoes along with one or more dogs running ahead of him, attached to a line from the toboggan passing between the hunter's legs. Dogs were well fed and seldom punished, although they were generally not allowed inside a dwelling.

While travelling, hunters would often be pulling a loaded toboggan or sled, which involved a whole set of other skills, including techniques for lashing the load so that it did not shift or fall off on the journey. In particular, ability was needed for maneuvering a loaded toboggan downhill. When young children were transported by toboggan, for example when the group was moving camp, they were carefully and tightly wrapped up, sometimes in a moss-bag attached to a cradleboard, so that they could not move, which otherwise might have allowed the cold to penetrate the covering of blankets. Some elderly people

were unable to walk long distances, and consequently, when moving camp they too were transported by toboggan or sled.

Travel Clothing and Technology

At the time of my research most of the clothes worn by hunters and their families were store-bought, but the coverings of the extremities were made by the hunters' families. The moccasins, mitts (or gloves with large cuffs) and hats were all made in camp, mostly from local materials. These particular items were of special importance for travel, as the body's extremities were vulnerable to the cold. Making these items in camp involved a complex and time-consuming process of tanning and sewing hides, with a lot of this work being done by women. A hunter would wear through several pairs of moccasins in a season. Most camps had hand-operated sewing machines, which were used for making canvas tents or lodge roof covers and for some repairs to clothing.

In the case of footwear, the combination of moccasins and Eeyou-made snowshoes was essential, because of the style of snowshoe binding they used. This binding is a simple loop behind the heel, with the toes tucked under a strap over an opening in the snowshoe netting. No kind of footwear other than moccasins could be used with this kind of binding, the combination of the two giving a particularly flexible attachment. This allowed for greater manipulation of the snowshoe by the foot than would be possible with the more rigid form of binding of commercial snowshoes made for boots. With this loose binding, snowshoes could also be removed or put on quickly, when quick action was needed, with nothing but a practiced flip of the heel.

Hunters wore moccasins year round, but in wet conditions, especially at freeze-up and breakup, waterproof boots were needed. Hunters were especially fastidious in taking care of their feet and their footwear. While moccasins would keep the feet warm and dry when outside, any snow on them was carefully brushed off upon entering a dwelling. Moccasins could

become damp with sweat, and were dried overnight and softened in the morning. Wearing moccasins was a very different experience from wearing shoes or boots. The Eeyouch made their own inner linings for moccasins, either from rabbit (arctic hare) fur or duffel, a blanket-like material obtained from the trader. When walking in moccasins, the foot flexed more than when wearing boots or shoes, so that foot muscles got more use and this helped to keep the feet warm.

Like moccasins, the mitts and hats that were made in camp were considered superior to any available commercial ones, in terms of keeping these parts of the body sufficiently protected from the elements, without impeding their use. Other items of travel technology made in the hunting camps included snowshoes, toboggans, sleds, snow shovels and handles for axes and ice chisels (Lévesque 1976). Hunters needed to know how to make these kinds of camp tools, beginning with selecting the right wood or other materials, in some cases using only using an axe and a crooked knife. As noted by Guidon, the term *aamahtaaukaschihtaa* was used for a person who was capable of doing many such things (Guidon 2013: 33). Depending on the context, this term can mean the ability to do something in an amazing, wonderful, magical, or even weird way. While the Eeyouch recognized that some hunters had particular abilities at such tasks, as each hunting group was self-sufficient all group members needed to have some such abilities.

An additional reason that moccasins, mitts and hats were made in the camp was because they were decorated with Eeyou designs. This practice stemmed from the Eeyou animist ontology, in which everything, including each of the game animals, as well as parts of the body, had a soul. Decorations were not only aesthetically attractive to humans, but they were intended to please the spirits and to ensure that the particular body part covered by them did its part efficiently in harvesting game. The Eeyouch had a rich history of the decoration of objects to please the spirits. Previously, shamans had worn special hide hunting coats with elaborate painted decorations when they were on special hunts. Many examples of these coats are now in museum collections in Europe

and North America (Burnham 1992). Another related use of decorated hides was the “Ceremonial Hides,” which, in the recollections of people I interviewed in the 1970s, had been in use one or two generations previously. A ritual had been held in which these hides had been ceremonially painted and “fixed” by exposing them to the rising sun, later to be displayed at the doorway of a feast tent (Tanner 1984).

Eeyou snowshoes were also decorated, with tufts of colored wool on the frames and with lacing painted with decorative patterns, again in order to please the spirits and to lead the hunter to the game. Toboggans and snow shovels were usually given painted decorations. Other items used in hunting, such as guns, gun cases, ammunition pouches and the hunting bags used for carrying small game, were also usually decorated, as was the tent door, in all cases in order to make them pleasing to the spirits. Small game was carried to camp in a decorated bag slung over the shoulder, and large animals were brought back on a toboggan or sled or, if none was available, by packing the meat in a bundle wrapped within the animal’s hide and dragging this back to camp over the snow. Another decorated item used in hunting was the *niimapan*, a colored cord used to transport certain animals back to camp. Mid-sized game like beaver, porcupine, or the forelegs of large game, brought to the camp as tokens of a large kill, were dragged behind the hunter on the snow using the decorated niinapan cord (Tanner 2014: 218).

Summer Travel

For the season of open water, a lot of travel was by boat. The main activities of hunters during this season were fishing (particularly at spawning places or at fish runs), harvesting geese and ducks, and gathering berries. At the time of my research, some hunters had factory-made boats or freight canoes equipped with outboard motors, but when crossing overland for travel beyond a particular lake, the small light canoe was essential. Camps in summer were

sometimes located on islands, to guard against devastation by forest fires and to prevent the people being bothered by insects.⁶

In the summer, travel on land was somewhat limited, whereas canoe travel was common. At times, such as when moving in later summer to their winter hunting grounds or moving the location of a summer camp, Eeyou travellers were often obliged to carry their canoes and their supplies across the portage trails that linked water bodies. In some cases, unloading and reloading a canoe could be avoided by shooting a rapid or by dragging and poling the canoe over the rapid against the flow. This was understood to be a dangerous undertaking, and hence, to ensure that a canoe would pass the rapids safely, an offering of tobacco was usually dropped into the water.

In some places the forest was too thick for a hunter to penetrate, particularly in summer. The more northerly parts of Mistissini lands contain more open-crown forest than further south. In this kind of forest, trees grow sufficient far apart that the ground between them is covered with moss, and travel through the trees is easier than was often the case further south through closed-crown forest. In some areas of closed-crown forest, large animals like moose, caribou and bear maintain permanent trails through the trees, which hunters could sometimes use when travelling.

Planning and Nomadism

My focus in this paper is on hunter-gatherer travel, which inevitably raises the topic of nomadism. Although Eeyou hunters moved habitations at least every few months, they maintained a kind of symbolic continuity of residence. This was manifest in the standardized internal dwelling arrangement and in the location of camps, generally on the western or northwestern shores of a water

6 In terms of travel, for some indigenous Canadians, summer is also a time to undertake religious pilgrimages. Many in the Quebec-Labrador region who adopted the Roman Catholic faith take the pilgrimage to Sainte-Anne-de-Beaupré around July 26. The Eeyouch, however, were mainly missionized by Anglicans.

body, so that the tent doorways faced the rising sun. The Eeyouch were thus able to maintain the illusion that their dwellings did not change.⁷ This illusion is also fostered by practices such as a taboo on children counting the number of poles in a conical tent, allowing them to feel that they were always living in the same dwelling. In another sense, some Eeyou habitations were indeed fixed, in that either existing dwelling frames were revisited and reused or a habitation site was reoccupied by building new dwellings. In some cases, this kind of reoccupation occurred annually. A common location of camps that were reused annually was at one end of a portage trail, or adjacent to a known and reliable harvesting location.

The movement of Eeyou hunters was patterned so as to avoid over-hunting. The main food animals of the region, beaver, moose and fish, were relatively sedentary and vulnerable to over-exploitation. Beaver could have easily been trapped out in an area by skilled Eeyou hunters, unless they had practiced conservation, by purposefully allowing some animals to escape. Moose were also vulnerable to over-hunting, particularly during those winter months when the snow was deep. During that season, moose effectively penned themselves up in “yards,” areas within a stand trees in which the snow has been trampled down. If any moose had left these yards they would have soon become exhausted, walking through the deep snow, and then would have become easy prey for wolves (Estigarribia 2006: 33). Again, by practicing conservation, each year taking only one or two of a group of yarded moose, Eeyou hunters were able to return year after year to these areas to harvest. There are other harvesting places to which Eeyou hunters returned annually. On the coast of James Bay, thousands of geese arrive annually, and hunters went annually to favorable goose-harvesting sites. Another such example was at fish runs or places where fish were known to spawn. Thus, Eeyou nomadism was patterned by harvesting a succession of areas, as well as periodically returning to known reliable harvesting areas, either annually or on a longer cycle.

7 On the subject of the habitations used by Eeyou hunters, see Tanner 2016.

Wayfaring

Ingold contrasts two approaches to travel: wayfaring (in which the traveller goes from place to place within a region) and transport (in which the traveller moves from one specific location to another) (Ingold 2007: 75–84). He cites examples of hunter-gatherer travel as wayfaring. Aporta is cited as saying that for the Inuit “travelling was not a transitional activity between one place and another, but a way of being ...” (Ingold 2007: 76; Aporta 2004: 13). A tropical hunter-gatherer example of wayfaring is given by Lye, who writes that “Walking on a trail, the Batek are actively monitoring it. They are looking at changes in the vegetation, spotting animal spoor and traces, indicators of change, swapping information [...] a pathway is not just a line between departure and arrival. It is a route to knowledge” (Lye 2004: 64). Wayfaring travel is not destination-oriented—simply getting from one place to another—but more like “creating a path,” so that effectively, the hunters’ movements through space are an ongoing path of self-renewal.

The concept of wayfaring would seem to be exemplified by the second of the two aspects of hunter-gatherer travel that I noted at the beginning of this paper: that while travelling, Eeyou hunters were, at every juncture, observant, selecting their route on the basis of significant clues in the environment. Ingold also acknowledges that some hunters may at certain times engage in transport. He cites the example of the Orochon of eastern Siberia, in which a hunter travels in a zigzag pattern when he kills animals along the way (wayfaring) and takes a more direct route when he subsequently returns to collect his prey, travelling to where each animal had been cached and back by the most direct route to his camp (transport) (Ingold 2007: 81; Kwon 1998).

An Eeyou legend, “the boy who was kept by a bear,” places special emphasis on a distinction very much like that between “wayfaring” and “transport.” In the story, the father of the boy that a bear has taken sets out to get his son back. Both the father and the bear have shamanistic powers. The father uses his power to locate the bear’s den, and the bear uses his power to try to distract the father from approaching the den. In a sequence of three such distractions,

the bear first causes a beaver lodge to appear to the side of the man's trail, then a partridge to fly out from under the snow at another place near the trail, and finally a porcupine to appear on a tree at a third place. In each case, however, the hunter avoids being distracted from his quest and resists going after these animals. The legend emphasizes how despite each distraction, the hero keeps going straight to the den, where he kills the bear and retrieves his son (Charlie Etap, in Tanner 2014: 225–226). The father's progress towards the bear's den is in keeping with Ingold's concept of transport, that is, he single-mindedly goes directly from his camp to the bear's den, avoiding other kinds of opportunities—ones that a wayfaring-oriented hunter would normally stop to investigate or harvest.

Events in legends are often the opposite of normal, so that under most (non-magical) circumstances a hunter would have taken advantage of opportunities along the way, an attitude that exemplifies a “wayfaring” form of travel. But in their wayfaring, Eeyou hunters also carried out certain plans. Moreover, when travelling in unfamiliar areas hunters were influenced by what others told them to expect. For instance, a member of a hunting group with whom I lived had never previously been in that region, which was in the far northern part of Mistissini lands. Animal resources were more thinly distributed than in the areas previously used by this hunter. The hunting territories were larger, caribou were more often encountered, and hunters generally needed to travel more widely in their hunting trips. Most winter days the newcomer to the group would set off on his own, to areas selected for him by the hunting territory leader, and with the advice of the leader's son, who also knew the area. His wayfaring would have been influenced by features of the land that he had been told to look out for. Each night, particularly in the mid-winter period when the group lived communally, he would share his daily experiences with others in the group.

The travel of Eeyou hunters involved aspects of both “wayfaring” and “transport,” in Ingold's sense. I noted above that when on a route previously travelled by hunters, hunters would take care to follow the existing trail. When

hunters made a large kill, such as a moose or several caribou, they would eviscerate the animals and bury the meat under the snow, returning to camp with only “tokens” to announce the kill. The next day the active adults in the group would go together to the kill site to transport the meat directly back to camp. When a new camp site had been chosen and some preparations had been made there, on the day of the move the whole camp participated, hauling loaded toboggans directly to the new site, in some cases making two or three such trips. Depending on the distance, when moving camp it was usually necessary to travel quickly, in order to arrive in time for the camp to be put together in whatever daylight hours were remaining. This allowed little time for wayfaring along the way, although hunters did not ignore their surroundings. In their harvesting, hunters had certain objectives, to head to where it was known that game animals or trapping opportunities were likely to be found or where traps had been previously set. In carrying out these plans hunters also remained on the lookout for other opportunities on the way. The need to get back to camp by night also imposed some limitation on the “wayfaring” aspect of hunting trips.

Conclusion

A key metaphor for many cultures is a journey out from home (with an encounter, a crisis, a resolution) and a return home—from Homer’s *Odyssey* to each episode of the Eeyou “Tchikabes” cycle of myths (Preston 1988; Piastitute 2014). It is also a pattern of movement followed by Eeyou hunters almost daily. They had a goal and a plan, but each journey was a new experience, an adventure, as hunters were also on the lookout for, and often encountered, unplanned possibilities.

My motives in writing this paper have not been to propose generalizations about travel that apply to hunter-gatherer societies in general. Rather, in the context of observations with one group of subarctic hunter-gatherers, I wonder if any of the points in this paper resonate with what is known about other hunter-

gatherers and in particular about their ways of travel. Walking is probably an especially common and important form of travel among hunter-gatherers, an optimal form of travel for making observations *en route*, at the same time that the traveller can achieve the end purpose of the particular journey (Ingold and Vergunst 2008). “[...] something important about the phenomenology of walking for Batek, and possibly other hunter-gatherers: it is not really where one goes that is ultimately important; it is where one can return to. Moving forward in time and space is also about moving back—to old camps and pathways, the past, and history” (Lye 2008: 26). As most hunters walk in their journeys, it is likely that the feet have a special importance in these societies, as hunters are especially vulnerable if their feet or legs become wounded.

Travel among hunter-gatherers involves planning, along with detailed observation, which build up an individual’s environmental knowledge, aspects of which have been passed down from elders. In prehistoric times, long-distance trade journeys were especially important for many hunter-gatherers. While the kinds of travel skills employed may not be entirely unique to hunter-gatherers, I suggest that in such societies they are particularly well developed and are in use virtually on a daily basis. Hunter-gatherers have a special attachment to the land they occupy, as they know their surroundings in a holistic way, being especially knowledgeable about their environment.

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On the Way to the City: The Central Role of 'En Esur ('En Asawir) in the EB IB Settlement Pattern in the Coastal Plain of Israel

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Introduction

'En Esur ('En Asawir) is located in the northeastern Sharon Plain, near the western opening of Naḥal 'Iron (Wadi 'Ara; Fig. 1). The site comprises three main elements: 1) the main mound, known as Tel Esur, and the small mound to its southeast; 2) the protohistoric site of 'En Esur, covering the area around the mound, with its core in a small hillock approximately 220 m to the south; and 3) the cemeteries, consisting of dozens of rock-hewn burial caves, to the east and south of the settlement.

The site was first surveyed by the Palestine Exploration Fund and W.F. Albright, who mistakenly identified the tell as Yaham (Albright 1923: 9). A. Alt identified the site as Aruboth, following his survey (Alt 1929: 34; 1932: 31), but this proposal too was mistaken. The first comprehensive survey of the site and its environs was carried out by R. Gophna, who was the first to estimate the dimensions of the protohistoric site.

The main mound and the small mound are being excavated by the Haifa University. Several excavation seasons in 2001–2003 (Zertal 2003) and since 2010 (Bar 2016) have revealed occupation layers from the Early Bronze Age I, the Middle Bronze Age II, the Late Bronze Age and the Iron Age II, as well as from the Persian, Hellenistic and Roman periods.

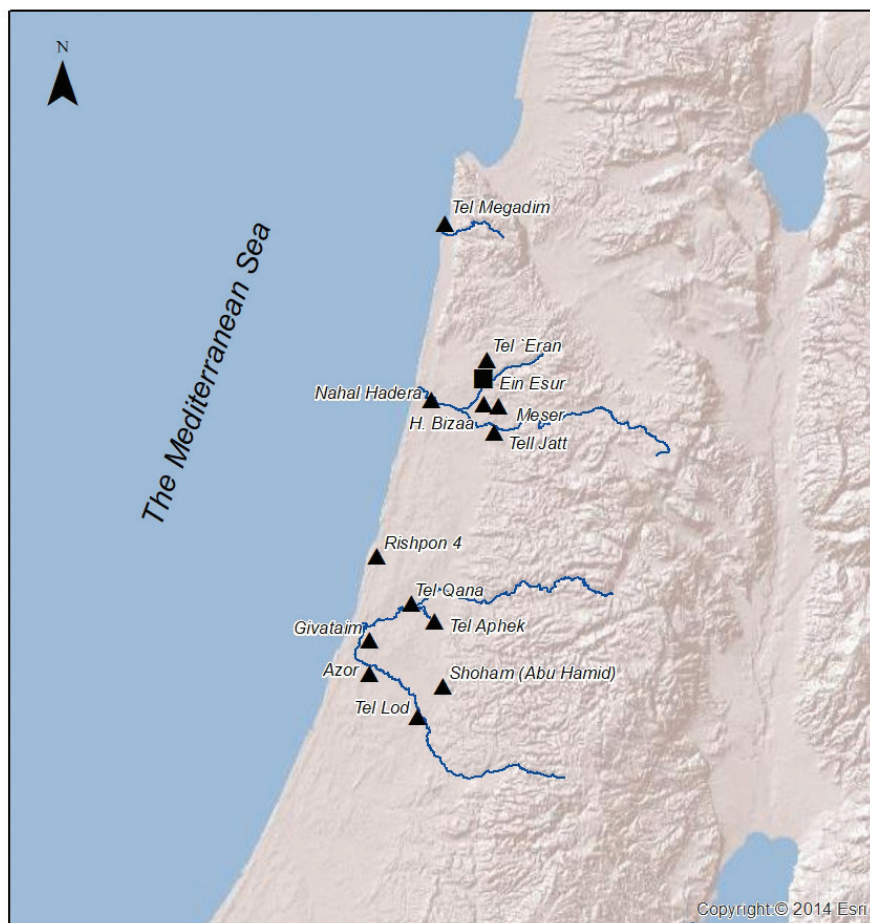


Fig. 1: 'En Esur in the Sharon Plain

The protohistoric site was first excavated during the 1990s by E. Yannai. This quite large-scale salvage excavation, conducted along Road 65, has revealed a continuous settlement that existed at the site between the fifth–late fourth millennia (Chalcolithic to Early Bronze IB; see Yannai 2006). The eastern and

southern cemeteries were investigated during salvage excavations and partially published (Yannai 2016).

A mega-scale salvage excavation conducted at 'En Esur in 2017–2019 on behalf of the IAA have revealed a huge settlement (no less than 65 hectares), dated to the late fourth millennium BCE. This settlement seems to display several aspects of planning, testifying to an early urban site.

A Word on Methodology

The current paper will not discuss the intra-site characteristics of planning and urban traits, but will focus on the spatial aspects of these traits, i.e., the settlement pattern that characterizes the site within the Coastal Plain of Israel. It is suggested that different patterns typified rural and urban settlement systems (see, e.g., Joffe 1993: 70); thus, these two systems will be compared with the pattern of 'En Esur. The settlement pattern of the environs of EB IB 'En Esur will thus be compared with the thoroughly studied EB IB settlement clusters located at the western and northern flanks of the Yarkon-Ayalon basin (Gophna and Paz 2014).

'En Esur during the Early Bronze IB

The protohistoric site of 'En Esur is situated in a large alluvial plain adjacent to two season-long abundant springs and Naḥal 'Iron. During the EB IB 'En Esur was already a long established settlement. It was first settled during the Pottery Neolithic and the site grew significantly during the Early Chalcolithic. After a short interval the site was occupied continuously from the Late Chalcolithic until the end of the EB IB (Elad, Paz and Shalem 2018). Starting as a relatively small village, concentrated in the area between the two springs of the site, the settlement reached its zenith during the late EB IB, when it became a massive settlement that spanned over 65 hectares, the largest known EB IB site in the southern Levant.

The 2017–2019 excavations conducted at the site have exposed not only the sheer size of the EB IB settlement at 'En Esur but also what we believe to be a clear example of an EB IB “proto-urban” settlement (see, e.g., Paz 2002). This phenomenon is exemplified by a large, densely built, settlement with several main streets that define the public domain, allowing free passage and access to different areas at the site and dividing it into several quarters consisting of complexes (Fig. 2). Several side streets or alleys are connected to these main streets, leading to clusters of built complexes. The streets were probably the main “channels” through which human beings, animals and goods moved within the settlement and therefore had been carefully planned and maintained.



Fig. 2: Street system and built complexes at 'En Esur

The streets' walls were retained, drainage systems were installed in them, and running water was manipulated in order to prevent damage to the streets.

We believe that the site-scale planning of 'En Esur, demonstrated by the complex network of streets and alleys, should be viewed in light of the accumulation of knowledge regarding the early emergence of urbanization in the southern Levant. Recent studies and excavations appear to support the notion that early urbanization started as already as the EB IB. The renewed excavations at Tel Erani have clearly demonstrated that the early EB IB settlement was fortified with a massive (8 m wide) brick wall (Yegorov and Milevski 2017). Excavations at 'En Zippori (Milevski and Getzov 2014), Hittin (Hartal 2011) and other sites (Getzov, Paz and Gophna 2001: 22–24; Paz 2002) all appear to attest to an early emergence of urban entities in the EB IB.

There can be little doubt that the site of 'En Esur reached its peak during the EB IB. The settlement grew significantly, reaching a size of ca. 65 hectares, indicating for the first time a site-scale planning and urban layout. The EB IB settlement of 'En Esur was probably the central focal point of the period in the Coastal Plain north of the Yarkon River, or the Sharon region. As a matter of fact, the only other large EB I site north of the Yarkon River is Tell Jatt (7 hectares) and possibly Tel Megadim (of unknown size).

A GIS study was initiated as part of our study of the landscape around 'En Esur and was conducted by M. Birkenfeld. All known EB I sites were plotted on a multi-layered map. It is easily discernable that 'En Esur is practically the only settlement in a radius of ca. 10 km (Fig. 3), suggesting that its huge dimensions are the result of a concentration of population from the entire region of the Sharon Plain. Moreover, the sites visible in Fig. 3 may be dated to the EB I, although a more accurate date is not available, except for the site of Meser, which was attributed to the EB IA (Dothan 1959).¹

1 The sites of Nahal Hadera, H. Bizaa (Na'aman 1990) and Tel Eran (Dagan and Eisenberg 2007) do not provide further information regarding the exact date within the EB I.

Two Settlement Patterns in the Central Coastal Plain: The Yarkon-Ayalon Basin as a Control Group

The settlement pattern of 'En Esur and its vicinity may now be compared with other areas of the Coastal Plain of Israel in order to achieve a better understanding of the effect of a large site on its surrounding. In the Yarkon-Ayalon basin (Fig. 4), 27 EB IB settlements and three artifact scatters, as well as nine burial sites, are known. They can be generally divided into three sub-regions or clusters that were all connected to the Yarkon-Ayalon river system (Gophna and Paz 2014). We will address two of the three clusters, being geographically and culturally closer to the 'En Esur system (Fig. 3). Most settlements in all three clusters were open-air sites, but a few dwellings and storage facilities in caves sites (such as Giv'at Qesem) were also encountered. Cave sites are found in the Upper

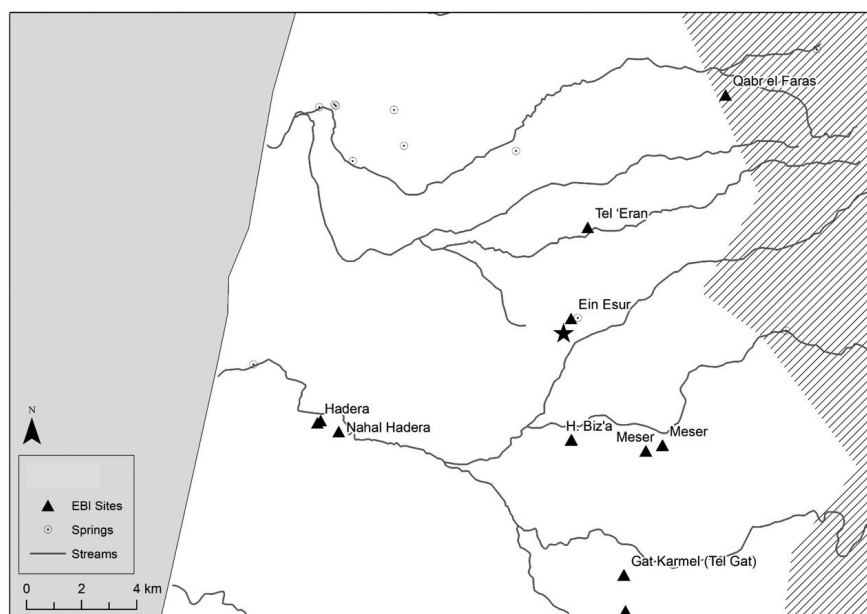


Fig. 3: 'En Esur within its settlement system during the EB IB

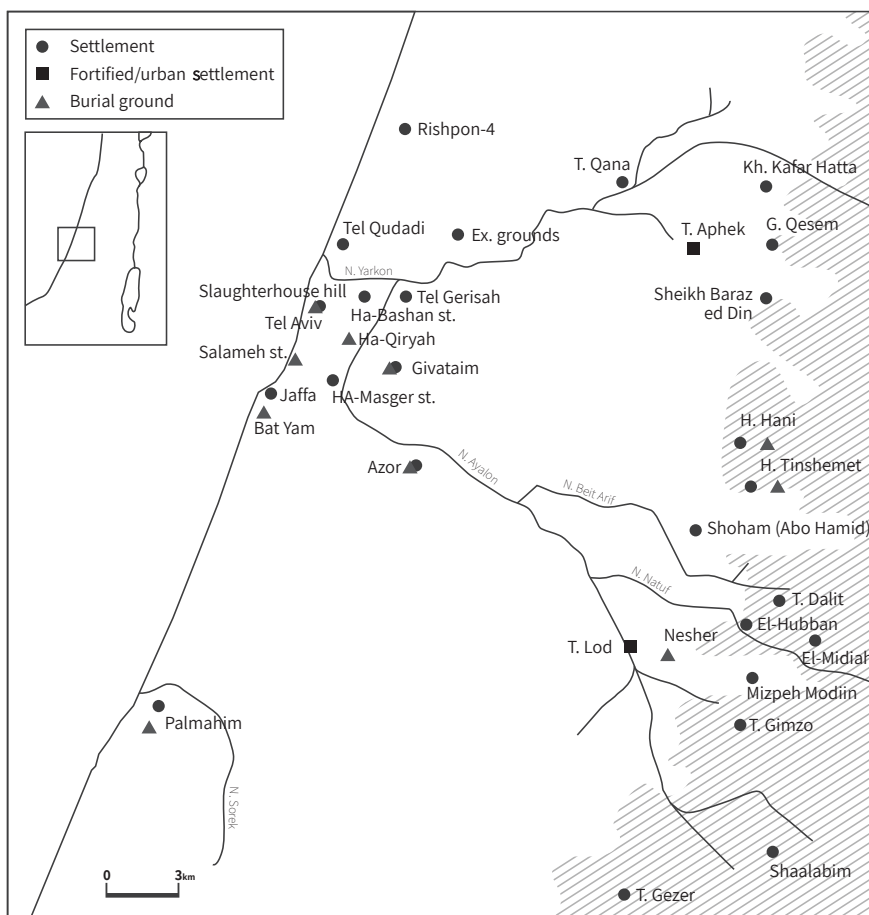


Fig. 4: The Yarkon-Ayalon northern and western settlement clusters during the EB IB (after Gophna and Paz 2014: Fig. 1)

Shephelah, noted for its limestone bedrock outcrops, and are likely indicative of open air settlements whose remains have no longer preserved.

The northern cluster (Fig. 4) is located along the extension of the Yarkon River in the vicinity of Tel Aphek. It includes the settlements of Tel Aphek, Stratum B VIIIa-c, Tel Qana, Giv'at Qesem and Sheikh Baraz ed-Din. The major settlement

in this cluster was Tel Aphek, in which a fortified urban center that occupied no less than 12 hectares, flourished and dominated the Yarkon fords (see, e.g., Kochavi, Beck and Yadin 2000: 67; Paz 2002: 242).

The western cluster (Fig. 4) is located along the northern extension of Naḥal Ayalon, between its meeting point with the western end of the Yarkon River to the Mediterranean—an area of ca. 15 km × 7 km. This region seems to have been rather extensively occupied during the EB IB, with no less than nine settlement sites and six burial sites. The settlement sites are located both north and south of the Yarkon River. North of the Yarkon we note four sites: Rishpon 4 (Gopher *et al.* 2017: Chapter 16), Sede Dov (a recent excavation directed by Y. Marmelstein on behalf of the IAA), the Exhibition Grounds and Tel Qudadi (Gophna and Paz 2011). While the latter three sites were only represented by a score of sherds that may offer a EB IB date, the excavation at Rishpon 4 yielded large amounts of pottery that reflect the northern late EBI traditions, as well as a rich assemblage of “Proto-Metallic Ware,” which should be dated to the late EB IB (see Gophna 1978; Paz 2010; Paz, Shoval and Zlatkin 2009). South of the Yarkon River, the following appear to have been settlement sites: Ha-Bashan Street, Tel Gerisah, Ha-Masger Street, Jaffa and Azor (see Gophna and Paz 2011; Gopher *et al.* 2017: Chapter 20). An important settlement in this group of sites must have been Azor, whose related cemeteries yielded vast amounts of finds, among which we may note Egyptian artifacts that hint at the presence of an Egyptian community within the Canaanite site, much like Lod (see Ben-Tor 1975).

Conclusions

The 2017–2019 excavations at the site of ‘En Esur revealed that during the later phase of the EB IB the settlement developed into an enormous site (65 hectares), heavily populated and arranged in a site-scale planned street network. These finds reflect an early urbanization process and lead us to define ‘En Esur as an urban settlement. It is of course important to note that ‘En Esur was not a sole

component in the early urbanization of the southern Levant during the late fourth millennium BCE. As was already stressed by Paz and others, there was a “proto-urban” settlement process during which EB IB settlements exhibited urban characteristics (Paz 2002; Getzov, Paz and Gophna 2001).

All in all, the settlement at ‘En Esur was far larger than any other site during the EB IB. Accordingly, and in light of both the architecture and material culture, it may be suggested that ‘En Esur played a major role in inter-regional trade and that it was probably a focal point for the entire settlement system of the Sharon region. The domination of the site in the northern Sharon Plain was so apparent that very few contemporaneous sites are found in the immediate vicinity.

This phenomenon was examined in comparison to two additional areas, both located in the central Coastal Plain. In the western Yarkon-Ayalon basin a cluster of sites, centered in the Tel Aviv region, with no large urban settlement, are found. This cluster is characterized by many small rural settlements and several connected burial grounds that co-existed during the EB IB (Gophna and Paz 2014). On the other hand, north of the Yarkon basin (the northern cluster), Tel Aphek, which was fortified and probably urban in nature, stood almost alone in its associated surroundings. The differences between the settlement pattern that characterizes ‘En Esur and that of the western Yarkon-Ayalon basin, on the one hand, and the resemblance between the ‘En Esur pattern and the Tel Aphek settlement cluster, on the other are striking. In light of these two distinct settlement patterns, we would suggest that the lack of small settlements in the areas surrounding ‘En Esur and Tel Aphek should be attributed to the emergence of urban settlements during the EB IB.

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Hellenistic Hip Baths in Hasmonaean Farmsteads

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Background

The Hellenistic hip bath is a small, shallow bathing installation in which the bather would sit on a step and pour on himself heated water, which would reach hip height. Such baths were used both in private homes (Trümper 2010: 531; 2014) and in public bathhouses—*balaneia* (Fournet *et al.* 2013)—throughout the Hellenistic world from the 5th through the 2nd century BCE. In the Land of Israel they were found at a variety of sites, populated by the various ethnic groups of the times (Adler 2018: 13–14), including Tel Beth Yerah–Philoteria (Tal and Reshef 2017: 19, Fig. 3.6), Shiqmona (Elgavish 1974: 24, Pl. V), Mt. Gerizim (Magen 2008: 90–91), Rosh Ha-‘Ayin (Hadad *et al.* 2015: 57; Tandler and Shadman 2015: 195), Maresha (Kloner and Zissu 2013: 56–57), Kh. Burnat Southwest (Torgö 2012: 26*–27*), Kh. Umm el-‘Umdan (Onn *et al.* 2002: 65*) and Qalandiya (Magen 2004: 50). In the following paper I present and discuss nine hip baths from the late Hellenistic/Hasmonaean period recently excavated at two farmsteads in the Modi’in region.¹

1 The excavations (License Nos. A7484/2015 and A7647/2016) were directed by the author on behalf of the Israel Antiquities Authority. The areas presented in this paper were supervised by Y. Elisha, J. Marcus-Peretz, D. Masarwa and E. Zwiebel. Additional assistance was provided by S. Terem (ceramics), S. Krispin and M. Johananoff (metal detection), M. Kahan, R. Mishayev and R. Liran (surveying and drafting), A. Peretz (field photography) and Griffin Co. (aerial photography). The author is grateful to the late A. Kloner and well as to P. Gendelman, A. Shadman and R. Friedman for enlightening discussions on this topic. This research was supported by the Krauthammer Cathedra for the Land of Israel and Archaeology Studies at Bar-Ilan University.

The Excavations

Ḥorvat Ashun

The excavations at Ḥorvat Ashun/Kh. el-Wasūn (map ref. 198534/645673; Fig. 1) exposed most of a rural settlement, with strata ranging from the early Hellenistic period to the late Roman period (Tendler and Elisha 2017).

During the early Hellenistic period (3rd–early 2nd centuries BCE) a farmstead was established at the site. Remains of a farmhouse (Building A, 14.20 × 15.20 m) with an adjacent courtyard were uncovered; the courtyard enclosed a voluminous

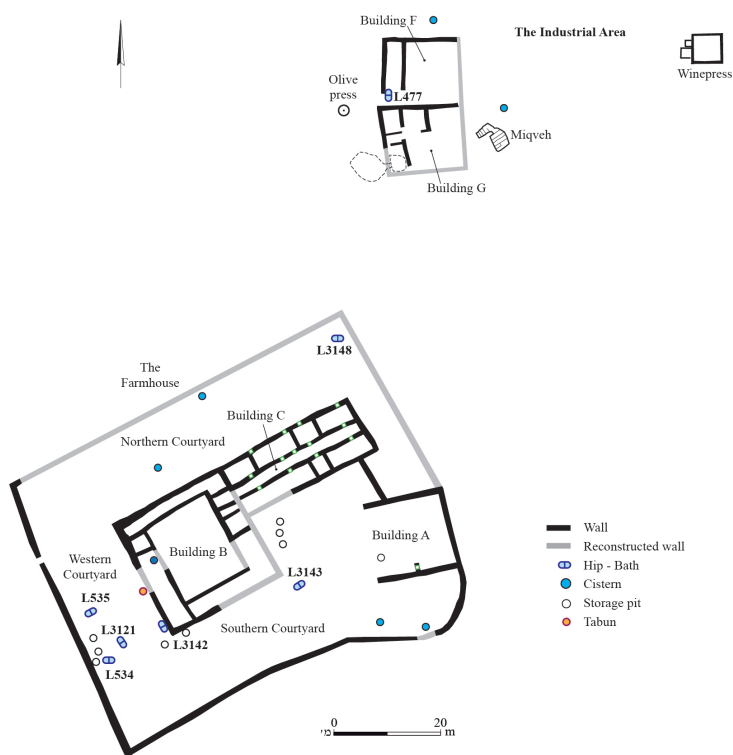


Fig. 1: Schematic plan of the main structures and installations from the Hellenistic period at Ḥorvat Ashun, note the location of the hip baths (prepared by D. Porotzki, courtesy of the Israel Antiquities Authority)

cistern. The structures from the subsequent periods had a different orientation from the building and courtyard.

During the Hasmonaean period (mid-2nd century BCE) a “protected farmstead” was established at the site.² A spacious farmhouse (54 × 70 m) with massive external walls was constructed on the summit of the hill. The farmhouse was composed of two buildings, called B and C, surrounded by courtyards. An industrial area was constructed on the northeastern shoulder of the hill. Building B (22 × 22 m) consisted of an internal courtyard flanked by rows of rooms on all sides. The external walls of the building were built from massive boulders (ca. 0.70 × 0.80 × 1.70 m). A rock-cut cistern was installed at the western edge of the internal courtyard and a *bodeda*—a small installation for extracting olive oil—at its eastern edge. Building C (13 × 25 m), constructed directly to the east of Building B, was an elongated building consisting of two rows of rooms divided by a corridor. Each of the rooms in the northern row could be accessed from the courtyard to the north as well as from the corridor to the south; the rooms in the southern row were entered via the corridor. This architectural plan is typical of storehouses later known as corridor *horreum* (Patrich 1996: 150), and indeed, that seems to have been the function of Building C. Courtyards served an essential function in ancient farmsteads: within them produce was processed, packaged and stored. The main features of the courtyards at Ḥorvat Ashun were rock-cut installations: cisterns, storage pits, grinding basins and the six hip baths described below (Figs. 2:1–6, 3:1–4,6–7).

The industrial area on the northern shoulder of the hill included: an olive press, an adjacent building, an industrial wine press, a *miqweh* (ritual bath), cisterns and storage caves. The round crushing basin and three beam weights are the only components of the olive press that survived. A building constructed immediately to the east of the olive press, probably functioned in conjunction with it. The building had two levels, founded on two natural bedrock terraces. The lower level consisted

2 Zissu (2001: 249–270; Eshel and Zissu 2015: 18–23) discussed the typology and hierarchy of the rural settlements of the Second Temple period. He classified protected farmsteads as farmsteads with a basic defensive tower at one of their corners (Zissu 2001: 255–256). I would include in this classification farmsteads with external walls built of massive boulders.

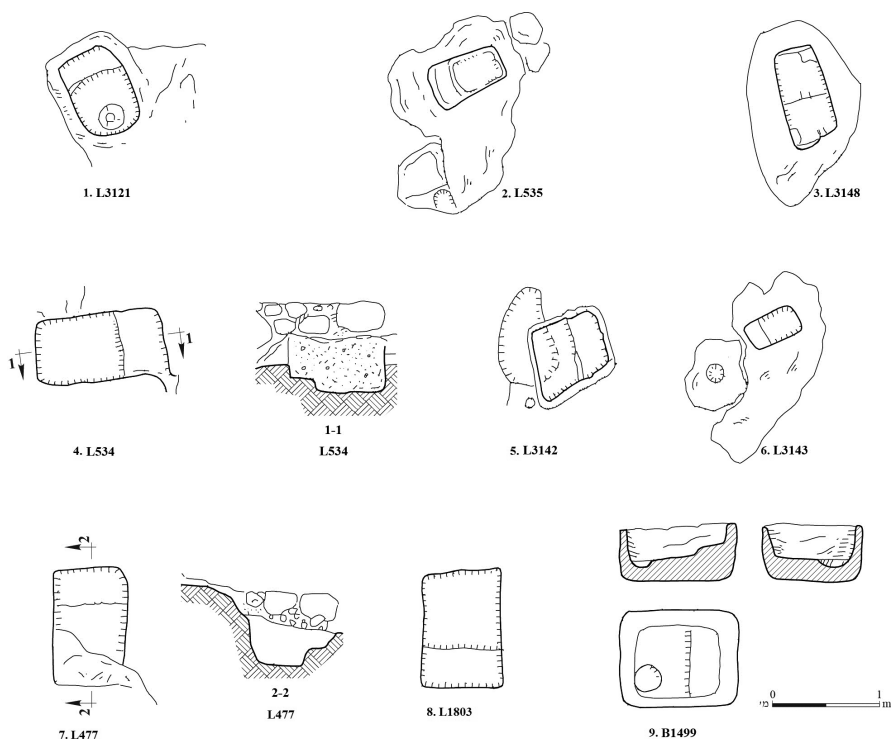


Fig. 2: Plans and sections of the hip baths from Ḥorvat Ashun and Ḥorvat HaMutzav presented here (prepared by D. Porotzki, courtesy of the Israel Antiquities Authority)

of one elongated room (f; 4 × 11 m), probably used for storage. A rock-hewn hip bath was installed at the southern end of the room (Figs. 2:7, 3:5). The upper level (g; 9 × 13 m) consisted of four rooms. The southwestern room contained a rock-hewn antechamber, which led into a cave (ca. 5 × 7 m), not excavated due to safety concerns. It is possible that the olive press was inside the cave. Just east of the upper level a *miqweh* was exposed; its date of installation could not be determined with certainty. Since the phenomenon of *miqwa'ot* began towards the end of the Hasmonaean period and became widespread during the Herodian period (Reich 2013: 209; Adler 2018: 10), the *miqweh* at Ḥorvat Ashun was presumably a later addition to the industrial area. An industrial wine press lay southeast of the *miqweh*.



Fig. 3: Photographs of the hip baths from Ḥorvat Ashun (photographs by A. Peretz and the author, courtesy of the Israel Antiquities Authority)

In subsequent periods the farmstead underwent changes. During the end of the 1st century BCE–1st century CE, wings were added within the northern, western and southern courtyards. In some cases the floors of these rooms were laid on top of the installations of the late Hellenistic period courtyards, sealing them. In the industrial area the hip bath was buried beneath three floor levels, and in the early 1st century CE the building in the industrial area (g, f) had fallen into disuse. The farmstead continued to function during the Middle Roman period—between the revolts. There is evidence that its residents prepared for the Bar-Kokhba Revolt (132–135 CE) by fortifying its external walls and hewing underground refuge complexes. As a result of the revolt the protected farmstead was abandoned.

Ḥorvat HaMutzav

The excavations at Ḥorvat HaMutzav (map ref. 197698/646322) exposed one wing (17 × 13 m; Fig. 4) of a large farmhouse constructed in the late Hellenistic period (Tendler and Elisha 2017). Its walls were built of large boulders, and it seems that the site should also be classified as a protected farmstead. The southeastern room of the excavated wing may have functioned as an internal courtyard. Smoothened bedrock served as its floor, into which a *bodeda*— a small installation for extracting olive oil—and a hip bath were hewn (Fig. 2:8). An additional hip bath was discovered among the massive stone collapse in the room north of the courtyard (Figs. 2:9, 5); it was monolithic and was theoretically portable, as opposed to the other hip baths, which were rock-hewn installations.

During the Early Roman period, a *miqweh* was added to the building and some of the floors were raised. The smoothened bedrock floor, the *bodeda* and the hip bath were covered by a packed earth floor. The building was damaged during the late 1st century CE, but was rehabilitated and continued to function until the Bar-Kokhba Revolt (132–135 CE). In preparation for the Bar-Kokhba Revolt, the residents hewed beneath their home a refuge complex, accessed through a rock-hewn shaft in the center of the building. The subterranean complex led to refuge rooms and to the *miqweh*.



Fig. 4: Aerial photograph of the exposed wing of the Ḥorvat HaMutzav farmstead; note location of hip bath L1803, the *bodeda* and the stairs leading to the *miqweh* (photograph by Griffin Co., courtesy of the Israel Antiquities Authority)



Fig. 5: The monolithic hip bath B1499 from Ḥorvat HaMutzav during excavation (photograph by the author, courtesy of the Israel Antiquities Authority)

Discussion

The installations identified as hip baths are mostly rock-hewn installations with one step used as a seat and a depression in the floor in which dirt could settle and which could subsequently be cleaned. Patches of white plaster were preserved in three of them. They are big enough for even a large adult to sit and bathe (Table 1).

As described above, hip baths have been found in a variety of sites settled by the various ethnic groups in the Land of Israel during the Hellenistic period. As such they may be viewed as typical of the material culture of the Hellenistic period. However, the hip baths at Hasmonaean period sites identified as Jewish, such as Ḥorvat Ashun and Ḥorvat HaMutzav, share a unique characteristic: their location or context.³ In the Hellenistic world in general, hip baths were located in bathrooms or bathhouses built for this purpose, or, at the very least, in domestic contexts related to body care and hygiene. According to Trümper, in contrast to the many multifunctional rooms in Greco-Roman houses, “bathing facilities and latrines commonly rank among the few purpose-built, function specific rooms that are seemingly easily recognizable” (Trümper 2014: 87). This is also the case in many of the excavated examples of hip baths in the Land of Israel. For example, the hip bath excavated by Shadman at the late Persian–early Hellenistic estate east of Rosh HaAyin was located in a bathroom with plastered walls and possibly a stone-built toilet seat (Hadad *et al.* 2015: 57; Tandler and Shadman 2015: 195). In contrast, the hip baths found at the Hasmonaean farmsteads described here were not found in bathrooms or in domestic contexts; instead, they were found in agricultural contexts, in large open courtyards, in storerooms and in close proximity to installations for agricultural production or storage. This context begs explanation.

The relationship between Hellenistic hip baths and *miqwa'ot* is also worthy of consideration. *Miqwa'ot* are stepped, plastered bathing installations that facilitate

3 The identification of these sites as Jewish is based upon several factors: their historical-geographical setting; the fact that they were settled consecutively from at least the Hasmonaean period until the Bar-Kokhba Revolt; the use in the Early Roman period of *miqwa'ot* and chalk-stone vessels—ethnic markers of Jewish residents who adhered to the purity laws; and the finding of hundreds of coins minted by the various Hasmonaean rulers, as well as coins minted in the two revolts. For recent research on the identification of Jewish sites in the Hellenistic period, see Raviv 2018: 21–29, 32–35.

Table 1: Details and dimensions of the hip baths

Locus	Dimensions	Maximum Depth	Location of Step	Width of Step	Location	Description	Illustrations
L3121	0.57 × 0.83 m	0.30 m	Northern edge	0.17 m	Horvat Ashun, western courtyard		Figs. 2.1, 3.1
L3142	0.57 × 0.89 m	0.30 m	Northern edge	0.20 m	Horvat Ashun, western courtyard,	White plaster; small <i>tabun</i> uncovered near bath, possibly used to heat water; damaged by refuge complex entrance	Figs. 2.6, 3.2
L534	0.46 × 0.90 m	0.40 m	Eastern edge	0.20 m	Horvat Ashun, western courtyard		Figs. 2.4, 3.3
L535	0.50 × 0.90 m	0.40 m	Western edge	0.26 m	Horvat Ashun, western courtyard		Figs. 2.2, 3.4
L3143	0.47 × 0.85 m	0.26 m	Western edge	0.25 m	Horvat Ashun, southern courtyard.	Preserved patches of white plaster; small round basin found nearby may be related	Figs. 2.6, 3.6
L3148	0.52 × 1.02 m	0.40 m	Eastern edge	0.35 m	Horvat Ashun, north-eastern corner of northern courtyard		Figs. 2.3, 3.7
L477	0.80 × 1.6 m	0.50 m	Northern edge	0.50 m	Horvat Ashun, Building F in industrial area		Figs. 2.7, 3.5
L180	0.62 × 0.90 m	0.30 m	Southern edge	0.30 m	Horvat HaMutzav		Figs. 2.8, 4
B1499	0.85 × 1.10 m	0.45 m	Not applicable	0.30 m	Horvat HaMutzav	Monolithic bathtub with white plaster	Figs. 2.9, 5

complete immersion of the body in water. They were used in Jewish settlements to obtain ritual purity. A critical examination of the archaeological record to date shows that the earliest *miqwa'ot* were found in contexts dated to the beginning of the 1st century BCE and that soon afterwards they became widespread throughout Judaea (Adler 2018: 7–10). It may be concluded that the *miqweh* was an innovation of the period and that prior to this people would purify themselves without a designated installation. The relevant textual evidence—at least up to the 2nd century BCE—also implies that ritual purification could be obtained by washing in water without immersion of the body (Adler 2018: 2–7). Adler recently proposed that the introduction of the hip bath in the Hellenistic period generated a change in bathing culture, which subsequently led to a change in how people conceived of the washing necessary for purification. Adler theorized that the Hellenistic hip baths found in Jewish contexts were used for both conventional and purificatory washing (Adler 2018: 16). At a later stage, through a process of ritualization, purificatory washing was differentiated from conventional washing in that the former required full-body immersion in a *miqweh* (Adler 2018: 15).

The fact that the hip baths presented here were found in agricultural contexts—in Hellenistic period farmsteads—may support their use for purificatory washing. From the inception of the *miqwa'ot* there is a clearly recognizable archaeological phenomenon of their proximity to olive and wine presses (Zissu and Amit 2008: 54–57; Adler 2008: 63–65; Reich 2013: 253–256). This phenomenon is also mentioned in rabbinic literature (*ibid.*). These *miqwa'ot* served an important function—to facilitate the purification of the workers in the olive and wine presses before they would handle the olives/oil or grapes/wine. This would ensure that the olive oil and wine would be produced and subsequently consumed or marketed as ritually pure.⁴

4 Adler (2008: 69–70) noted that this seems to be in accordance with the Pharisaic-rabbinical ruling according to which immediately following purification in the *miqweh* even before the setting of the sun, the person (*tevul yom*) obtains a status of intermediate purity whereby he does not contaminate unsanctified food and drink (*hullin*). According to biblical, Sadducee and Qumranic rulings, the individual is only pure once the sun sets, and there would be no reason for the workers in agricultural installations to purify themselves immediately before producing the olive oil or wine.

At a Judaeian farmstead established with the express purpose of the production and marketing of agricultural produce to its Jewish surroundings, this would be of utmost importance. The one *miqweh* discovered at Ḥorvat Ashun, for example, was located not in a domestic area, but in the industrial area of the site—between the olive press and the wine press. If the Hellenistic hip baths found at Jewish sites were used for purificatory washing, one could understand their location in the courtyards and industrial areas where the produce was handled. Indeed, as described above, this was the case with the hip baths from the Hasmonaean stratum at Ḥorvat Ashun and Ḥorvat HaMutzav.

Further logical support for the possibility that the hip baths from the Hasmonaean farmsteads were used for purificatory washing is the fact that the hip baths in the Hellenistic world in general were eventually succeeded by the Roman hypocaust bath (DeLaine 1989: 111, 124). No remains of Roman baths were found at the farmsteads discussed here and the bathing installation that succeeds the hip baths in the Early–Middle Roman period is the *miqweh*.

Conclusion

At their core, the hip baths of the Hasmonaean period farmsteads presented here are not extraordinary; they are compatible with the Hellenistic bathing culture on both sides of the Mediterranean—their function was washing. They may also have been used for Jewish purificatory washing, and that possibility would explain their somewhat extraordinary agricultural context. It is possible that the dichotomy between conventional and purificatory washing is a modern concept and that the Jews of the Hellenistic period did not view them as significantly different activities.⁵

5 Z. Amar (2006: 21) has shown how the escalation in purification laws and the development of installations for ritual bathing in Judaea towards the end of the Hellenistic period is related to substantial advances in medicine, health and hygiene that took place in the Hellenistic world. On the relationship between the Roman bath and the *miqweh*, see Reich 2013: 245–251 and references therein.

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***Glycymeris* Shell-Paved Floors from Meşad Ḥashavyahu: A Continued Local Architectural Tradition?**

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Introduction

Floor levels composed out of the empty valves of the genus *Glycymeris* and installations paved with such shells are known from a relatively limited number of sites throughout the southern Levant, appearing as early as the Middle Bronze Age, but found mostly in strata that were assigned to the Late Bronze Age III and Early Iron Age I (13th–12th centuries BCE).¹ The remains of a floor paved with *Glycymeris* shells were discovered in 1960 during the excavation of a courtyard in the gate complex at of Meşad Ḥashavyahu, a massive late Iron Age III (7th–early 6th century BCE) fortress located on the southern coastal

* The authors would like to thank Yana Tchekhanovets and Daniella Bar-Yosef Mayer for reading the draft of this paper and providing us with useful comments. We would also like to thank Alexander Fantalkin and Yiftah Shalev for assisting with the initial identification of some of the pottery types that were found on top of the shell floor during the excavation (see below) and Michal Birkenfeld for preparing the location maps.

1 The use of shells as construction material, either crushed and mixed with mortar or as the bedding for floors, is attested in various sites in Israel that were dated, for the most part, to the Late Bronze and Iron Ages (Bar-Yosef Mayer 2005; 2008: 198; Bar-Yosef Mayer and Vitalkov 2018: 335 and references therein). The occurrence of shell floors and installations postdating the 6th century BCE is beyond the scope of the present paper.



Fig. 1: Location map of sites in the southern Levant mentioned in the text



Fig. 2: Location map of sites in the southern Iberian Peninsula mentioned in the text

plain of Israel, ca. 1.7 km from Yavneh-Yam (Naveh 1962a) (Fig. 1). During a recent excavation at the fortress, a room whose floor was found entirely paved with shells was unearthed adjacent to the previously known shell floor (Ein-Mor and Mermelstein 2020). To the best of our knowledge, the shell floors at the gate complex in Meşad Ḥashavyahu constitute a unique occurrence of this architectural phenomenon at sites dating to the Iron Age III in the region of Israel. Similar shell-paved floors are attested at a number of sites scattered along the southern coasts of the Iberian Peninsula (Fig. 2). These are generally accepted as Phoenician colonies and date between the late 9th–6th centuries BCE (Escacena and Vázquez 2009, and see below). In this paper we will provide a brief review of several shell floors and shell paved installations that were documented at various sites in the southern Levant dating to the Bronze and

Iron Ages. This review will set the background for discussing the question at the center of this paper:

Do the shell-paved floors in Meşad Ḥashavyahu represent a continued local architectural tradition? Or should they be viewed in the context of cross-cultural connections during the late 7th century BCE, specifically with contemporary sites in the Iberian Peninsula?

The Site

The remains of one of the largest fortresses in Israel during the Iron Age were discovered in the late 1950s–early 1960s at Meşad Ḥashavyahu (map ref. NIG 170890/646294),² a coastal site located on a weathered calcarenite hilltop ca. 15 km north of Ashdod and 1.7 km south of Yavneh-Yam (Naveh 1962a).

Four excavation campaigns at the site unearthed an L-shaped fortress (ca. 1.5 acre, Fig. 3), enclosed within massive mudbrick fortifications, resting on kurkar ashlar (ca. 3.2– 4.2 m. wide).³ The general plan of the fortress derives, to a certain extent, from the topography of the hill on which it was built, yet it maintains a rigid orthogonal plan which distinguishes it from other contemporary fortresses, known mainly from the Negev region.⁴ The fortress is divided into two perpendicular rectangles: within the larger (western) rectangle there is a gate and several rooms abutting the fortress wall, while in the smaller (eastern) rectangle, which is identified with the

2 “Meşad” is the Hebrew word for “fort” or “fortress.” The name of the site derives from the name on one of the ostraca found at the site, which Naveh initially read as “Hashavyahu ben Ya...” (in Hebrew: חשבִיָהוּ בן יא...) (Naveh 2005: 107–108).

3 The first two seasons of excavations at the site were directed by J. Naveh, on behalf of the Department of Antiquities and the Israel Exploration Society (January and September 1960; Naveh 1962a); the third season was directed by R. Reich on behalf of the Department of Antiquities and Museums (April–May 1986; Reich 1989); and the fourth season was directed by D. Ein-Mor, on behalf of the Israel Antiquities Authority (April–September 2017, Ein-Mor and Mermelstein 2020).

4 Tel Arad (Aharoni 1993; Herzog 2002); Ḥorvat ‘Uza and Ḥorvat Radum (Beit-Arieh 2007); Ḥorvat ‘Anim (Amit, Cohen-Amin and Cohen 2008: 135–138); Ḥorvat Tov (Cohen 1995: 115–116).



Fig. 3: Site plan, showing location of shell floors

residential quarters, there are three rows of buildings abutting the wall, with passageways between them (Fig. 3). Two main factors promoted significant scientific interest among various scholars in the finds from Meşad Ḥashavyahu: first, the Hebrew ostraca, among them the appeal by a field worker to the fortress's governor regarding the appropriation of his cloak (Naveh 1960); and second, the discovery of large amounts of East Greek pottery and pottery of local origin (Fantalkin 2001: 3). The majority of the East Greek material from Meşad Ḥashavyahu belongs to the South Ionian Ic–d chronological horizon,

with a clear preference for the later Id phase. This puts the construction and operation of the fortress in the very late 7th century BCE (Fantalkin 2001: 128–136) or the very early 6th century BCE. The East Greek and local pottery found at the site together with the ostraca bearing Yahwistic and, according to Naveh (1962b: 30), also Phoenician names led to a lively scholarly debate concerning the identity and ethnic origin of the site's inhabitants and the ownership over the fortress.

Both Naveh (1962a) and Reich (1989) suggested that the fortress was occupied by Greek mercenaries. Naveh initially suggested that these were in the service of Psamtik I (664–610 BCE), ruler of Egypt from the 26th Dynasty, and that the fortress was conquered shortly before 609 BCE by Josiah king of Judah (640/39–609 BCE; Naveh 1962a: 98–99). In later publications Naveh changed his opinion and suggested that the mercenaries were in the service of Josiah and that the fortress was abandoned during the reign of Pharaoh Necho II (610–595 BCE), who killed Josiah in Megiddo in 609 BCE (Naveh 1993: 557). Other scholars (Mazar 1997: 9; Waldbaum 1994: 60–61) have suggested that the site served as a trading post (emporium) or that there may have been two different stages of settlement at the site (Eshel 1986–87).⁵ Na'aman (1991: 47) proposed that the fortress was built as an Egyptian initiative and that its inhabitants were of diverse ethnic origins—Greek, Phoenician and Judean, perhaps similarly to other Egyptian fortresses (Dafana and Migdol) which were built in the wake of the rise of the 26th Dynasty in Egypt (Na'aman 1991: 47). Fantalkin also suggested that the fortress was constructed by Egyptian initiative and that it served in securing the trade and military route along the coastal plain (Fantalkin 2001: 147).⁶

5 Eshel's proposal was rejected by Fantalkin (2001: 11–13). The results of the fourth season of excavation at the site, support the existence of two phases of activity in parts of the fortress. Both phases are attributed to a short time span (Ein-Mor and Mermelstein 2020).

6 For a more comprehensive review of the various theories raised by scholars who dealt with the site, see Fantalkin 2001: 3–8, 137–146, with references therein.

The Shell Floors at the Site

The interest generated by the epigraphic and ceramic finds from the site, together with the various interpretations of the possible role it played during the late 7th century BCE, diverted, to some extent, attention from the study of its architectural characteristics. One such example is that of a particularly intriguing architectural feature: a section of a shell pavement, that has received little attention since its discovery more than 60 years ago. The pavement was discovered during the second season of excavation at the site, in a courtyard located southeast of the guard room integrated into the gate's tower (Area A, Fig. 3). Naveh designated the courtyard as Locus 17 (6.25 × 4 m) but states that he was unable to identify a clear leveled floor. In the initial excavation report he briefly describes the courtyard as “partly paved with shells” and further notes that in general the locus slopes from east to west (Naveh 1962a: 94). There is some contradiction in Naveh's report, since he refers to the shells in Locus 17 as a “pavement” and at the same time notes that there is difficulty in identifying the level of the courtyard's floor. The significant differences in height between the eastern and western ends of Locus 17 (0.7 m; Naveh 1962a: Fig. 3, section 3-3) clarifies that part of the courtyard floor was removed in post-depositional erosion processes prior to Naveh's excavation. The location of the shell pavement was not marked on the plan (or the sections) of the gate's complex published by Naveh (1962a: 92, Fig. 3), but it appears on a plan drafted during the excavation, which is preserved in the archives of the Israel Antiquities Authority (IAA). In one of the photos in the IAA's Photograph Archive, a section from this pavement can be seen adjacent to the courtyard's eastern wall;⁷ a second photo from the archive shows a close-up of a shell pavement (Fig. 4). In the absence of any reference made by Naveh to another (second) shell pavement at the site, Fantalkin inferred that this second photo represents the same pavement

7 We would like to thank Assaf Peretz and Yael Barshak, who helped to locate and scan the negatives from Naveh's excavation.



Fig. 4: Close-up of a shell floor from the gate complex (courtesy of the Photograph Archive of the Israel Antiquities Authority)

mentioned by Naveh and that it was taken at a time when the pavement was still partially covered with mud debris and plaster fragments (Fantalkin 2001: 30, Fig. 13).⁸

During the recent (fourth) season at the site, excavation was carried out in the southern part of the courtyard, as well as in two units located south of it: a room that was defined by Naveh as Locus 16 (2.6 × 3.4 m) and a building defined as Locus 18 (3.4 × 7m) (Naveh 1962a: Fig. 3). Access to Building 18 was gained through Courtyard 17 from the north: the partial remains of two pillars unearthed at the southern side of this courtyard indicate that a portico decorated the façade of Room 16, and probably also that of Building 18 (Naveh 1962a: 95). The entrance to Building 18 itself is aligned with its longitudinal axis and flanked by two piers protruding from the end of its long sides. A flat stone slab placed between the piers served as its threshold. Several *Glycymeris* shells were found embedded into a layer of mudbrick material in front of the building's entrance. Collapses composed of mudbrick material (ca. 1 m thick) were excavated above the entire area of the building revealing two rooms separated by a partition wall (0.55 m wide). The northern room (3.0 × 3.4 m) was found paved with *Glycymeris* shells (Fig. 5). The abraded valves (averaging 16 per decimeter) are embedded into a thin layer of grayish plaster resting on a sandy fill (0.1 m thick). All were placed with their convex side facing upward, thus making them more resistant to damage from surface pressure. Most of the valves are complete and some are perforated at the umbo.

8 This in fact does not necessarily seem to be the case. Two additional plans found in the IAA's archives mark the limits of two rectangular sections that were excavated inside room 16 and building 18 (Fig. 3), where the shell floor was later found during the 2017 excavation (see below). In his preliminary report, Naveh states that he traced the line of the walls defining the area of room 16 and building 18, but that he did not excavate them (Naveh 1962a: 95). These sections were dug only during 1961 (the year is marked on the plans), after the official date for the end of Naveh's second season of excavation at the site (see n. 5). The close-up photo of the shell floor in the archives (Fig. 4) shows the floor within the boundaries of a rectangular section. A similar rectangular section was unearthed inside building 18 during the 2017 excavation (see below). It is therefore highly likely that the close-up photo of the shell floor published by Fantalkin is either part of the same floor that was exposed in Room 18 during the 2017 excavation season or of an additional floor found during 1961 in room 16.

A rectangular section dug into the floor's bedding (0.95 × 0.5 m; 0.6 m deep) was found roughly at its center (and slightly deviating towards the west). It seems that this section was excavated during 1961, as it is marked on a plan dating to that year which is preserved in the IAA's archive (see below, n. 11).

The shell floor approaches the northern, western and southern sides of the room; and on the eastern side it maintains a fixed gap of ca. 0.4 m between its edge and the wall. This gap was found filled in with compressed mudbrick material. A probe excavated at the northeastern corner of the room negated the possibility that the foundation trench of the room's eastern wall "cut" the shell floor; it is therefore more likely that this "gap" represents a badly preserved mudbrick bench built along the eastern side of this room.

Fragments from several pottery vessels dating to the late 7th or early 6th century BCE were found on top of the shell floor. These consist mostly of local ware: predominantly storage vessels, but also cooking pots and an oil lamp, along with a few imported wares, among them "Ionian cups." A complete base of a large vessel (stand) made of coarse clay was also found here.

These vessels (some of which were almost completely restored) found on top of the floor help to establish unequivocally that it was indeed used as the floor level itself and not as the sub-floor (see below).

A few patches from a mudbrick floor were found in the southern room (3.2 × 3.4 m), where a relatively small amount of ceramic find was retrieved. There was no evidence that this room might also have been paved with shells.

Shell-paved Floors and Installations in the Southern Levant during the Bronze and Iron Ages

Shell pavements are a relatively rare occurrence in the archaeological milieu of the southern Levant. In fact, to the best of our knowledge, pavements that were clearly defined by their excavators as floor levels (as opposed to the sub-floor or floor bedding) are known from only two sites—Tell Kazel and



Fig. 5: The shell floor in the northern room of Building 18, looking north

Megiddo. Tell Kazel is situated along the southern coast of Syria in the Akkar Plain (Badre 2006: 66) (Fig. 1). Excavations in Area II, the residential section of the city, brought to light an occupational sequence from the Late Bronze to the Hellenistic period (Chiti and Pedrazzi 2014: 205, with references therein). The main phase of the Late Bronze II (Level 6, 13th century BCE; Chiti and Pedrazzi 2014: 211; Table 1) is dominated by Building II: a large complex consisting of a rectangular hall, bordered on the east and south sides by square rooms. The building's mudbrick walls were coated with plaster, and the surface was entirely encrusted with shells. Its floor is paved with the same type of shells, as attested in several rooms. Within one of the rooms a large biconical krater was installed into the floor (Badre 2006: 80, Fig. 11). The shell decorations on the walls of Building II at Tell Kazel are unique in this period in the Levant. At

Megiddo, a shell pavement was discovered in Room 3091 (Strata VIII–VIIB, Area AA, 13th century BCE), a relatively small room with four entrances located near the palace’s courtyard (Courtyard 2041). The room’s floor was paved with shells set closely together in lime (Loud 1948: 25, Figs. 50, 52). At its center a shallow basalt basin was set, draining into a sump beneath. The shell floor extended into the doorway between Room 3091 and the adjacent courtyard (Courtyard 2041) serving, according to Loud, as the room’s threshold. Loud suggested that this room served as an “ablution chamber” (Loud 1948: 25).

The use of shells for the coating of installations and/or their immediate environs, and possibly as the floor’s bedding (or as an insulation layer?), is known from several additional coastal sites in Israel, dating to the Middle and Late Bronze age and to the Early Iron Age.⁹ At Tell el-’Ajjul, two shell-paved installations were assigned by Petrie to the Middle Bronze Age (Petrie 1931: 6).¹⁰ The first was found at the entrance to Petrie’s Building AF. This installation slopes towards a pit lined with stones (Petrie 1931:6). A second installation found south of building AF was described as an “elaborate shell bench” and was found to have a central drain (Petrie 1931: Pl. XII:6). Petrie initially suggested that the buildings in which the facilities were located were used as shrines (Petrie 1931: 6). In later publications these installations were referred to as “washing stands” and were described as “shell paved, built open to the street and adjoining whitewashed rooms” (Petrie, Mackay and Murray 1952: 30). In Area GG, several shell pavements, which were designated as floors, and additional architectural elements were found, all dating to the LB I: In room GGD, a recess (2.7 × 0.72 m) was found, ornamented with small bivalve shells stuck closely together in white plaster (Petrie, Mackay and Murray 1952, Pl. XXXVIII:21). 0.45 m above the recess was a small niche (76 × 71 cm) plastered with gypsum. Mackay suggested that

9 *Glycymeris* shells were found in the context of mudbrick walls in a few loci in the Early Bronze I age site at Lod. Though the manner in which these were used remains uncertain, one suggestion is that they might constitute part of a foundation deposit (Bar-Yosef Mayer 2005: 46).

10 The duration and chronology of each of “City III–I” and “Palace/Fortress I–V” represent a long debated and yet unsolved problem (Fischer 2003: 263).

the room served as a shrine (Petrie, Mackay and Murray 1952: 28); remains from a shell-paved surface (0.94 × 0.76 cm), which was laid into mudbrick material, was found in unit GGM; in Area GJ a shell floor (?) set in mud plaster was unearthed (Petrie, Mackay and Murray 1952, Pl. XXXIX:27–28).

The sole architectural feature in Phase G/11 at Tel Dor (Late Bronze IIB, 13th century BCE; Gilboa, Sharon and Boaretto 2008: 122) was an isolated installation defined by the excavators as: “enigmatic” (Sharon *et al.* 2009). Constructed late within this phase, the exposed part of this installation had a shell bedding under the floor and consisted of two stone-lined basins: a higher basin with a channel, leading down into the lower basin. Further patches of shell bedding suggested additional basins or platforms. Other than the shell bedding, which the excavators suggest was laid for drainage or insulation purposes, no indication of the installation’s function was discerned (Sharon *et al.* 2009). Excavations of the overlying occupation phase within the “Bastion” at Area D2 revealed several rooms that were dated to the late Iron Age 1 (Gilboa, Sharon and Shalev 2014). One of the rooms had a layer of *Glycymeris* shells, which, according to the excavators, may have been the bedding for a floor (Gilboa, Sharon and Shalev 2014).

Three sunken storage jars were found in Room 1033 in Grid 38 at Ashkelon (Phase 19, dated from the middle to the end of the 12th century BCE) each was cut off above the handles and surrounded at the level of their cut-off rims by a paved basin or curb composed of *Glycymeris* shells (Stager *et al.* 2008: 266). Similar installations were found in Rooms 667 and 910 from Phase 18 (Stager *et al.* 2008: 266: 266, 271, Fig. 15.37) and in Room 519 in Grid 50 (Phase 10, Iron I; Stager *et al.* 2008: 306). The researchers included the shell-paved installations in a list of distinctive features of Phases 20 and 19 that are unknown from earlier or contemporary “Canaanite” sites and reflect Aegean origin or inspiration (Stager *et al.* 2008: 266).¹¹ A shell floor (?) has also been identified (but not

11 An additional shell-paved surface was found at Ashkelon in the final sub-phase of the late Persian period in Room 264 in Grid 57 (Stager *et al.* 2008: 321).

described) in the gate complex of the fortress at Tell Qudadi during Phase IV, which, according to Fantalkin and Tal (2009: 196–201), should be dated between the late 8th century and the first half of the 7th century BCE.

Large assemblages of shells containing mostly *Glycymeris* were also found in inland sites, such as Lachish, Megiddo and Beth Shean. At Lachish (Level VIIa, 13th century BCE) many of the shells were imbedded in a lime floor, and at Tel Batash a few bivalves were found with lime plaster stuck onto them (Bar-Yosef Mayer 2005: 48).

Though their use is attested at Tell el-‘Ajjul as early as the Middle Bronze Age, the first well-documented use of shells as a “floor covering” appears during the 13th century BCE at Tell Kazel and Megiddo. At the same time, shell-paved installations appear at Tel Dor and later, during the 12th century BCE, at Ashkelon too. To the best of our knowledge, well-defined shell floors or paved installations are not reported at additional sites from the southern Levant, until their appearance at Meşad Ḥashavyahu during the 7th century BCE.

Shell Floors in Southern Iberia during the 9th–6th Centuries BCE

Shell floors were found at several sites along the southern shores of the Iberian Peninsula that were dated between the 9th–6th centuries BCE. These were studied by Escacena and Vázquez (2009: 69, Fig. 1). The majority of these sites were identified as Phoenician colonies, or local indigenous settlements that came in contact with the Phoenicians (Escacena and Vázquez 2009: 54–55). Escacena and Vázquez pointed to the “oriental origin” of this phenomenon, which they suggest was introduced into the Iberian Peninsula by the Phoenicians (Escacena and Vázquez 2009: 69–70, 73–79). Following is a brief review of some of the sites in which shell floors were reported (Fig. 2).

El Carambolo is located 3 km to the west of the city of Seville, on a promontory dominating the Guadalquivir River. Various construction phases at the site were dated between the 9th–6th centuries BCE. The exact cultural assignation of

the site is a matter of debate, with some scholars viewing it as an important indigenous settlement and economic center, occupied before the arrival of the Phoenicians, and others arguing that it should be viewed as a major ritual complex dedicated to Baal or Astarte, exhibiting eastern influences, originating from the presence of Phoenicians or contact with the Phoenicians (Neville 2007: 126; Fernández and Rodríguez 2005; 2007).¹² Shell floors decorated the thresholds and stairs of Building A from Stratum V at the site (late 9th or early 8th century BCE), which constitutes the nucleus of the complex (Fernández and Rodríguez 2005: 116–117, Fig. 4). Similar floors were also found in Strata IV–III (8th century BCE), when the complex expanded considerably (Escacena and Vázquez 2009: 57–60, 70).

The Iron Age site of Castro Marim is located in the Portuguese Algarve, at the mouth of the Guadiana River (Arruda, Texeira de Freitas and Oliveira 2007). A shell floor was unearthed at the entrance to one of the buildings from Phase IV (6th century BCE), which was identified by the excavators as a “ritual building.” Additional finds from the building include: an altar, benches and ostrich eggs (Escacena and Vázquez 2009: 55, 70).

Aljaraque is situated 7 km southwest of the regional capital of Huelva. Poorly preserved remains of a shell floor were found at a courtyard in Stratum I, dated to the 6th century BCE (Escacena and Vázquez 2009: 55–56).

Two excavation sites within the modern city of Huelva unearthed the remains of shell floors dating to the 6th century BCE. Their architectural context remains uncertain (Escacena and Vázquez 2009: 56–57).

Cerro Mariana (Las Cabezas de San Juan) is located 45 km south of the regional capital of Seville, at the periphery of the ancient city of Conobaria. The characteristic dwellings at the site during the 8th century BCE are rounded structures (Beltrán and Escacena 2001). In one of these, a line of shells was

12 The site yielded unique structures and objects, such as altars, shell and stone pavements, small clay baetyli, a unique gold treasure (Perea and Hunt-Ortiz 2009) and a bronze statuette of Astarte sitting down semi-naked, with a dedicational inscription at its base (Rodríguez-Díaz 2014: 493, Neville 2007: 126, Fig. 4)

found at the entrance. This type of structures is considered typical to the local (“Tartessian”) population, and it is therefore the only example where shell floors decorating the entrance were attributed to the local indigenous population and not to the Phoenicians (Escacena and Vázquez 2009: 58, 61).

Excavations in Cister Street in Málaga uncovered evidence of a Phoenician temple dating to the 8th century BCE. Several clay altars were found at the site, as was a shell floor which was found in a room separated by an alley from the main temple building (Escacena and Vázquez 2009: 62).

At Cerro de la Era, located near the Mediterranean Sea next to the city of Benalmádena, a shell floor was found in a building dating to the 7th–6th centuries BCE. Like in Aljaraque, the area in which the floor was found was probably used as a courtyard. The building’s plan and some of the finds discovered there may point to a ritual context. The shell floor from Cerro de la Era is unusual for its use of an uncommon type of shell (*Acanthocardia tuberculata*) (Escacena and Vázquez 2009: 62–63).

Cerro del Villar is situated at the mouth of the Guadalhorce River, ca. 8 km southwest of Málaga. The site was identified as a Phoenician settlement following excavations in 1966–1967, in which two main phases of occupation were dated from the second half of the 7th century down to the 5th to 4th centuries BCE (Neville 2007: 112). Several shell floors were found at the site in buildings dating to the 7th century BCE (Escacena and Vázquez 2009: 64).

Another shell floor was found at the entrance to one of the buildings in Los Castillejos de Alcorrín, a fortified coastal site situated 25 km northeast of Gibraltar, which was occupied between the 9th and the 6th centuries BCE. Shell floors were found at the entrance to Building A. Of special interest is another shell floor from the site which covered a step within the site’s fortifications. Escacena and Vázquez (2009: 64–65) suggested that the floor had a symbolic protective meaning.

El Oral is located near the Mediterranean coast, 16 km south of the city of Elche. Excavations at the site unearthed the remains of a fortified city dated to the 6th century BCE. Shell floors were found at two locations within the site: in

Building 19, at the entrance of one of the rooms, and at the sides of a drainage channel. In one of the rooms in Building IVH, shells were used to decorate a bench and a wall near the entrance (Escacena and Vázquez 2009: 66–67).

In sum, shell floors decorated the thresholds, courtyards and various other architectural elements of buildings located along the southern Iberian Peninsula as early as the late 9th or early 8th century BCE. This phenomenon continued during and throughout the 8th–6th centuries BCE and is attributed, in all but one of the sites (Cerro Mariana), to a direct Phoenician influence. In most of the sites the excavators suggested, on the basis of the architecture and small finds, that the shell floor should be associated with a ritual complex.

Discussion

The brief review above of the phenomenon of shell floors in the southern Levant and southern Iberian Peninsula provides the background for the questions at the center of this paper: How should we interpret the presence of the shell floors from the 7th century BCE in Meşad Ғashavyahu? Do they reflect the continuation of a local tradition, or is their appearance at the site the result of an external cultural influence? Though the answer to these questions does not necessarily require an unequivocal answer, we believe that a number of arguments support the latter possibility.

The significant chronological gap between the appearance of the shell floors and shell-paved installations in the southern Levant during the 13th–12th centuries BCE to their appearance at Meşad Ғashavyahu during the 7th century BCE seems to rule out the hypothesis of a continuous local tradition.¹³ On the other hand, the earliest appearance of this phenomenon in the south of the Iberian Peninsula dates to the late 9th century BCE and is found in several sites contemporary with Meşad Ғashavyahu. It is therefore reasonable, in our

13 There is insufficient data regarding the remains of the shell floor reported from Tell Qudadi (see above).

view, to assume that the appearance of the shell floors in Meşad Ḥashavyahu is indeed a result of some form of cultural interaction with the Iberian Peninsula, or with a population that shared a similar architectural tradition with some of the inhabitants of that region. Moreover, based solely on the review presented above, it is tempting to suggest a scenario of a “back and forth” migration of this phenomenon—from the shores of the southern Levant to the shores of the Iberian Peninsula (during the last quarter of the 9th century BCE) and then back again to the southern Mediterranean coast of the Land of Israel to Meşad Ḥashavyahu. In this respect, the appearance of the shell floors in the Iberian Peninsula is consistent with the accepted date for the establishment of the earliest Phoenician settlements along the coastal strip covering the modern provinces of Cádiz, Málaga, Granada and Almería (Neville 2007: 11; Ruíz-Gálvez 2014: 196–214). In any case, it should be acknowledged that the manner in which this cultural influence came to pass is a separate question requiring additional research.

If we accept that the shell floors found in the above-mentioned sites in the Iberian Peninsula reflect an architectural feature that can be assigned to a Phoenician influence via Phoenician settlements, we may ponder what additional evidence exists for a “Phoenician presence” at Meşad Ḥashavyahu. As mentioned earlier, the subject of the ethnic origin or affiliation of the residents of the site was previously debated (see above). The suggestion that Phoenicians were among the site’s inhabitants was based in part on an ostrakon found in the gate’s tower. It contains two lines, which Naveh suggested reading as “... (Netšba’al... Weighed four (shekels of) silver, 4 after the King’s Weight [these words are represented by the mark 𐤍𐤃] as a donation.” The theophoric element Ba’al led Naveh to propose that the person who donated the money was of Phoenician origin (Naveh 1962b: 30–31, Pl. 6A C). In addition to the above-mentioned ostrakon, a few ceramic types from the site are typical of the Phoenician sphere, but these do not appear in significant numbers,¹⁴ and alongside the local and East Greek pottery,

14 Fantalkin 2001: 54, Type B5, Fig. 23:5;83, Type eg K2, Fig. 30: 3.

do not permit the characterization of the ceramic assemblage from the site as “Phoenician.” In a broader perspective, Waldbaum pointed out the possible role that Phoenicians might have played in the trade and distribution of certain late 7th-century East Greek pottery types that are found in sites in the southern Levant, including Ashkelon and Meşad Ḥashavyahu,¹⁵ although she remains unequivocal concerning the question whether it was Phoenician or Greek merchants who ultimately controlled this Levantine trade (Waldbaum 2011: 138–140). Therefore, the “Phoenician presence” at the site—whether related to the actual presence of Phoenicians themselves or to ceramic types that might have originated from trade relations with the Phoenicians—cannot be clearly defined. In this respect we may benefit from recent studies, based on lead isotope analysis aimed at associating silver items found in Iron Age hoards from the southern Levant with their ore sources (Eshel *et al.* 2018; 2019). Lead isotopic ratios of the ‘Ein Hofez silver hoard found near Tel Yoqne’am (on the border of the Jezreel Valley and the Carmel) significantly reflected a mixture of several Iberian lead sources, demonstrating that at least part of the Iberian silver reached the Levant and that this occurred as early as the 9th century BCE (Eshel *et al.* 2019: 4–5). Although this of course does not constitute evidence for direct commercial or cultural connections, it leaves open the possibility for the movement of goods and ideas between these regions. In general, the silver hoards from Tel Miqne-Ekron (Gitin and Golani 2001) and ‘En Gedi (Mazar 1993) were dated to the 7th–6th centuries BCE¹⁶ and are of considerable importance in relation to the understanding of the East–West Mediterranean trade (Gitin and Golani 2001). Gitin and Golani (2001: 40) suggested that these trade relations are manifest in the mass and wide geographical distribution of silver hoards in the Levant within the short time span of the 7th century BCE, bearing evidence to the growing fiscal needs of an international community and to unparalleled economic growth in the late

15 Contra Fantalkin, who opines that the East Greek pottery at these sites is evidence of Greek Mercenaries (Fantalkin 2001: 139–140).

16 The ‘En Gedi hoard is securely dated to 630–582 BCE (Mazar 1993),

Iron Age. These relations were stimulated, in their view, by the Assyrian military campaigns in the Levant. The westward Phoenician commercial expansion and the establishment of trade routes across the Mediterranean furthered the development of these processes (Gitin and Golani 2001: 40, see references therein).

In conclusion, shell floors are a distinctive architectural phenomenon that has been identified in a limited number of sites in the southern Levant during the 13th–12th centuries BCE. This phenomenon is also well documented at several sites along the southern shores of the Iberian Peninsula, which were dated to the 9th–6th centuries BCE and interpreted as Phoenician settlements. The existence of shell pavements at Meşad Ḥashavyahu during the 7th century BCE constitutes further (albeit limited) evidence of East–West Mediterranean connections during the late Iron Age. This evidence supplements recent research concerned with the trade and movement of silver between these two regions and may also be considered as evidence for a more direct cultural affinity, which led to the adoption of this unique architectural feature.

The shell pavements that were previously discovered in the southern Levant and the Iberian Peninsula were interpreted, in most cases, as bearing some form of cultic significance, mostly due to the nature of the architectural remains at the various sites, and in some cases also in light of the small finds at these sites (see above).

The architectural context and function of the complex of rooms located south of the fortress's gate at Meşad Ḥashavyahu is not sufficiently clear at this point, and will be treated within the framework of the final publication of the fourth season of excavation at the site. However, in light of the data presented above, it seems reasonable, in our view, to cautiously suggest that the shell floors that decorated the courtyard and room of this complex had a ritual significance and that, as such that they may reflect another aspect of the nature of the connections between the two regions under discussion.

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A Roman Merchant Ship Cargo of Scrap Metal and Raw Materials in the Caesarea Harbor: Preliminary Report

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Introduction

In February 2016, the remains of a Roman shipwreck were found by recreational divers near the eastern corner of the northern breakwater reef of the Herodian harbor at Caesarea Maritima, Israel (Fig. 1). The site was exposed after a winter storm scoured away a large amount of sand from the seafloor (a layer of ca. 3 m), creating a 40 × 60 m shallow crater at a depth of 7–8 m. This was the first time an ancient shipwreck assemblage was detected in this area. The sudden emergence of this hitherto deeply-buried site highlights a broader trend along the coast of Israel in recent years: the reduction of inshore sediment due to a combination of storms and coastal infrastructure development.

* The field work and preliminary examination of the material described in this paper was accomplished through the generosity and support of the IAA, Ocean Gate Foundation, KORET Foundation, Steve Phelps, URI Council for Research, and the support of the Perlman family and Gussie Baxt Foundation. We wish to thank our colleagues: Prof. John Hale, Dr. Robert Kool and Dr. Donald T. Ariel (Department of Numismatics, IAA), Prof. Sarel Shalev (XRF, Metallurgic, University of Haifa), Dr. Yael Gorin-Rosen (Department of Glass, IAA), Sharon Ben-Yehuda (GIS, Graphics, IAA) Clara Amit (Photography, IAA), Eran Rosen (diving officer, University of Haifa). Special thanks are extended to Dror Planer, who spent hundreds of hours underwater at the site with us as part of the team (Marine Archaeology Unit, IAA), to the Unit for the Prevention of Antiquities Robbery (IAA), which participated in the rescue survey, and to our great team of volunteer divers and students.

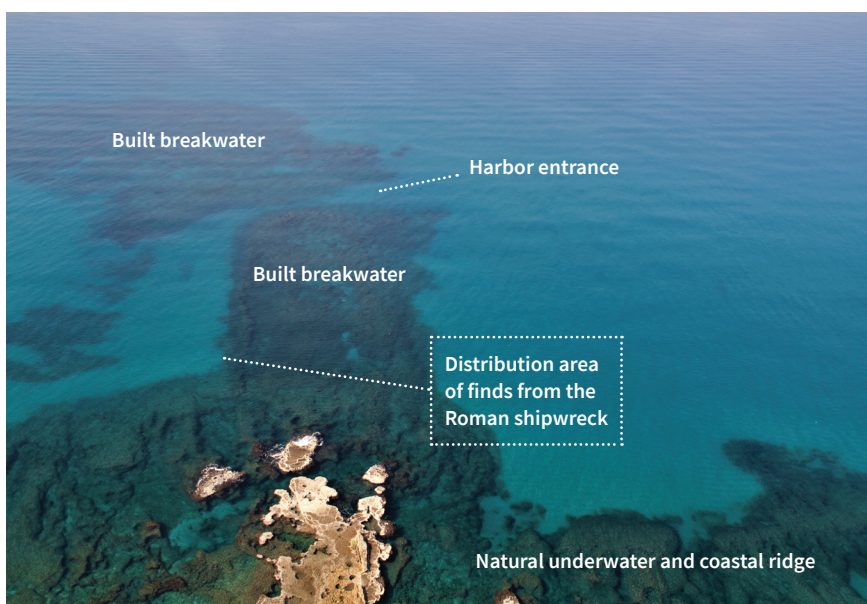


Fig. 1: Location of wreckage site

The Marine Archaeology Unit of the Israel Antiquities Authority (IAA) carried out a rescue survey and recovery of exposed artifacts at the site in May–June 2016. The combined expedition included the University of Rhode Island, the University of Louisville and several European research centers: the University of Zagreb Laboratory for Underwater System and Technologies (LABUST) and the University of Girona Laboratory for Computer Vision and Robotics (ViCOROB). Many students of archaeology, international divers and local community volunteers assisted in the fieldwork.

Since February 2016, two phases of investigation and recovery have been carried out by the combined team, including mapping, documentation and removal of surface artifacts for further study. Preliminary examination of the recovered artifacts, which include over 20,000 coins, points to a date in the early 4th century CE. The volume of material recovered from the surface of the site in 2016 confirms, even before excavation, that it is the largest ancient shipwreck

cargo ever to have been discovered in Israel. The emergence of the wreck from a relatively undisturbed archaeological context under the inshore sediment enables precise dating and accounts for the excellent levels of preservation of the bronze cargo.

The bulk of the exposed cargo recovered from the surface of the site consisted of hundreds of broken pieces of bronze statues, bronze and iron tools, lumps of cast lead, hundreds of kilograms of raw glass, thousands of coins, bronze oil lamps, decorated handles, many small bronze and lead fragments, iron anchors and some sculpted marble pieces. The large assortment of scrap metal items in the cargo indicates that the vessel was engaged in collecting used and broken artifacts to be sold for recycling. Since the site was not excavated, it is not known what else the vessel may have carried: notably, only few ceramics were visible on the surface, and no hull structures have yet been identified (on this issue, see further below).

The Mapping of the Site

To understand the formation of the shipwreck site, a detailed GIS map of the artifacts was created. In order to document the exact position of each artifact, a photogrammetric survey was performed alongside conventional tape-measure triangulation using three DGPS benchmarks. The site was also documented using a 3D camera system developed by Girona University (Bosch *et al.* 2015) attached to an Autonomous Surface Vessel (ASV) developed by University of Zagreb (Buxton *et al.* 2016). These technologies provided us with the opportunity to map the visible site and to create a high-resolution photomosaic, as well as a 3D model incorporating the adjacent harbor breakwater, which was produced with multibeam sonar.

During the 2018 field season, the site (which had been reburied by storms shortly after the 2016 expedition) became partially reexposed through natural processes. A geophysical survey was conducted using a SyQwest StrataBox, a portable high-resolution marine sediment imaging instrument capable of

delivering 6 cm of marine sediment strata resolution with bottom penetration of up to 40 m. Since most of the surface finds of the wreck had already been removed, we started the season using a metal detector (JW Fishers Pulse 8X) to survey the entire wreck area and to locate metal concentrations under the sand, in the hope of finding additional bronze and metal artifacts in the disturbed surface sediment. A baseline was set up on the eastern side and moved westward meter by meter to ensure a systematic metal detector search. In areas of loose sand over the bedrock or shallow clay deposits, the excavation of targets was carried out manually.

The excellent underwater visibility during the 2018 season allowed significant features of the site to be seen from the surface. The position of the buoy line was marked by divers using a DGPS receiver on the surface. Information about the site was captured using ArcPad 10.2 in the field and later processed with the use of ESRI ArcGIS in the office. Digital charts of the area were obtained and used as an initial framework on which to position other plans and targets. High-resolution aerial photographs were taken by a quadcopter drone and incorporated into the GIS.

The Assemblage of Artifacts

The assemblage consists of two main components: 1) ship fittings and objects used on the vessel; and 2) cargo. The metal objects from the cargo were preserved in excellent condition due to the protection of the 3 m deep layer of sediment that covered them, reducing oxidation and general deterioration. The preponderance of heavy cargo and anchors at the site presumably reflects the fact that these items worked their way down through the sand over time. Lighter objects, such as pottery and the ship's wooden hull, were likely shattered and washed away by the high wave energy in the shallow bay north of the breakwater. Some of the original cargo was presumably salvaged in antiquity, as the wreck occurred close to shore near a busy harbor.

Ship Components and Tools

Anchors

Three intact iron anchors were found. The largest is 2.9 m long with an arm length of 0.9 m, a half stock 1.22 m in length, a ring 0.3 m in diameter, weighing ca. 400 kg. This was most likely the main anchor, thrown overboard in a last-ditch effort to hold the ship off the semi-submerged reefs near the northern entrance of Caesarea's harbor. The anchor stock is broken, but still attached to the shank. The other two anchors are smaller in size; one was found broken at the northeastern edge of the site, and the other on top of the adjacent reef at a depth of 5 m. Surrounding the large anchor were at least seven large (ca. 2 m) stocks, but no anchors. The anchors are all examples of Roman Imperial type C (Kapitän 1984: 42–43).

Sounding Leads and Weights

Five sounding leads were found: the largest and heaviest one (24.4 kg) was discovered next to the large anchor and the others within a small area at the eastern edge of the site. The smaller lead weights ranged from 9.9 kg down to 2.72 kg. Sounding weights were used to determine the depth and type of sediment on the seafloor (Galili and Sharvit 1999: 172–173; Galili, Oleson and Rosen 2010; Oleson 2000).

A Lead Brazier and Tray

A lead brazier and an accompanying thick rectangular lead tray were found lying together in the northeastern part of the site (Fig. 2). The brazier is shaped like a hollow shoe forming a closed container, with a cylindrical opening for pouring in water.

Both items exhibit traces of charring. The shape of the brazier's base is imprinted on the upper surface of the tray, indicating that the brazier had been placed there to prevent direct contact with the wood of the ship's hull.

Lead braziers designed for use on ships have been found in many locations along the Mediterranean coast of Israel, all, however, without a secure

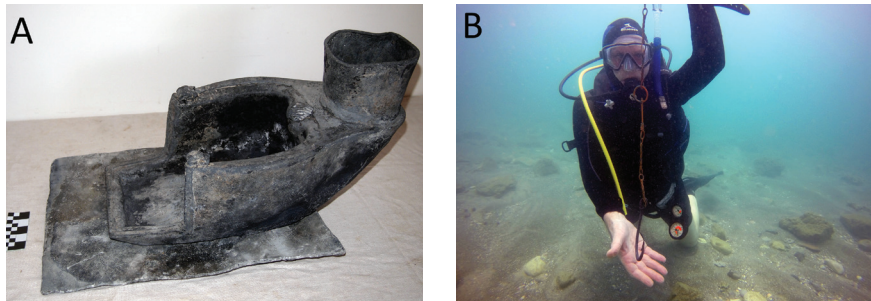


Fig. 2: Finds from the site: A) lead brazier and tray; B) diver holding large fishing hook and chain

archaeological context (Chambon 2012: 78–79; Galili and Sharvit 1999: 168–69; Galili and Rosen 2012; Ashkenazi *et al.* 2012: 85–86). This is the first recovery of a brazier from a shipwreck context and the first time that a brazier was found together with a lead tray.

Nails

Hundreds of copper-alloy nails in a wide variety of sizes with square shafts typically used in Roman ship construction were found all over the site. Some of the nails were unused and were probably kept in the carpenter's tool box as spares. On the basis of the various lengths and of comparison to nails from other excavated Roman shipwrecks in the Mediterranean, it seems that the longer nails were used for joining the strakes to the frames, whereas shorter nails could have been used to join deck planks (Fitzgerald 1994: 166–168; Galili, Rosen and Sharvit 2010: 62–68). Some exceptionally long nails (up to 40 cm long) were also found; these could have been used for joining the stern or bow timbers to the keel.

A Bilge Pump

Seven sections of lead pipe were found at the site, which would have formed a tube almost 10 m long when connected. The pipe sections were produced

by rolling rectangular sheets of lead (18.5 cm wide, 0.4 cm thick) to create a tube with an external diameter of 5 cm and internal diameter of 4 cm, with overlapping and welded edges (Landels 1978: 55, Table 2). This corresponds with the guidelines for the manufacture of Roman lead pipes described by Vitruvius (*De architectura* VIII.6.4) and Pliny (*Natural History* 31.58), which presumably had not changed significantly by the 4th century CE.

Two rectangular lead water containers were found: one large and partially broken and the other smaller, with two openings and a lead pipe, with a flat ring still connected to the container. Similar containers and pipes were recovered from a Roman shipwreck located in the northern anchorage of Caesarea (Fitzgerald 1994: 208–10). The main part of a piston pump made from a thick lead tube and a wooden plunger ending with a leather gasket were found together with these containers on the 4th-century Caesarea wreck under discussion. It seems that all these components were part of the ship's bilge pump. This is the first time that almost all of the components of a ship's bilge system have been found intact on a late Roman shipwreck, providing important evidence about how these systems functioned.

Fishing Tools

The site yielded a large fishing hook (12 cm long) connected to a bronze chain (ca. 60 cm long), consisting of six connected bronze links with a circular ring in the middle (Fig. 2B). The full rotation of the ring would have prevented the tackle from tangling. The only similar fishing tackle of this size and type was found in Asciutta, a suburban villa south of Pompeii (Stefani 1990: 14). This sort of fishhook was obviously intended for large species, probably the larger types of Scombridae (mackerel and tuna; see Casasola 2010: 95, Fig. 6). Dozens of lead fishing-net weights found clustered together in an area ca. 30 sq cm in size probably belonged to a single net, which has not survived. We know that fishing was a regular activity on board Roman commercial ships, as the accoutrements of fishing have been found on many shipwrecks (Parker 1992: 29; Galili, Rosen and Sharvit 2010: 80–95).



Fig. 3: Finds from the site: A) assortment of intact and broken bronze sculptures; B) two bronze fragments of male portrait heads with Julio-Claudian hairstyles; C–D) chunks of raw glass

Miscellanea

A variety of other small finds, typical of Roman shipwrecks of the Imperial period, represent evidence of the ship's construction and operations, as well as of the daily lives of those on board. These miscellaneous small finds include elements of the rigging, carpentry tools, lead sheathing, navigational instruments (sounding weights), lead rings or grommets, bronze sewing needles and netting tools, finger rings, keys, and a bronze strigil (cf. Galili, Rosen and Sharvit 2010: 103, Fig. 53), as well as a large bronze steelyard with an anthropomorphic counterweight. These items were recovered amidst hundreds of ballast stones, which were left *in situ*.

The Ship's Cargo

Bronze Sculpture and Metals

If what has been recovered so far is representative, the ship's main commercial cargo consisted of scrap metal (primarily bronze and lead) and chunks of raw glass. The fragments of copper alloy, bronze, lead and iron were probably gathered by local scrap collectors and sold to merchant ships, and some of the larger sculptural pieces appear to have been deliberately cut up for ease of transport.

The scrap-metal cargo included pieces of bronze or copper-alloy tools and a variety of handles and fixtures. Some of these were shaped as dolphins, others were shaped as small decorative figurines or heads, and one handle came from a broken trefoil oenochoe. Large fragments of at least four male and one female bronze statues, larger than life, may be all that survives of imperial or civic statue groups, perhaps damaged beyond repair in earthquakes or war. The group includes part of the torso of a male athlete type, at least one *togatus* and fragments of male portrait heads with Julio-Claudian hairstyles; a well-preserved face from one statue suggests an early portrait of the emperor Trajan (Fig. 3A–B). All of these pieces require further study and reconstruction to secure identification.

The site yielded more than ten kilograms of lead sheets and melted lumps of lead, some adhering to the bronze statue fragments, suggesting that they all originated from the same source. The total weight of all the recovered scrap metal from the shipwreck was over 500 kg.

Glass

Twenty-six chunks of raw glass, weighing a total of ca. 150 kg, were discovered in the southern part of the shipwreck site, along the rock-sand interface of the northern breakwater. The largest chunk (Fig. 3C) weighed 14.62 kg and the smallest (Fig. 3D) only 0.2 kg. All the larger pieces of glass were found clustered in a small area (4 × 3 m), with the smaller pieces scattered slightly further. The glass chunks were found together with copper-alloy parts of a statue and many ballast stones, all suggesting that the glass cargo belonged to the same large Late Roman shipwreck.

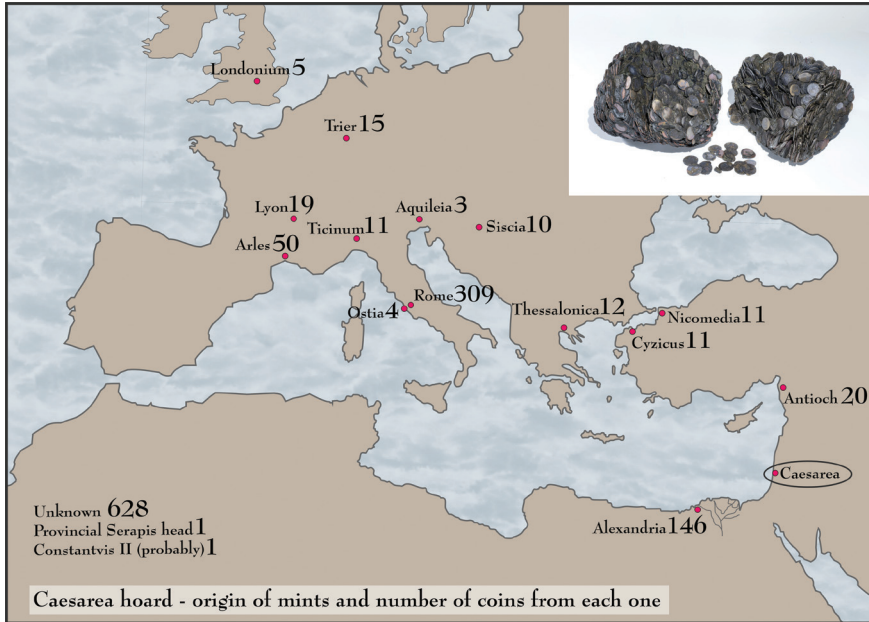


Fig. 4: Two lumps of conglomerated coins from the shipwreck and map depicting the location of their mints and number of coins from each mint

Although many chunks of raw glass have been found during underwater surveys along the coast of Israel (Galili, Gorin-Rosen and Rosen 2015), their lack of archaeological context precludes their dating. The raw glass found among the cargo of this early 4th-century shipwreck is the first such assemblage uncovered in Israel to be securely dated on the basis of its archaeological context.

Coins, Columns and Lamps

Over 20 kg of copper-alloy coins were recovered in the form of two large lumps of conglomerated coins. Each conglomerate was shaped like the lower body of an amphora, which was likely the original storage receptacle (Fig. 4). Hundreds of individual coins were strewn around the site. Analysis conducted on a

representative selection of 628 coins dated them to the first quarter of the 4th century CE.

The cargo also contained a small white marble column with a capital and a base (total height of 157 cm). The capital was decorated with acanthus leaves and adorned with two miniature busts of a male (Serapis) and a female (Isis) deities. The upper surface of the capital exhibited signs of charring. It seems that the column had been part of a shrine or an altar—either the ship’s own sanctuary or part of its cargo (a less likely possibility, given the evidence of use). Not far from the column lay a decorative bronze snuffer (Fig. 5A) and two large and ornate bronze oil lamps, each with a double nozzle and figurines on the handles; one figurine appears to be a Helios (Fig. 5B), and the other may

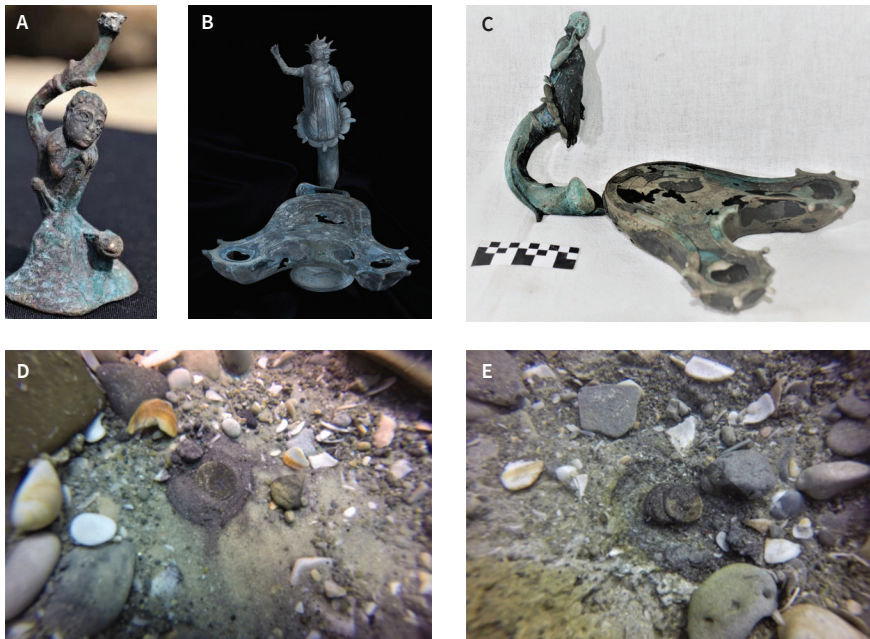


Fig. 5: A) Decorated bronze snuffer; B–C) two large and ornate bronze oil lamps with figurines (Helios and Luna); D–E) corrosion stain surrounding some of the coins, indicating that the artifacts had lain hidden and undisturbed for centuries

represent Luna (Fig. 5C). In all other respects, the same the lamps are identical; thus, they are likely from the same workshop. Their discovery near the decorative column with charred capital suggests these lamps may have originally rested on top of two columns flanking a shipboard altar, an arrangement evoking the two Victory-topped columns flanking the famous Augustan altar of the three Gauls from Lugdunum (depicted on imperial coins BMC 550 and RIC 230). Lamps were so important to the cult ritual of Isis and Serapis that their temples maintained a staff of lamp lighters (Zografou 2010: 271). Isis Pelagia or Euploia was worshipped as the deity of navigation and seafaring.

Lead Mirror Frames

Fifty-eight small round mirror frames and four square decorated ones were found together, indicating that they had all originally been stored in a single container. The frames survived better than the mirrors themselves, of which only one piece was found. All the round frames have the same diameter (5.5 cm) and decorations. The square frames are similarly sized and decorated with small heads in each corner, depicting Pan with a shepherd's crook (*pedum*) and Dionysus with a thyrsus. Similar lead frame mirrors have been found at Caseggiato di Diana (the House of Diana) in Ostia, Italy and in several other places (Vinokurov and Treister 2015: 49–53, Figs. 4, 5).

Discussion

The nature of the artifacts and their distribution in relation to the northern breakwater and the shallow rocky reefs to the north of the entrance to Caesarea's harbor suggest the presence of at least one shipwreck, most likely a large Roman merchantman. The location of the large iron anchor with stock attached and the presence of various metal parts of the ship's hull indicate that the ship sank here. The proximity of the reef to the shore and the shallow depth of the site suggest that at its uppermost levels the site has been greatly disturbed by environmental processes over the past two millennia.

However, deeper down, in the area exposed in 2016, the site appears virtually undisturbed. The lack of corrosion of the metal objects suggests that they remained buried since shortly after the sinking, and the corrosion stain visible on the sand surrounding some of the coins (Fig 5D) likewise indicates that prior to the site's exposure in 2016, the artifacts had lain hidden and undisturbed for centuries.

The size and weight of the anchor and the size of the nails suggest that the ship was likely a medium-large merchant ship, 20–30 m long, bearing a cargo weighing between 75 and 200 tons. Roman merchant ships were predominantly small, most with an overall length of 15–37 m and a capacity of 100 to 150 tons (Casson 1973: 171–172; Parker 1992: 26–27). Merchant ships were built to transport large cargos over long distances at a reasonable cost, and for this, speed and maneuverability were not a priority. Typical Roman merchantmen had a length to breadth ratio of the underwater hull of about 3:1, employed double planking, and relied on ballast for additional stability.

This 4th-century ship was probably similar to the type and size of merchantman depicted in the contemporary Lod mosaic (Hadad and Avissar 2003), or the earlier “Torlonia relief” displaying a large merchant ship entering Portus (Blackmann 1982: 83, Fig. 2; Casson 1973: 174, Fig. 144). Based on the many objects from the cargo of the Caesarea ship originating from the region of the Bay of Naples, the ship likely began its final trading voyage from Italy.

The ship foundered just outside the north-facing entrance of Caesarea's outer breakwaters and was pushed shoreward onto the coastal reefs and edge of the northern breakwater before breaking apart and scattering its cargo over a wide area (almost 40 × 60 m). The damage to the main anchor suggests a final struggle to hold the ship off the rocks in violent seas—which makes sense for a ship attempting to enter the safety of the harbor, but missing the narrow entrance. It is also possible, however, that the ship was leaving trying to leave Caesarea after having picked up additional cargo when it ran into trouble just outside the harbor. We know that the outer breakwaters of Caesarea had fallen into disrepair by the 4th century, and it is possible that in rough conditions a

large ship would have been safer heading for the open seas than relying upon the limited shelter available at the port.

The cargo of raw glass was surely Levantine in origin, perhaps collected at one of the Phoenician ports to the north of Caesarea, if not at Caesarea itself. The fact that so much of the ship's precious bronze and glass cargo was never recovered indicates that these items were quickly buried by sand—perhaps in the same stormy conditions that claimed the ship.

Until the discovery of this ship's cargo with fragments of at least five bronze sculptures, no life-size or colossal bronze sculpture had ever been found at Caesarea in either land or underwater excavations. This is in keeping with the broader picture in Roman Judaea, where there is a dearth of epigraphic and archaeological evidence for the kinds of civic and imperial honorific bronze statue groups that were ubiquitous in other cities of the eastern Roman Empire, and there is virtually no identifiable civic or imperial portrait (Vermeule and Anderson 1981: 12). At present we cannot determine whether the statue fragments were loaded on the ship or originated in Caesarea itself, or whether they came from some other city inland or on the ship's route. It is perhaps worth mentioning evidence of Jewish involvement in the scrap-metal trade from three centuries later: Constantine Porphyrogenetos mentions a Jew of Edessa who purchased the fallen bronze colossus of Rhodes for scrap in the 7th century and had it carried away on 980 camels (*De Administrando Imperio* 20–21).

A variety of circumstances could explain the statues being broken up and sold for recycling. The statues might have been damaged in earthquakes, war, or local unrest—all frequent scenarios in the eastern Mediterranean during the political and religious strife and civil wars of the early 4th century. The cargo of the Caesarea shipwreck illustrates the final fate of the bronze statues so widely attested only by their surviving bases and dedicatory inscriptions in the Roman Near East. The identity and original location of the statues may perhaps be determined through further investigation. The scrap bronze cargo also illustrates the international transport of scrap metals and helps build a picture

of the variety and complexity of maritime trade in the eastern Mediterranean during the Late Roman period.

Roman glass production was apparently divided between primary workshops (where glass was prepared as raw glass ingots) and secondary workshops (where the glass was formed into objects or vessels); there was also a flourishing trade in the reuse of cullet. To date, only a small number of primary workshops have been located, mainly along the eastern Mediterranean coast, in Israel and Egypt (Gorin-Rosen 2000: 52–56). The raw glass of the Roman Empire was mostly produced in the Near East and Egypt, where high-quality sand and soda were easily obtainable. Raw glass ingots were traded via sea to the secondary workshops, and shipwrecks can thus provide valuable information regarding the size and organization of the glass trade, which reached its technical apogee in the Late Roman period.

There are only a few Mediterranean shipwrecks that have yielded larger quantities of glass than the Caesarea wreck (Fontaine and Foy 2007; Radić Rossi 2012: 17–30); the Caesarea site is the largest Late Roman example. On the basis of the dispersal of glass ingots in the eastern part of the site and the absence of ceramic sherds or pithoi, the glass was probably stacked in baskets or barrels that have not survived.

The 4th-century Caesarea shipwreck offers many insights into the nature and scale of international maritime trade during the Late Roman period, at a time when the eastern part of the empire was transitioning out of a long period of economic and political chaos into a brief era of relative security and stability. The size of the wreck and the diversity of its surviving cargo provide a detailed snapshot of that world on the day the ship foundered. That said, investigation of the site to date has necessarily been limited to visual and acoustic survey and to the salvage excavation of artifacts exposed in a highly dynamic coastal surf zone. While the site is temporarily reburied, the analysis and conservation of the recovered cargo will continue for years to come. The complete excavation of the Caesarea shipwreck will be a task for the future—if and when the sea decides to uncover it once again.

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Maritime Activity at Jaffa during the Mamluk and Early Ottoman Periods: The Ceramic Evidence from Ramla

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Introduction

Jaffa was a port of call for merchant ships from across the Mediterranean throughout most of its long history. This port also witnessed armies, explorers and pilgrims passing through on their way to Jerusalem and the Holy Land (Fig. 1). These activities are well attested in the historical record, as well as by numerous archaeological excavations (Peilstöcker and Burke 2011; Burke, Peilstöcker and Burke 2017). However, during the mid-Mamluk and Early Ottoman periods (mid-14th to 17th centuries CE) maritime movement at the Jaffa port diminished considerably and the city appears to have been gradually abandoned. Consequently, only few written sources refer to Jaffa and hardly any archaeological finds dating from this period have been unearthed (Arbel 2013). This paper will examine ceramic evidence from the vicinity of Jaffa, in particular from Ramla, and will show that this evidence indicates the activity of Venetian and perhaps other European merchants in Jaffa during the mid-14th to 17th centuries and illuminates relationships and networks unattested in the written record.

* My thanks are extended to Danny Syon, Yoav Arbel and Robert Kool (Israel Antiquities Authority) for reading the manuscript and providing constructive comments.

Jaffa: The Historical and Archaeological Evidence

Crusader Jaffa was conquered by the Mamluk Sultan Baybars following a short siege in 1268. Written sources note that ships carrying pilgrims arrived in Jaffa even after 1291, the year of the final fall of the Crusader kingdom of Jerusalem, suggesting that in 1268 only the walls of the city had been destroyed. Such sources also note the continuous functioning of its markets and the uninterrupted arrival of goods in Jaffa during this period (Burke 2011: 127; Jacoby 2016: 94; Arbel 2017a: 89). As Jaffa diminished in size and its main function became the maritime portal for pilgrims and merchants, its urban area was reduced to the port and its surrounding area (Burke 2011: 128; Arbel 2013: 97). The city was razed to the ground in 1345 by the Mamluk ruler Nasser al-Din Muhammad, who feared yet another Crusade attempting to conquer Jaffa as a bridgehead to Jerusalem. It was at that point in time that Jaffa was abandoned as a city and as an organized port (Nagar and Arbel 2017: 241). Nevertheless, despite its destruction, written sources and historical maps¹ from throughout the Mamluk and Early Ottoman periods (mid-14th to late 17th century) suggest that the Venetians exported cotton through the port of Jaffa. Furthermore, pilgrims continued to arrive and were housed in tents or “caves” (in fact the ruined Crusader vaults), and Mamluk and later Ottoman military units were stationed in the towers on Jaffa’s hilltop (Fig. 2; Arbel 2013: 93). Limited settlements in the Jaffa area are mentioned in the written sources: a village of around 100 houses is mentioned at a distance of about a mile to the east in the 15th century, and Ottoman records from the 16th century refer to 27 households in close proximity to the ruined Crusader city (Burke 2011; Arbel 2013; Nagar and Arbel 2017: 241; Sharon 2017: 26–30, 62–66).

During excavations on Jaffa’s mound and the surrounding areas between 1948 and the 1980s, no remains from the Mamluk period were reported, even if

1 For historical maps of Jaffa from the 17th century see <http://historic-cities.huji.ac.il/israel/jaffa/jaffa.html>.

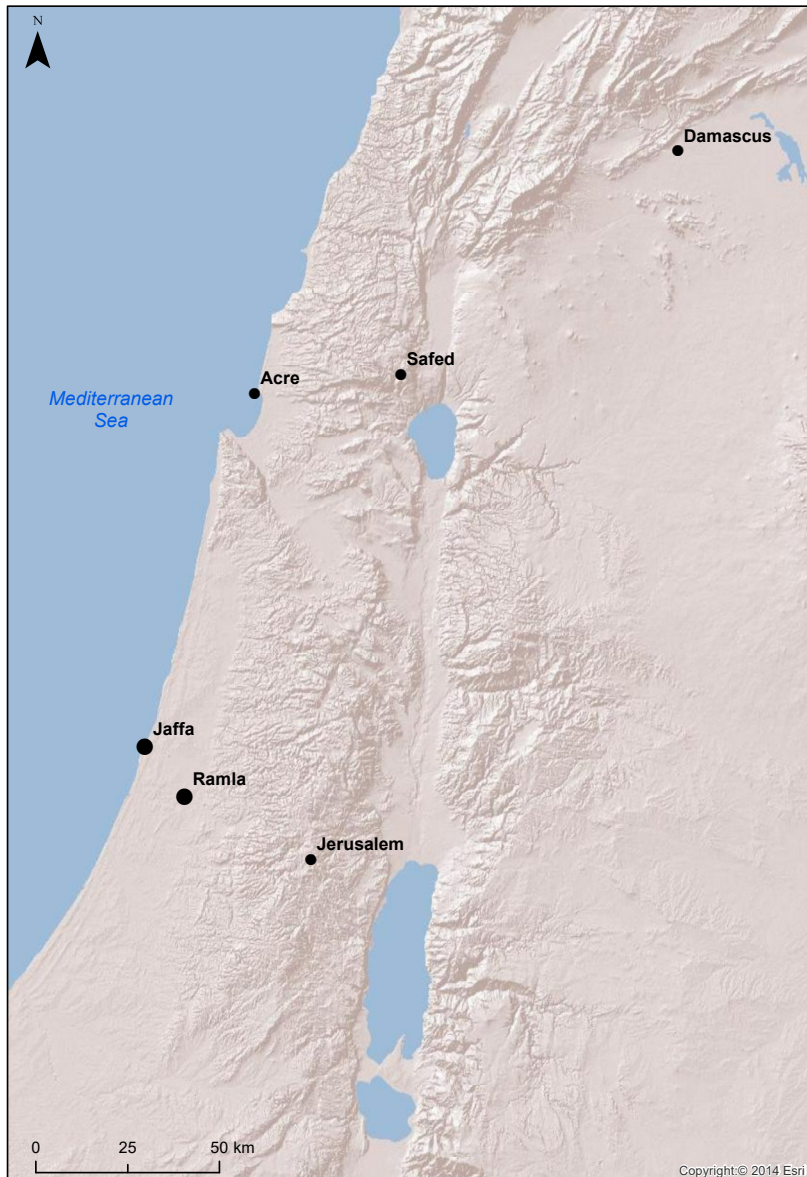


Fig. 1: Map showing selected sites mentioned in this study (prepared by A. Shapiro)

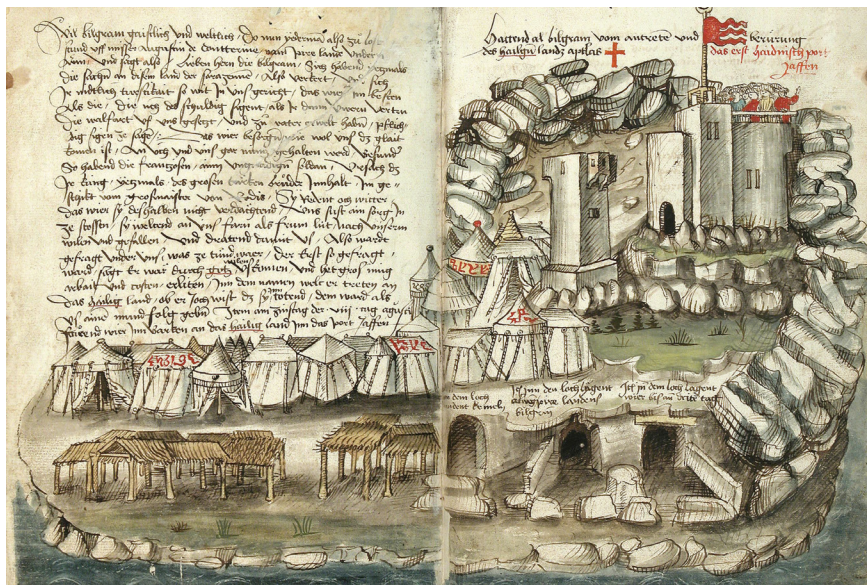


Fig. 2: Depiction of Jaffa, 1487, by Conrad Grünenberg (from Wikimedia Commons, accessed December 31, 2018)

they were exposed. Since the 1990s, Jaffa has undergone numerous systematic salvage excavations, most of which were on the periphery of the mound and in the new quarters to its east. There too, Mamluk and Early Ottoman material remains are either rare or almost completely absent, with remains mostly from the Hellenistic, Roman, Byzantine, Crusader and Late Ottoman periods exposed in these excavations. Subsequently, the Mamluk and Early Ottoman period have become known in Jaffa as the “gap period” (Peilstöcker 2011; Arbel 2013; 2017b).

The few archaeological remains associated with this “gap period” consist of an inscription, burials, two refuse pits and some meager numismatic and ceramic evidence. A foundation inscription of a mosque, dated between 1382 and 1387, during the rule of the Mamluk sultan al-Malik aẓ-Ẓāhir Barqūq, was reused as building material in the Late Ottoman Sabīl al-Mahmudi (Arbel

2017b: 75; Sharon 2017: 62–66). The burials provide a significant source of information as they were found between the Crusader and the Ottoman phases and contained mainly males (Peilstöcker *et al.* 2006; Arbel and Nagar 2017). This led Arbel and Nagar to suggest that these were the graves of Mamluk garrison soldiers, mentioned in the written sources, who had been stationed in the towers and supervised movement in the port (in Fig. 2, as well as Arbel 2017a). Two refuse pits were dated to the Mamluk period. One was exposed in Area E of the French Hospital excavations (Re'em 2010), and another, excavated on Yehuda Ha-Yamit Street (Haddad 2013), was dated by the excavator to the Crusader period as it contained charcoal, nails, an arrowhead, animal bones, a human skeleton and 13th-century glass and pottery vessels. Among the well-known Crusader ceramics, a rim of an Egyptian Mamluk glazed bowl was found there (Stern 2013: Fig. 11:7). This pit should perhaps be dated, in fact, to the Mamluk period, just after the conquest of the city, as its contents clearly relate to this event. Numismatic evidence from Jaffa includes a small percentage of Mamluk and Early Ottoman coins (Robert Kool: personal communication in December, 2018). To the best of my knowledge, only five fragments of ceramics dating from the Mamluk–Early Ottoman periods have been found in all the Jaffa excavations together (see below).

Jaffa: The Ceramic Evidence

Ceramics, among the best preserved and most abundant finds in any archaeological excavation, serve as a straightforward, non-biased documentation of the types of pottery vessels used by the inhabitants of a site. Each fragment tells a story, and it is up to the archaeologist to interpret this information. The information gleaned from the ceramics may be used as a reliable historical source, just like written sources. In this study, the find spots of selected pottery sherds will be examined in conjunction with their place of production, in an effort to improve our knowledge of the maritime activity at the port of Jaffa during the Mamluk and Early Ottoman periods.

Decoding information from pottery vessels can be achieved by a typo-chronological study in conjunction with a study of the vessel's fabric. A petrologic or petrographic study that examines the pottery vessels under a polarizing microscope may determine which geological sources were used for the raw materials that comprise the fabric of the vessel (Stern, Toueg and Shapiro 2019: 129–131).

As mentioned above, only five pottery sherds found in Jaffa from this period were identified as imports.² These include an Egyptian Mamluk sgraffito bowl with incised decoration, dating from the mid-13th–14th centuries, in a refuse pit at Yehuda Ha-Yamit Street that contained other 13th-century pottery (Fig. 3:1; Stern 2013: Fig. 11:7), and a fragment of an imported glaze bowl from northern Italy, dated between the 14th and 16th centuries, found in a fill covering a building that had been demolished in 1936 at Kikar Qedumim, not far from the port (Fig. 3:2; Barkan and Bouchenino 2011: Fig. 3:5).³ Two sherds of a deep glazed ledge-rim bowl, decorated with incisions enhanced by yellow-brown and green brush strokes, were uncovered in soil accumulations with no clear architectural context in the course of a salvage excavation at the Ben Gamliel compound (Rauchberger, in preparation; Stern, in preparation [b]). The fabric clearly indicates that it was imported, possibly a product of the little known 14th-century workshop in Soloi, northern Cyprus.⁴ Finally, a small body sherd found in the soil accumulation above the Mamluk–Early Ottoman pit graves in Area F at the Greek Market salvage excavation (Arbel 2016; Stern, in preparation [a]) bears an incised decoration enhanced by green

2 For more information on the Egyptian and Italian wares, see below.

3 I would like to thank Aviva Bouchenino for showing me this sherd and discussing materials she found at Jaffa. The close proximity of Kikar Qedumim to the port may explain the existence of this sherd there.

4 I am grateful to Anastasia Shapiro, who examined the fabric of these sherds with a magnifying glass (×10). She found that the sherd contains feldspar and has mica inclusions that are not to be found in the local geology. It may have been produced in Soloi, in the area of Morphou, northern Cyprus, where the geology contains acid igneous rocks like granite. With this information, Demetra Papanikola-Bakirtzis was kind enough to try to identify this sherd by means of a photograph I sent her (February 2018). She did not see the actual sherd.

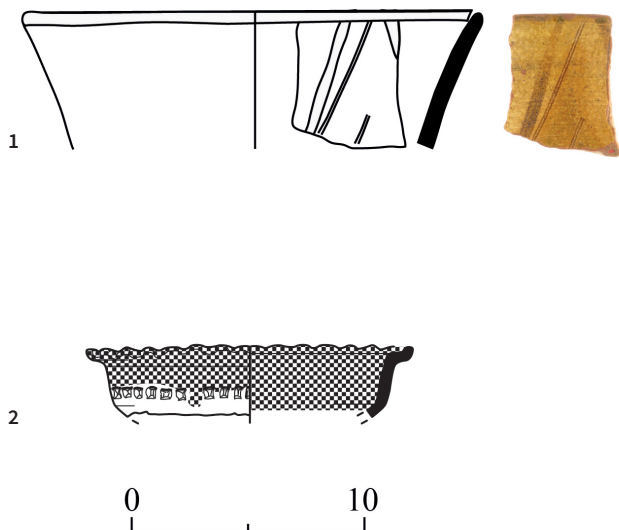


Fig. 3: Imported pottery found at Jaffa: 1) drawing by C. Hersch, photo by C. Amit; 2) drawing by M. Shuiskay, courtesy of IAA)

and dark yellow glaze on the interior and a slip-painted design of a spiral on the exterior. On the basis of its fabric and decoration it is imported, although it clearly does not belong to one of the numerous known imported wares of the Crusader period (Stern 2012: 55–99). It is very likely dated later, to the late 13th, 14th, or 15th century.

In sum, the ceramic evidence from Jaffa itself consists of a few sherds from the Mamluk capital of Cairo in Egypt, and from Italy, perhaps Cyprus or other sources overseas.

To locate ceramics that may have arrived via the port of Jaffa during this period we therefore need to examine sites with urban or rural centers that

contain Mamluk and Early Ottoman archaeological remains, including imported ceramics. The urban centers of Jerusalem and Ramla are two such sites, which apparently were in direct contact with Jaffa's port and its wares. Imported pottery in very small quantities was also found at some rural sites in this region. In this paper we will review the finds from Ramla.

Ramla: The Historical and Archaeological Evidence

Ramla is located at the junction of several major routes: one led travelers from the port of Jaffa to Jerusalem and the other is the postal route (the *barīd*), from Cairo to Damascus. This location dictated its importance during the period under discussion. When the Mamluk Sultan Baybars took Ramla from the Crusaders in 1266, they restored the White Mosque and constructed many new buildings in an effort to revive the prosperous and well-built city of Early Islamic times. In the early 14th century, Abu al-Fida described Ramla as the most populated city in Palestine. Thus, it seems to have regained some of its former role as a commercial center and to be economically prosperous (Petersen 2001: 347; 2005: 95–96). Cotton grown in the rural surroundings and traded in Ramla apparently drew Venetian merchants to settle there (Amar 2003: 155), part of the larger Venetian operation to export raw cotton and its products from the southern Levant that began in the 14th century and intensified during the 15th century (Amitai 2017: 348, 349). Christian travellers described large and rich markets in Ramla, although reduced in size from the former Early Islamic city. Ramla's prosperity seems to have declined following the Ottoman conquest in 1516 (Gat 2003: 298, 305; Petersen 2005: 95–96).

The current Old City of Ramla is located above the area of the Mamluk and Early Ottoman town, as attested by a number of surviving buildings, most of them religious (the Great Mosque, the Abu al-'Awn Mosque, a large 16-century khan and a few tombs). In addition, many Arabic inscriptions from mosques, minarets and tombs point to these demolished Mamluk monuments (Petersen 2001: 347–351; 2005: 96; Cytryn-Silverman 2008).

Archaeological evidence of domestic dwellings is very scant; most of these buildings were apparently made of dry mudbrick, whereas public buildings were of high-quality chiselled stone. The recovery of local and imported pottery in excavations mainly within the Old City but also outside it testifies to dense habitation during the Mamluk and Early Ottoman periods (Elisha 2005; 2010; Parnos and Nagar 2008; Toueg 2008; 2011a; 2011b; 2012; Kletter 2009; Cytryn-Silverman 2010; Korenfeld 2010; Talmi 2010; Eshed 2011; Torgë 2011; Stern, Toueg and Shapiro 2019).

The agricultural hinterland of Ramla, with good farming land, was also prosperous during this period. Archaeological excavations at sites such as Khirbet el-Ni'ana (de Vincenz and Sion 2007), Kafr 'Ana (Gophna and Taxel 2007) and Giv'at Dani (Lazar 1999) revealed remains of Mamluk and Early Ottoman villages. The ceramic finds in some of them include imported ware, like those found at Ramla.

Ramla: The Ceramic Evidence

The Mamluk-period vessels unearthed at Ramla can be divided into groups according to fabric, form and decoration (Stern, Toueg and Shapiro 2019): 1) local fabrics, originating in a workshop or workshops in Ramla itself or within a range of 10–20 km; 2) inter-regional fabrics, produced within the boundaries of the Mamluk Sultanate, i.e., in Syria, Beirut and Egypt; 3) Mediterranean fabrics of vessels imported from Italy, Cyprus and Spain; and 4) Chinese celadons and porcelains. Of these only the imports from Egypt, Italy, Cyprus, Spain and China will be described here.

Egypt

Egyptian Mamluk sgraffito bowls, similar to the fragment found at Jaffa, have been identified in two excavations at Ramla (Toueg 2011b: Fig. 11:7; Stern, Toueg and Shapiro 2019: 151, Fig. 8:9–12). The fabric of these bowls is very ferruginous and silty, fired to dark red and reddish-brown colours, and

is attributed to Egypt (Mason and Keall 1990: 180–81, Fig. 13; Stern, Toueg and Shapiro 2019: 151). The bowls are covered with a thick white slip, into which calligraphic, heraldic, geometric, or floral designs were incised in a standardized decorative program. These designs are sometimes further enhanced by thicker slip or a glaze of a different color. The vessel is usually covered with a yellow or yellow-brown glaze and occasionally with green glaze. The forms and the color of the glaze indicate that the pottery vessels are imitations of metal ones. Egyptian bowls are very common in Egyptian administrative centers and Mamluk military installations, mainly in Cairo, the Mamluk capital, from the mid-13th to the end of the 14th century. They were termed “military style” because of their decorations, which included military inscriptions and heraldic symbols. It has been suggested that these vessels, which reflect the military Mamluk society, were used in ceremonies and were manufactured solely for use in Egypt (Scanlon 2003; Walker 2004: 1–32, Figs. 4, 5, 8, 9, 11; Watson 2004: 408–414; Gayraud 2012: 79–84, Figs. 5–10).

As noted, these bowls have rarely been found beyond the borders of Egypt and have mainly been uncovered at Mamluk administrative centers in Greater Syria: at the Damascus citadel (François 2008: 20 620), at Jerusalem (Avisar 2003: 436, Pl. 19.2:7, Photo 19.1), at Safed (Barbé 2014: 121, Fig. 13:1,2;⁵ Dalali-Amos and Getzov 2019: 76*, Fig. 73:1,2) and at Hisbān Jordan (Bethany Walker, personal communication). However, additional fragments of Egyptian Mamluk sgraffito bowls have been identified at recent excavations in rural sites: at Gan Ha-Darom, to the north of Ashkelon (personal observation),⁶ at Megiddo/Lajjun (Tepper and Stern, forthcoming) and at the Ridwan mills on the outskirts of ʿAkko (Stern 2016: 83–84, Fig. 1:2).

5 Although these sherds were not identified by the author as belonging to the Egyptian Mamluk sgraffito, the fabric description and decoration make it very likely that they belong to this type. Since I unfortunately did not have the opportunity to handle these sherds, this identification should, however, be taken with caution.

6 IAA Permit A-8357/2018. I would like to thank the excavator Ayelet Dayan for inviting me to study the pottery from this excavation.

Cyprus

Four Cypriot bowl fragments were identified at Ramla (Toueg 2012: Fig. 3:8; Stern, Toueg and Shapiro 2019: 152–155, Fig. 9:1–3). These fragments show different fabrics, suggesting several production centers on the island: Paphos-Lemba, Enkomi, Nicosia, or one of the lesser known workshops (Papanikola-Bakirtzis 1989; von Wartburg 2007: 423; François 2017: 848–851, Figs. 28–31). While glazed ware dating from the 13th century reached the Crusader kingdom in commercial quantities (Stern 2012: 60–65), the later glazed bowls provide evidence for the arrival of a few glazed bowls from Cyprus, also during the 13th century. A fragment of a carinated bowl with monochrome glaze (Toueg 2012: Fig. 3:8)⁷ is similar to monochrome glazed bowls produced at Nicosia in the 14th century (François 2017: 848–51, Fig. 28:1, 2). The small body and base fragments found in another excavation at Ramla are polychrome sgraffito, similar to the various 14th-century Cypriot wares. Designs include guilloche filled with small spirals or a heraldic shield. The glaze colors are green, yellow and brown over a lighter background glaze. In one case there is red slip. Although observation by binocular microscope indicates slight differences in the fabrics, the composition of all suggest a Cypriot origin. The forms, the designs and the presence of red slip also suggest that these bowls were produced in Cyprus, possibly in the 14th century (Stern, Toueg and Shapiro 2019: 152–155, Fig. 9:1–3).

Italy

Most of the bowls imported to Ramla came from Italy, mainly from the north: from Venice and the Veneto region (five or six types), from Pisa (two types) and perhaps from Montelupo (one type). While some are of well-known types, the others were defined as Italian imports on the basis of fabric observation. Decorations include plain green or brownish-yellow monochrome glaze, sgraffito with either green monochrome or polychrome glaze, with green and

7 There seems to be a mix-up in the identification of the sherds in the article. I have seen this vessel and identified it as a Cypriot import.

yellow glaze enhancements over a light yellow background. Only open forms were recognized, with one basin and mainly bowls, ledged rim, hemispheric, and carinated, occasionally with a rouletted exterior or a ridge at the carination. These bowls usually have a low ring base, and one type has a flat base.

Vessels from Venice and the Veneto region are dated roughly to the 14th–16th centuries and include: a basin with square rim, straight walls and dark green monochrome glaze on both surfaces (Avisar and Stern 2005: 74, Type I.9.7, Fig. 31:9,10; Stern, Toueg and Shapiro 2019: 155, Fig. 9:4); a monochrome carinated bowl with a ridge extending from the shoulder can be found in brownish-yellow monochrome glaze without slip (Fig. 4:1; Cytryn-Silverman 2010: 128, Pl. 9.32:1; Toueg and Stern 2016: Fig. 5:4,5) or in shiny green glaze, with a thick white slip (Cytryn-Silverman 2010: 128, Pl. 9.32:2), with an example also found at Giv'at Dani (Lazar 1999: 128*, Fig. 2:7);⁸ monochrome sgraffito bowls—green glazed bowls with thin incisions carelessly executed on the interior (Elisha 2005: Fig. 2:4; Cytryn-Silverman 2010: 129, Pl. 9.25:1–2, Photos 9.38–9.41; Toueg 2011a: Fig. 6:9; 2012: Fig. 3:6; Stern, Toueg and Shapiro 2019: 155, Fig. 9:5), examples of which were also found at Khirbat el-Ni'ana (de Vincenz and Sion 2007: 32, Fig. 7:7,8);⁹ a carinated bowl with a rouletted decoration on the outer wall, occasionally with shiny green monochrome glaze on the interior (Fig. 4:2; Toueg and Stern 2016: Fig. 3:3), occasionally with thin incised decorations on the interior with green (Cytryn-Silverman 2010: 129, Pl. 9.25:1,2), and rarely with dark yellow glaze (Toueg and Stern 2016: Fig. 6:5). Examples were also found at Khirbat el-Ni'ana (de Vincenz and Sion 2007: 32, Fig. 7:5,6). There are also some examples with polychrome glaze (Cytryn-Silverman 2010: 129, Pl. 9.32:3). Finally, a large variety of “Graffita Arcaica” polychrome sgraffito bowls were found, made of slightly different fabric types, suggestive of different workshops. Their decoration includes incised floral and rarely geometric designs, a transparent glaze over a white slip and enhancement of the design with green

8 It was not identified as an import by Lazar.

9 These were not identified as imports in the article.

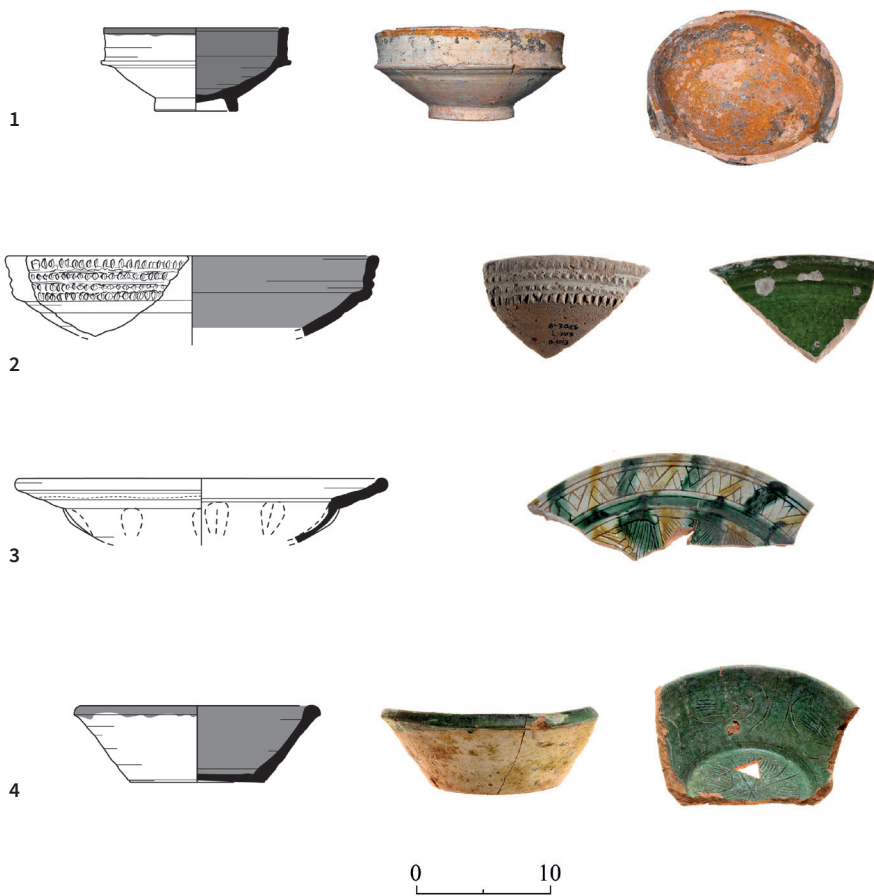


Fig. 4: Imported pottery found at Ramla (drawings by M. Shuiskaya, photos by C. Amit, courtesy of IAA)

and yellow glaze; they generally have ledge rims, although other forms exist (Fig. 4:3; Cytryn-Silverman 2010: 128–129, Pl. 9.25:4–6; Toueg and Stern 2016: Fig. 6:6,7). Related to this ware, two intact bowls of a slightly different form with a plain curved rim, an inward-sloping wall and a broad flat base, but decorated in a similar manner with either monochrome and polychrome sgraffito, may have originated from yet another workshop in northern Italy (Fig. 4:4; Cytryn-Silverman 2010: 128–129, Pl. 9.25:3; Toueg and Stern 2016: Fig. 5:6,7).

Less common are bowls that on the basis of their fabric and forms were imported from Pisa. These include a monochrome bowl the interior and exterior of which are covered with a transparent glaze and no slip, and a body fragment of a “Graffita policroma tarda” or “Pisan Sgraffito Ware” bowl, with light-yellow glaze, an incised decoration and a dab of green glaze (Stern, Toueg and Shapiro 2019: 155, 156, Fig. 9:6,7).

Most of these types of Italian bowls have also been recorded in Safed, Jerusalem and Damascus, as well as in other rural sites (Tushingham 1985: 341, Fig. 45:21; Avissar and Stern 2005: 72–75: Types I.9.4–7, Fig. 31; François 2008: 20 710; Prag 2017: 30, 95, 102, 103, Pls. 9:3, 26:5, 31:78–83, 33; Dalali-Amos and Getzov 2019: 74*, Fig. 71; Stern 2014: 143–146, Figs. 1:1–4, 2:1–4; forthcoming).

Spain

Bowls with a pale brown porous fabric, entirely covered with white opacified white glaze, with dots, floral, or vegetal designs painted in gold luster and sometimes in blue, have been reported from two excavations in Ramla (Fig. 5:1; Cytryn-Silverman 2010: 127–128, Pl. 9.32:6, Photo 9.36:2; Toueg and Stern 2016: Fig. 5:3). These bowl fragments are comparable to forms produced in Valencia between the late 14th and late 15th century, belonging to the “Classic Valencian” style (Gutiérrez 2000: 28–39, Figs. 2.15:3, 2.18). Valencia luster bowls were found at Jerusalem (Johns 1950: 189, Pl. 63:2) and at Safed (Stern 2014: 147, Fig. 1:11; forthcoming; Dalili-Amos and Getzov 2019: 76*, 77*, Fig. 73:3), indicating presence in other Mamluk administrative centers. They have also reached other sites in Syria, the citadel in Damascus and Hama (Poulsen 1957:

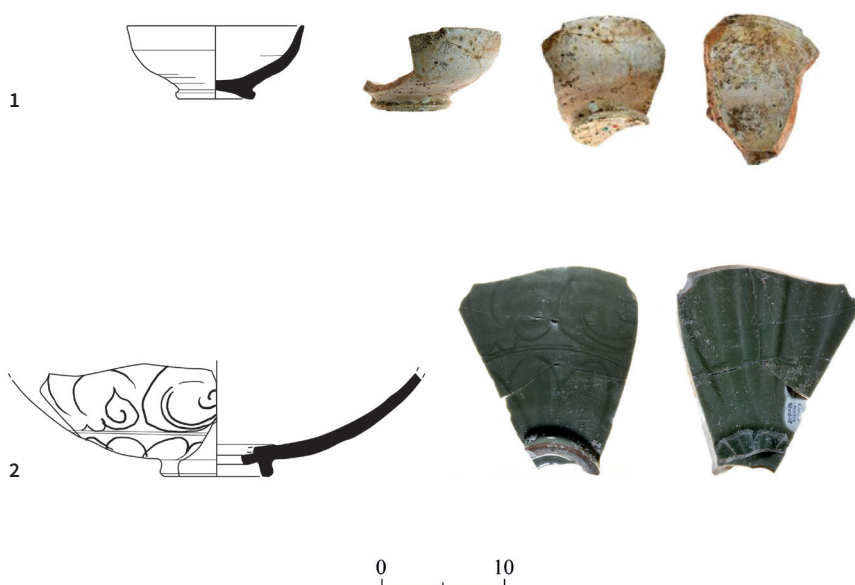


Fig. 5: Imported pottery found at Ramla (drawings by M. Shuiskaya, photos by C. Amit, courtesy of IAA)

132–133, Figs. 405, 406; François 2008: 20 700), and the Mamluk capital in Egypt (Rosser-Owen 2013: 250–252).

China

Chinese celadon was highly valued in the Muslim world, owned by the upper echelons of society, such as sultans, emirs and wealthy merchants. These vessels were used for serving food and drink at banquets and ceremonies in the Mamluk and Ottoman courts and became a highly valued gift in the Islamic world, given, for example, by Mamluk rulers to Europeans (Kahle 1956: 332–50; Milwright 1999: 513–516; Pierson 2013: 39–41). It is not surprising, therefore, to find Chinese Longquan celadon in Mamluk and Early Ottoman Ramla (Fig. 5:2; Korenfeld 2010: Fig. 6:10; Toueg and Stern 2016: Fig. 3:2). The fabric of the celadon is light grey, compact and vitrified, and the vessels are completely covered with a shiny green-grey glaze, except for the foot of the low base. Decoration consists of either

incised vegetal motifs or a fluted pattern on the exterior. Produced in Longquan, southern China, under the Sung Dynasty, celadon was manufactured for everyday use in China, as well as for maritime export, from the late 12th to mid-14th centuries (Medley 1989: 145–146; Vainker 1991: 108–109). Chinese Longquan celadon has been found at the other Mamluk administrative centers, at Jerusalem (Tushingham 1985: 151, 337, Fig. 41:23; Avissar, personal communication) and Safed (Avissar and Stern 2005: 78, Type I.12.1, Fig. 34:4, Pl. XXIV:7; Dalali-Amos and Getzov 2019: 74*, Fig. 72:1–4; Stern, forthcoming), but has also been identified in Mamluk-period contexts at two rural sites, one in the Sharon Plain, at Khirbet Burin (Kletter and Stern 2006: 194–196, Fig. 21:8), and at Bene Darom (Barkan 2006: Fig. 4:3). As expected, Chinese celadon was also available on the markets of Cairo (Scanlon 1970) and Hama in Syria (Poulsen 1957: 118, Figs. 353–360).

Discussion

Written documents point to some maritime activity at Jaffa over the four centuries of the Mamluk and Early Ottoman periods. Archaeological evidence for this activity, however, is scarce. The ceramic evidence from Ramla and its rural environs may fill this lacuna, as it constitutes tangible data through which the activities of the Venetian merchants can be identified and dated. Although the rich ceramic finds from Ramla, which include a range of imported glazed bowls, may reflect the high socio-economic status of some of the city's residents, it may also shed light upon a less known chapter in the commercial and economic history of this region at the end of the Mamluk and beginning of the Ottoman period. These imported ceramics, from Cyprus, Italy, Spain and China, clearly arrived by sea. The ships on which they were transported most likely did not sail to the Levant in order to distribute these ceramic wares, but arrived at the shores of the Eastern Mediterranean in order to purchase high-quality low-price goods and to bring pilgrims.. As mentioned above, it was the highly prized cotton for the developing textile industry in Europe that attracted Venetian merchants.

Later, 18th-century, written evidence concerning French merchants who traded through the port of Jaffa reveals that they resided in Ramla, from where they managed their affairs, because of the unsafe conditions in Jaffa (Cohen 1985: 165–166). It is possible that the Venetian and other European merchants who traded through Jaffa in the 14th–17th centuries also preferred to live in Ramla, as Jaffa was unfortified and subject to raids by pirates.

The fragments of the Egyptian Mamluk sgraffito bowls attest to a strong connection with the Mamluk center in Egypt and possibly even to the presence of Egyptian officials in Ramla. In Jaffa, they might suggest the presence of the garrison stationed in the towers. The Cypriot bowls clearly attest to the maritime route that the ships took. The ones from northern Italy seem to point to the ports from which the ships sailed—Venice and later also Pisa—and to the identity of the merchants. The Italian maritime communes were active in trade with Valencia, and they may have been responsible for the distribution of the luster bowls originating there. The Chinese Longquan celadon that may have arrived via the Red Sea and Egypt, were most likely redistributed in the Mediterranean by them as well.

This pottery may have bearing upon perishable goods that did not survive in the archaeological record, but could have been used on these ships as ballast. In any case, they clearly reflect the role of Italian merchants in the circulation of goods throughout the Mediterranean and reveal information regarding the maritime commercial activity that took place in the port of Jaffa during this period.

Interestingly, a similar discrepancy was observed at Acre, whereby despite the recovery of only few archaeological remains from the Mamluk and Early Ottoman periods, the city's maritime activity is discernable in the presence of imported ceramic types of the same origins and types found at the new district capital at Safed and in rural villages in the Galilee (Stern 2014; Dalali-Amos and Getzov 2019).

In sum, the pottery from Ramla tells the story of a crowded city and of the Venetian merchants who lived there and offers material evidence of maritime trade activities at the Jaffa port in the Mamluk and Early Ottoman periods, evidence that was sorely lacking from the port of Jaffa itself.

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Abstracts

1 | Traveling with Subarctic Hunter-Gatherers

Adrian Tanner

pp. 1*-23*

For the Eeyou (East Cree) hunters of Canada, travel is not just going from one place to another. It is a purposeful ongoing communication with the land and animals, monitoring changes while on the lookout for harvesting opportunities. The winters are long—from October to June—but this is the time when travel is easy for a hunter on snowshoes or with a dog team, able to go almost anywhere, over frozen lakes, rivers and swamps. Hunters are wary of potential winter hazards, but this season offers the best conditions for hunting. The right clothing is needed for safe winter travel. Summer is the time for fishing, hunting game birds and gathering berries. Travel is difficult over land, and therefore much movement is by water. Small canoes can be portaged from one lake to the next. For these hunters, travel is essential, both as wayfaring and transport.

2 | Domestic Animal Mobility during the Bronze and Iron Ages: Insights from Ancient DNA Research on Pigs and Cattle

Meirav Meiri and Israel Finkelstein

pp. 1–7

The Late Bronze Age of the Eastern Mediterranean was a period of great economic prosperity and strong commercial relations, but ended in a major collapse and migration of groups to the Levant. In this study we shed light on these processes, using ancient DNA of domesticated animals as a model for human movement.

For this purpose, we collected bones and teeth of pigs and cattle from the Bronze and Iron Ages from Israel and Greece. The results show that pigs were translocated from the Aegean region to the southern Levant some time before 900 BCE. Pigs were probably brought to the southern Levant from Europe in later periods too—for example, in the Roman-Byzantine period and during the Crusades. Descendants of the European pigs were released into the wild and took over the genetic signal, meaning that the wild boar population in Israel today carries European maternal genetic signature. This is in contrast to other modern pigs from countries in the region who carry Near Eastern genetic signature.

While the genetic data indicate movement of pigs from the Aegean basin to the southern Levant, we found no evidence that cattle were also transferred in this pathway. However, we detected early evidence for crossbreeding between taurine and zebu cattle in the Iron IIA (*ca.* 900 BCE). In light of the archaeological and historical evidence on Egyptian imperial domination in the area during the Late Bronze Age, we suggest that the hybridization was done during this period and represents an Egyptian attempt to expand dry farming in the region during a period of severe droughts.

3 | Rise and Fall: Changes in the Symbolic Perception of Donkeys during the Bronze and Iron Ages

Lidar Sapir-Hen

pp. 9–17

Donkeys and camels served as work animals in the southern Levant during different phases of the Bronze and Iron Ages. The domestication of these species played an important role in humans' social evolution. It promoted improvement in transportation abilities of people and goods and long distance trade, and thus created new opportunities for the development of the societies. The paper reviews evidence for the interaction of humans with donkeys, following their domestication, with special attention to ritual practices and their social meaning. The review reveals that the practice of deliberate interments of donkeys began shortly after their domestication as work animals, continued through the Bronze Age and ended at the early Iron Age. Cessation of the practice coincides with the introduction of another transport animal to the southern Levant—the dromedary camel. It is suggested here that the treatment of donkeys changed as their importance changed and their symbolic role diminished.

4 | The Way to the Next World? An Enigmatic Structure from the Chalcolithic Period

Gilad Itach

pp. 19–33

A single, stone-built circular structure was recorded but not excavated during canalization work of the Ayalon River near Ben-Gurion Airport over twenty years ago. At the time it was suggested that the structure was a Chalcolithic

well. In recent years two other stone-built circular structures have been excavated in Yehud, only a few kilometers northeast of the airport, and their excavators suggested identifying them too as Chalcolithic wells. This paper presents the result of a trial excavation aimed at examining in further detail the nature of the hitherto unexcavated structure near Ben-Gurion Airport. It shows that while the structure should indeed be dated to the Chalcolithic period, it should most probably be identified as a burial structure rather than a well.

5 | On the Way to the City: The Central Role of 'Ein 'Esur ('Asawir) in the EB IB Settlement Pattern in the Coastal Plain of Israel

Itai Elad and Yitzhak Paz

pp. 25*-35*

'En Esur is the largest Early Bronze IB settlement site known to date in the southern Levant. This article focuses on its place within the pattern of settlements in the Coastal Plain during this period. The immediate vicinity of the site is characterized by a low density of settlements. This pattern is compared with other contemporaneous settlements' clusters known from the Coastal Plain, and it is suggested that it may reflect a spatial trait of an urban system during the EB IB.

6 | Hellenistic Hip Baths in Hasmonaean Farmsteads

Avraham S. Tendler

pp. 37*-49*

The Hellenistic hip bath, a small, shallow bathing installation in which the bather would sit on a step and pour heated water on himself, was used in private homes and public bathhouses throughout the Hellenistic world from

the 5th through the 2nd century BCE. In the Land of Israel such installations have been found at a variety of sites, populated by the various ethnic groups of the times. This paper presents nine hip baths from the late Hellenistic/Hasmonean period recently excavated at two farmsteads in the Modi'in region and discusses their agricultural context and their possible relationship to Jewish purificatory washing.

7 | Trade in Antiques during the Early Islamic Period

Hagit Torgè

pp. 35–45

In the winter of 2012 a large excavation, directed by R. Toueg, was conducted to the south of the White Mosque at Ramla, prior to the construction of a shopping mall. The excavation yielded remains of a large residential building dated to the Fatimid period. Various finds uncovered indicate a hasty abandonment of this building, perhaps due to the 1068 earthquake.

The western area of the building was used as a reception area. Two wide rooms, divided by a partition wall, were partly excavated. At the bottom of the wall lay a molded *shabti* figurine, made of pale green faience. On the basis of parallels, it was dated to the Twenty-Seventh Dynasty (5th century BCE). A few similar figurines were uncovered in other excavations from the Fatimid period in Cairo.

Most of the graves from the Twenty-Seventh Dynasty are located in Saqqara and Abusir, between tombs from previous periods. These tombs contained a vast amount of *shabtis*, sometimes over four hundred in a single one. Most of these tombs were robbed in ancient times, and only a few were left untouched. Evidence left behind by the robbers date most of the robbery to the Early Islamic period and to the Fatimid period in particular. It appears that these actions were supported by the rulers and their main purpose was to quarry stones for construction, alongside a thriving trade in stolen goods used as amulets or medicine.

8 | Between the Citadel and the Temple:

On Administration and Worship on the Shores of Nahariya

Ron Be'eri, Nimrod Getzov and Yair Amitzur

pp. 47–66

Tel Nahariya is located south of Naḥal Ga'aton and ca. 300 m east of the present-day Mediterranean coast, in what may have been a small bay that served as an anchorage. Recent excavations on the northern side of the tell have revealed a series of administrative strongholds that presided over the bay, which were successively destroyed. The earliest of these dates to the Middle Bronze II, and it was followed by three built successively throughout the Late Bronze II. About 600 m north of the tell, on the other side of the river, the remains of a Middle Bronze Age temple were exposed. The remains included an open cultic area and an adjacent building. Among the remains of the many offerings found in the temple, there were numerous miniature figurines of domesticated animals, typically used in various sacrificial offerings, such as doves, sheep and cows. The zoomorphic figurines were probably dedicated to local deities and may have been intended to replace the sacrifice of live animals. Among the offerings, several figurines of half-naked goddesses stood out as unique, emphasizing the reproductive organs of the females they depicted. These, along with the figurines of domesticated animals, suggest that the population of the local agrarian society was seeking to gain the cooperation of nature, in order to secure its fruits. The people likely entreated the goddesses with requests for help in giving birth, in order to ensure the health of their families, to bring fertility to the soil that would result in a bountiful crop, and to provide for the safety of the herds from the ravages of nature and man.

**9 | *Glycymeris* Shell-Paved Floors from Meşad Ḥashavyahu:
A Continued Local Architectural Tradition?**

Daniel Ein-Mor, Michal Mermelstein and Federico Kobrin

pp. 51*–74*

Floor levels composed out of shells and installations paved with shells are a relatively rare occurrence in the southern Levant during the Bronze and Iron Ages, appearing as early as the Middle Bronze Age, but found mostly in strata assigned to the Late Bronze III and Early Iron I (13th–12th centuries BCE). The remains of a floor paved with *Glycymeris* shells were discovered in 1960 during the excavation of a courtyard in the gate complex at Meşad Ḥashavyahu, a massive late Iron III (7th- or early 6th-century BCE) fortress located on the southern Coastal Plain of Israel, ca. 1.7 km from Yavneh-Yam. During a recent excavation at the fortress, a room whose floor was found entirely paved with shells was unearthed adjacent to the previously known shell floor. To the best of our knowledge, the shell floors from Meşad Ḥashavyahu constitute a unique occurrence of this architectural phenomenon at sites dating to the Iron III in the region of Israel. Similar shell-paved floors are attested at several sites scattered along the southern coasts of the Iberian Peninsula. These are generally accepted as Phoenician colonies and date between the late 9th–6th centuries BCE. In this paper we provide a brief review of several shell floors and shell paved installations that were documented at various sites in the southern Levant dating to the Bronze and Iron age. This will set the background for discussing the question at the center of this paper: Do the shell-paved floors in Meşad Ḥashavyahu represent a continued local architectural tradition? Or should they be viewed in the context of cross-cultural connections during the late 7th century BCE, specifically with contemporary sites in the Iberian Peninsula?

10 | A Roman Merchant Ship Cargo of Scrap Metal and Raw Materials in the Caesarea Harbor: Preliminary Report

Jacob Sharvit and Bridget Buxton

pp. 75*-91*

Throughout the age of sail, the most dangerous place for a ship to be caught in rough conditions was close to shore. It is not surprising, therefore, that the greatest concentrations of ancient shipwrecks are typically found in the vicinity of harbors. In February 2016, the Israel Antiquities Authority began the rescue excavation of a large Late Roman shipwreck near the north-facing entrance and breakwater of Sebastos, King Herod's port of Caesarea Maritima. The 70 × 40 m site has yielded the largest Roman shipwreck assemblage discovered to date in Israel, including many luxury goods of Italian and Egyptian manufacture. The significance of the discovery is two-fold. First, in addition to well-preserved elements of the ship itself, such as bilge parts, sheathing and anchors, there are many unique items that provide insight into the material culture of the early 4th century CE. Among the finds were a lead brazier, a large steelyard, fishing equipment, ornate bronze lamps and figurines, a glass cullet, marble architecture, Italian decorated lead mirror frames, tools, a 25 kg bronze coin hoard and hundreds of other coins featuring the imperial rivals Constantine and Licinius, as well as fragmentary life-size bronze statues, likely representing at least two emperors. Second, the ongoing excavation and geomorphological survey is helping to resolve long-standing uncertainty and controversy about the status of Caesarea's port facilities during this period. We present a preliminary overview of the 2016 season and our evolving picture of Caesarea's northern breakwater and maritime commerce in Late Roman times.

11 | Maritime Activity at Jaffa during the Mamluk and Early Ottoman Periods: The Ceramic Evidence from Ramla

Edna J. Stern

pp. 93*-115*

Archaeological evidence regarding the maritime activity at the port of Jaffa during the Mamluk and Early Ottoman periods (14th–17th centuries CE) is scarce. The discovery of a range of imported pottery at Ramla dating from this period provides an opportunity to fill this lacuna. The ceramics, imported by sea from Cyprus, Italy, Spain and China, constitute tangible data on the ships that arrived at the port of Jaffa. These were most likely Venetian and perhaps other European merchants who arrived at the shores of the eastern Mediterranean in order to purchase high-quality low-price goods, such as cotton.