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A Crusader-Period Bathhouse in 'Akko (Acre)

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Introduction

Montmusard, the suburb north of the city wall of Crusader Acre ('Akko), was founded in the later part of the twelfth century, but experienced its greatest expansion in the thirteenth century (Jacoby 1982). Little archaeological research has been conducted in this area and, until the present excavation, no extensive excavations had been undertaken. In February 1996, a probe was conducted approximately 300 m north of the Crusader city wall, in the former Montmusard, prior to the upgrading of Ben-Yosef Street (now Derekh Ha-Nof), a partially paved side street. The probe indicated the possible existence of a Crusader-period bathhouse (map ref. NIG 20690/75910, OIG 15690/25910; Fig. 1). As a result, a larger salvage excavation was conducted at the site between the months of September and November 1997. This excavation exposed a bathhouse, which is the first large verifiable Crusader-period structure to be found in this suburb.[1]

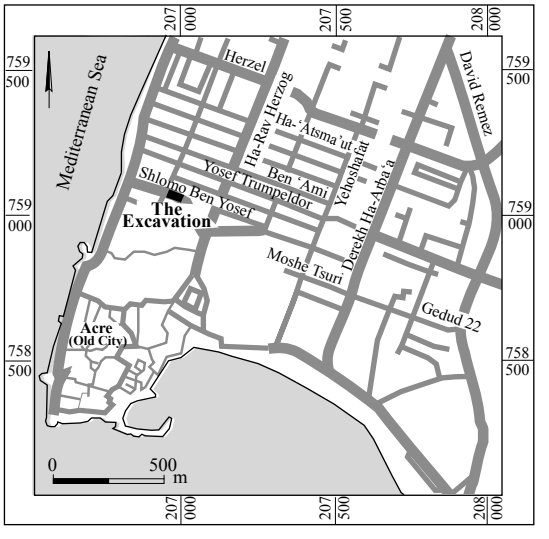


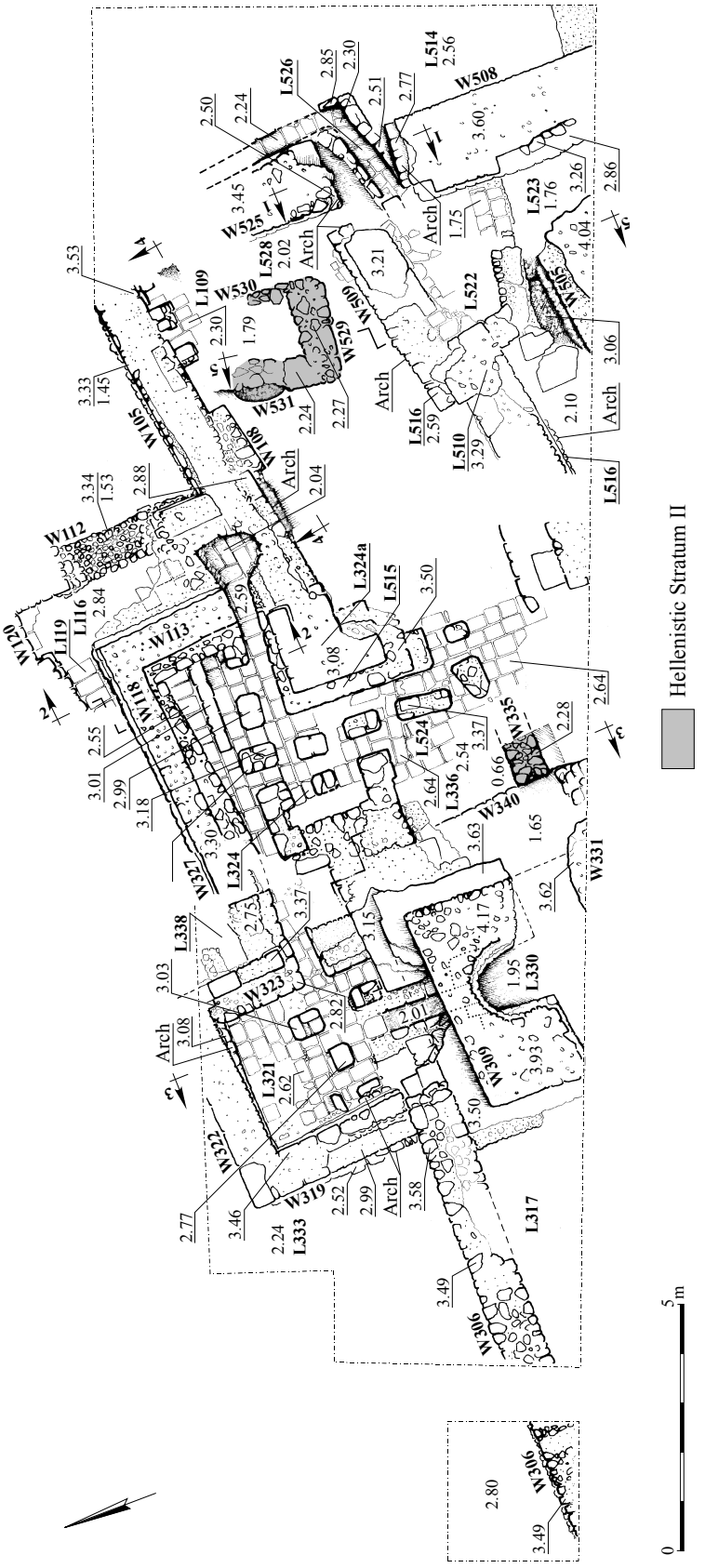
Fig. 1. Location map.

The first probe consisted of two 5 × 5 m squares on the northern side of the site. The larger, second excavation, extended over an area 31 m long on an east–west axis and 7.5 m maximum on a north–south axis. The Crusader-period bathhouse was only partially preserved in its western part (Plan 1), which comprised the furnace (W309), an adjoining storage and stoking room to its west (L317), a northern hot room (L321) and a larger eastern hot room (L104, L324, L515, L524) (Fig. 2). Its eastern part, in contrast, was very poorly preserved due to extensive disturbance caused by stone robbing during the Ottoman period. It is, thus, impossible to determine the exact extent or plan of the bathhouse and of any possibly adjoining structures (Plan 1).

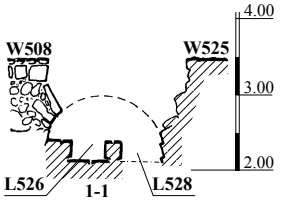
Historical Background of the Montmusard Quarter

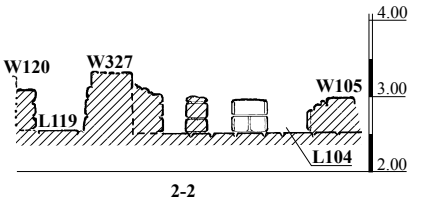
The Fatimid ruler of Acre surrendered his city to the Crusader king, Baldwin I, in the year 1104 after a combined land and sea siege. The Crusaders immediately settled within the bounds of the walled Fatimid city, which had been refortified by Ibn Ṭulun in the tenth century. Acre was thereby transformed into one of the major trade and port cities of the Crusader kingdom.

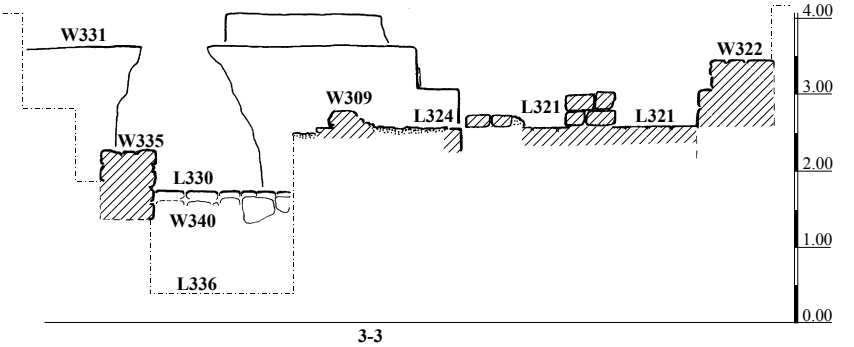
King Baldwin had a castle constructed in the city. The Genoese, Venetian and Pisan merchants' quarters were established nearby, as were the quarters of the Hospitaller and

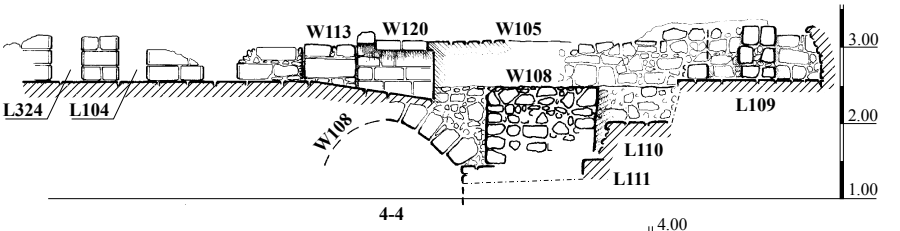


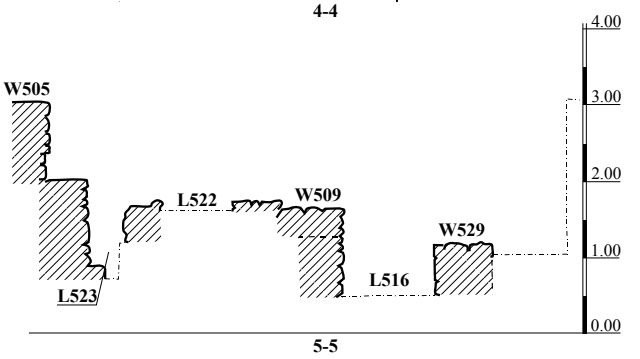
Plan 1. The bathhouse, plan and sections (on following page).











Templar military orders. In this manner, during the course of the twelfth century, the Crusader city of Acre became a city of densely packed buildings and alleys. By the later part of the twelfth century, the city began expanding outside its defensive walls. The expansion increased greatly, at first by the influx of people following the defeat of the Crusaders at the Battle of Ḥittin in 1187, and again after 1191, with the success of the Third Crusade under the leadership of Richard I (the Lionheart) of England. The inability of the Crusaders to

Fig. 2. The western half of the excavation, looking southwest.

retake Jerusalem resulted in Acre replacing it as the new capital of the Latin Kingdom of Jerusalem. The king, his royal entourage and the heads of the military orders transferred their residences from Jerusalem to Acre. The founding of Montmusard, the new urban quarter immediately to the north of the expanding city (Jacoby 1982:206), is mostly associated with this dramatic increase in the centrality of Acre and its concomitant population explosion.

In the course of the thirteenth century, Montmusard developed in a fashion similar to the development of Acre during the previous, twelfth century, whereby organized groups of influence or power received rights to build within its boundaries. The military orders, whose quarters became too cramped within the walls of Acre, thus built new quarters in Montmusard. By the year 1212, Montmusard was enclosed within a defensive wall, as is gleaned from the testimony of Wilbrand of Olenburg who visited Acre during that year. In his description of the city he made mention of Montmusard and its walls for the first time (Jacoby 1982:212).

King Louis IX spent the years 1250–1254 in the Latin Kingdom of Jerusalem. Among his building projects was the construction of a double defensive wall around the entire city of Acre, including Montmusard, thus finalizing its contour as it is portrayed in early fourteenth century maps drawn by Pietro Visconte and Paolino Veneto. Montmusard became an integral part of the city. Passage between Montmusard and Acre proper was provided through the still existing gates in the earlier northern wall of the city, as well as through new gates that were added in the course of the thirteenth century.

Archaeological Background of the Montmusard Quarter

The rich repository of information concerning Montmusard in contemporary documents, maps and descriptions, contrasts with the paucity of archaeological evidence. Other than a few salvage excavations in the area of Montmusard, mostly unpublished, that uncovered ceramic assemblages and fragmentary wall remains dating from this period (Vitto 2005),[2] no major

structure had been excavated until the present excavation.

The remains of a long rectangular structure located in the Montmusard quarter north of the old city wall were identified in aerial photographs taken in the early part of the twentieth century (Kedar 1997:162, Figs. 3, 4). It was suggested that this structure had been a market street (Boas 1997).

The Crusader bathhouse is thus the first substantial archaeological element excavated in Montmusard datable to the thirteenth century.

THE EXCAVATION

The bathhouse was constructed directly upon remains of the Hellenistic city, with no intervening occupation levels. Although the Hellenistic-period pottery sherds were dominant throughout the excavation, remnants of Hellenistic-period structures were uncovered in two areas only (Plan 1): W529 in the northeastern part of the excavation, and W335 in the south. A particularly rich, homogenous assemblage, was discovered to the north of W335 (L336). The Hellenistic phase will be published separately by Smithline (forthcoming), and is not discussed here.

After the destruction of the bathhouse, a gap of approximately five centuries preceded the Ottoman occupation of the eighteenth to early twentieth centuries. The topmost stratum, immediately below the surface, dates to the twentieth century.

The three post-Hellenistic strata will be described below, beginning with the latest one.

The Twentieth Century

Immediately below the upper surface in the northwestern corner of the site was the foundation of a British mandatory-period road that extended for 14 × 2 m along the northern edge of the excavation (L305; Fig. 3). It consisted of tightly packed, pounded limestone pavestones and was bounded on its south and east by a curb of roughly hammered stones. Below the level of stones, and directly above the collapsed remains of the Crusader bathhouse, was a packed-earth fill.

The Ottoman Period

The Ottoman period is most apparent in the eastern half of the excavation. An extensive white plaster floor (L504; 0.1–0.2 m thick)

Fig. 3. Mandatory-period road foundation, looking west.

and packed earth covered the southeastern area, extending approximately 15 m along the southern balk and 4–5 m to the north. Along with two intrusive pits that were dug into the floor, there were also several signs of burning (Fig. 4). This floor is dated to the eighteenth and early nineteenth centuries by a round lead bullet found within the floor makeup, a cannon shell fragment (Berman 1997:98–99) and tobacco pipes.[3]

An extensive accumulation of loose debris and rubble that derive from the dismantling and robbing of earlier walls was sealed beneath the floor (Fig. 5). Tobacco-pipe fragments from the eighteenth and early nineteenth centuries were found in the rubble and date the robbing activity to this period. The robbing was most prominent in the eastern area, while the western portion of the excavation showed little such activity, and Ottoman finds there were nearly negligible. In the west, later accumulated material was found directly on the remains of the bathhouse with little intervening debris and rubble.

Fig. 4. Ottoman-period plaster floor.

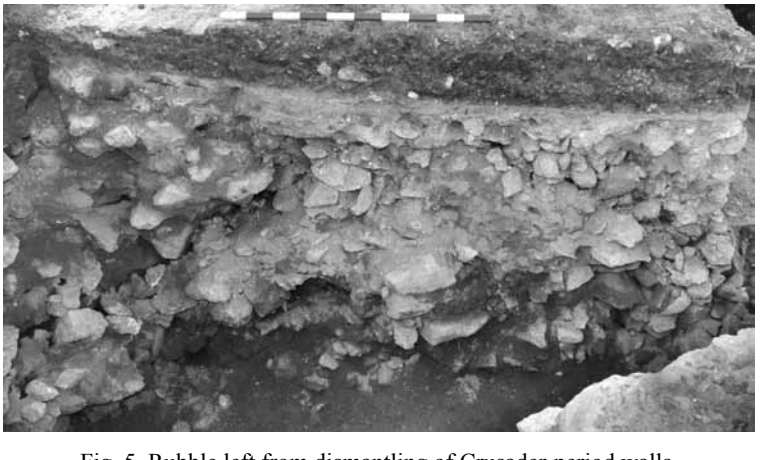


Fig. 5. Rubble left from dismantling of Crusader-period walls.

The Ottoman-Period Tobacco Pipes

Fragments of 20 pipes and one *nargile* piece (water-pipe; charcoal-burner) were found in all areas of the excavation. All of the tobacco pipes are of types common in the eastern Mediterranean basin during the eighteenth and early nineteenth centuries (Fig. 6; Robinson 1985; Hayes 1992; Baram 1995; Milwright 2000:199–200). The pipes found in Israel are similar, but not identical to those cited above.[4] The reason for this difference may be found in the local manufacture of tobacco pipes throughout the numerous regions of the Ottoman Empire. Shapes and styles imitated those produced in the central production centers, but with regional nuances. Ziadeh (1995:210–211) and Simpson (2000:170) discuss the existence of several manufacturing centers in Palestine alone.

Tobacco pipes similar to those found in this excavation (Fig. 6:1, 2) were found in Beirut (Turquety-Pariset 1982:37–38, Figs. 29:25; 30:26). The example in Fig. 6:3 and four additional ones (not illustrated) are of this well-

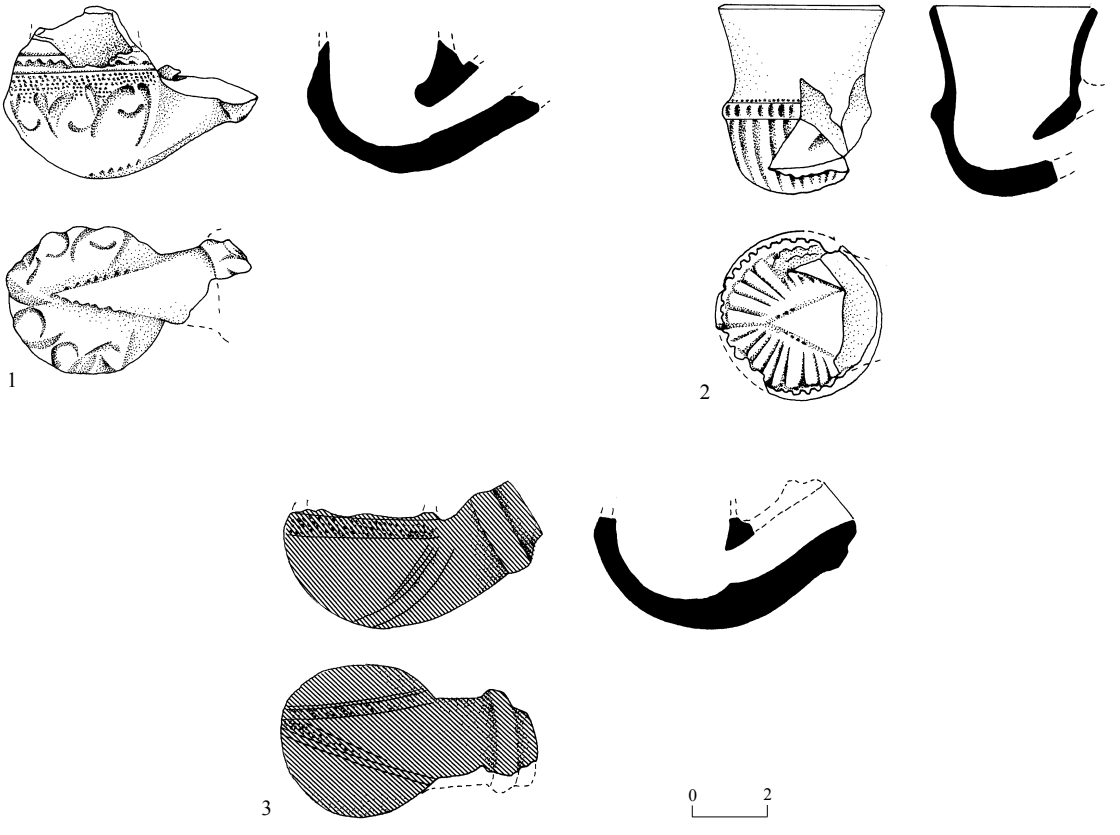


Fig. 6. Ottoman-period tobacco pipes.

No.	Reg. No.	Description
1	103-1034	Bowl and shank; reddish brown 5YR4/4 and gray 10YR5/1; much coarse polymineral sand in fabric, and possibly some grog material; surface mostly light red 10R4/4
2	308-3065	Bowl and rim; light gray to pinkish-gray 5YR7/1 to 7/2; gray 10YR5/1 core; rare reddish grits; light red to red 10R4/4 to 4/6 surface
3	316-3085	Bowl and shank; light brown 7.5YR6/3 to 6/4; many gray inclusions and some sand; light red to red 10R4/4 to 4/6 surface

known Palestinian type, but with a crescent-shaped stamp impression with four dots that possibly signify a specific workshop. Pipes of a similar type with the same impression were found in other excavations in Acre and at various sites in Israel (Acre: Stern 1997:68, Fig. 19:136; Edelstein and Avissar 1997:133–135, Fig. 2:3a–c; Yoqne'am: Avissar 1996:199, Nos. 6–9; Belmont: Simpson 2000:152–153, Fig. 13.3:43).

The tobacco pipes reflect the period of intense robbing of the bathhouse building stones. It would appear that the heightened building activities undertaken in Acre by Daher el-'Omar and Jazzar Pasha are the direct cause for this dismantling.

The Crusader Period

Architectural Remains

The bathhouse suffered from extensive dismantling and collapse. Nearly all of the collapsed building stones were uncovered within the destroyed structure. Outside the structure, the excavation matrix was loose red soil containing very few stones and a large amount of Hellenistic pottery.

The bathhouse is of the hypocaust type, and as far as can be determined, possessed only hot rooms. No room that could function as a *frigidarium*, as was common among earlier, Roman bathhouses, was evident. Two hot rooms were set on two sides of a large furnace: one to the north (L321) and the other to the east (L104, L324, L515, L524). They were heated by channels that lead from the furnace to each room.

Furnace.— Only the northern half of a large furnace was exposed (Fig. 7). It appears to have been a square, well-built and independently standing structure, whose stone facing was completely robbed. The dimensions of the excavated portion are 4.2 m along the northern facade and 2.2 m on its north–south axis. The furnace remains consist of two substantial corner piers, connected by a vault in the northern facade, that served as the hot

Fig. 7. The excavated northern half of the furnace, looking north.

air channel. It may be assumed that the entire structure consisted of four piers, all similar. Evidence of this was found on the eastern side, where a damaged opening in the furnace wall was revealed. Remains of a vault that covered the opening were apparent on the broken edge of W309. The vault was supported by W331, a remnant of which was discerned in the southern balk. This opening possibly served as a hot air channel leading to the large, eastern hot room. The firing chamber was in the center, between the piers, and above it were the remains of a rounded opening in the roof, approximately 1.3 m in diameter on an east–west axis.

Entry into the furnace from L317 for stoking and maintenance was probably through a passageway in the western wall, opposite the damaged eastern opening. The massive superstructure of the furnace above and the unstable clay below, where the water level fluctuated, dictated the need for stabilizing the structure. It was therefore constructed on a large base (W340), built of well-dressed limestone blocks. The base extends approximately 1.6 m beyond the superstructure to the east and 0.6 m to the west. The bottom of the base was not excavated, because the water table was too high.

The entire inner face of the furnace was devoid of any facing, brick or stone, as all was robbed or destroyed (Fig. 8). A large amount of broken water pipes, collapsed stones, bricks and brick-like material was found within the confines of the furnace, where the intense heat and burning were much in evidence. The floor inside the furnace was poorly preserved. It appears to have consisted of flat limestone slabs, possibly covered by bricks.

Fig. 8. Interior of the defaced furnace with the channel leading out to the northern Hot Room 321, looking north.

Storage and Stocking Room.— A space interpreted as a storage and stoking room (L317) was found to the west of W309. Its extent was indeterminable. To the north, it was delimited by W306, which is preserved to a height of 2.15 m above the floor of L317. Only a small segment of a packed-earth floor, on a lower level than the bathhouse floor, was preserved in the northeastern corner of L317. A large section of a stone and *debesh* floor, from directly above the stoking room was found collapsed into the room space. The lateral position of this floor, as seen in Plan 1: Section 3–3, confirms the existence of an empty space below it.

Hot Room 321 (Fig. 9).— Adjacent to the furnace to the north, this room was heated by the well-built channel that led through the northern wall of the furnace (Fig. 10). It is roughly square (c. 2.7 × 2.7 m), and bounded on the east by W323 and a water installation (L338; see below) and by walls on the west and north (W319 and W322 respectively). Walls 319 and 322 are constructed of well-dressed ashlar blocks on their outer face, many of which were robbed. The ashlar superstructure was placed on forward-jutting foundation courses of smaller stones. The inner face of these walls was built of smaller hammer-dressed stones with a rubble fill. Remains of plaster were found on the outer face of W319 and on the inner face of W322. Walls 319 and 322 each had a small structural support-arch constructed into its lowest courses. These arches jut forward on the two sides of the wall (Figs. 11–13). Similar arches were found in W509, which had two arches (Fig. 14), and W108. The arch in W319 was cut by the construction of W306 that appears to be a later Crusader-period addition to the bathhouse complex. Wall 306, a roughly faced wall with a stone fill, was exposed for a distance of more than 10 m and is preserved to a maximum height of 2.15 m. It was incorporated into W319 with its eastern end being flush with the inner face of W319 (Fig. 15).

Fig. 9. The northern Hot Room 321, looking south.

Fig. 10. The channel leading from the furnace to the northern Hot Room 321, looking southeast.

Fig. 11. The outer face of W319, looking east.

Fig. 12. The arch in W319, looking southeast.

Fig. 13. The arch incorporated into W322, looking north from within northern Hot Room 321.

Fig. 14. Wall 509 with a large arch in its center and a smaller arch top right, looking southwest.

Fig. 15. Wall 306, running from top of photograph and incorporated into W319, looking west; in the center are the furnace and the northern Hot Room 321.

Fig. 16. Pillar with chamferred corners in L321.

In Hot Room 321, only the lower of the two bathhouse floors was well-preserved. It consisted of carefully laid, flat, hard limestone slabs, of various dimensions (average size 30 × 25 × 7 cm). Equally spaced low limestone pillars had supported the upper, unpreserved, floor (cf. Figs. 2, 7, 9, 13, 15). The pillars were a standard 0.8 m in height, with chamferred corners (Fig. 16). Laying the upper floor on and between the pillars created the space which enabled the operation of the hypocaust.

This floor, as was the case with all of the excavated lower floors in the bathhouse, was covered by a 10–15 cm layer of fine, black soot. The room (L321) was filled with the collapse of the superstructure that included, in addition to blocks from the walls, architectural fragments, plaster, numerous pieces of marble floor- and wall-tiles in diverse colors, fragments of blue window glass, as well as broken ceramic water pipes and flues and fragments of marble basins. Little evidence of the collapse was found outside the structure, to the west, as the collapse was internal.

A built installation (L338) is located east of W323, the eastern wall of Hot Room 321. The installation is constructed on a platform of well-dressed stones, placed directly on the stone floor and built against W322 in the north and W327 in the east. The installation, which was badly damaged by collapse, measures approximately 1.2 × 2.0 m. The remains found in this unit, with their large amount of plastering and plaster fragments, ceramic water pipes and broken marble basins, indicate that this small unit served as a water installation. It was the only such installation uncovered in the excavation.

Hot Room 324.— The hot air channel is 6.8 m long upon reaching W113. It appears to have branched off to the south where it assisted in heating Hot Room 324. This room was possibly heated also by a channel exiting the furnace in the east, although the destruction of this portion of the furnace leaves this as conjecture. The construction of Hot Room 324 is similar to that of Hot Room 321, as were the collapse within it and its finds. It was significantly larger than Hot Room 321, but more poorly preserved. A construction located in its northwestern corner and adjacent to the furnace seems to have been dismantled during the Ottoman period, leaving an indefinable collection of wall fragments. Many of the limestone floor-tiles, here also covered by an intensely black soot accumulation, were torn out and only their impression remained. A series of rectangular floor-support pillars, which were placed at intervals averaging 0.4 m, created hot-air channels. The pillars are not of a standard size, but all appear to have been rectangular with chamferred corners. They were very badly burnt and as a result, extremely brittle (Fig. 17). A portion of the upper floor (L324a), however, remained intact, extending to W105/108 in the east, although the intersection with the wall is unclear due to robbing activity. The upper floor consisted of large limestone slabs, above which was spread a gritty reddish soil mixed with pieces of limestone. This was the base upon which were set marble floor-tiles. The continuity of Hot Room 324 with other units of the bathhouse is indeterminable as a significant number of interconnecting walls and floors were robbed (Fig. 18).

Evidence of the continuation of the bathhouse to the east is found near the eastern end of

Fig. 17. A poorly preserved pillar in Hot Room 324.

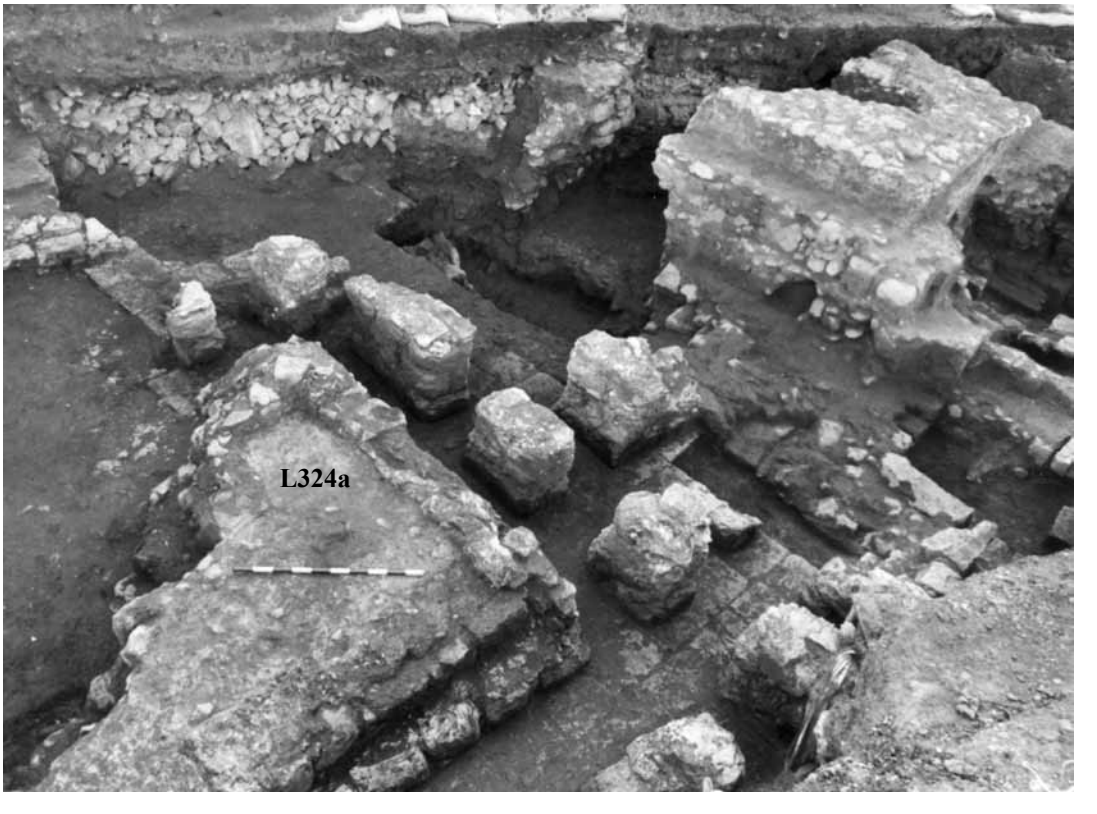


Fig. 18. The preserved portion of Floor 324a, beyond which are the pillars on the stone floor in Hot Room 324, looking southwest.

Fig. 19. Wall 105 with the remains of a flue at its base, looking north.

W105, where a number of bathhouse floor-tiles were found *in situ*, adjacent to its southern face. An installation constructed on the tiles is likely the remains of a flue that drew air into Hot Room 324 in order to enable its heating (Fig. 19). A semicircular opening, nearly 1 m in diameter, at the eastern end of the hot-air channel in Hot Room 104, was cut into the northern face of W105. This appears to be an additional flue, whose function was to draw air to provide heat for the northern rooms.

Hot Room 104.— This room, northeast of the furnace, borders on its south the upper floor remnant (L324a) and to the north and east, W118 and W113 respectively. Walls 118 and 113 are built of square-cut stones with a stone fill and thick layers of mortar. The inner face of each wall was lined with a conglomerate of earth and limestone, which apparently served the double purpose of insulation and support and stabilization of the upper floor (Fig. 20).

The existence of a narrow corridor (L119) between W118 and W120 is indicated by the paving slabs revealed between the two walls. Extensive construction is evident to the north and east of W113 as attested by W120 and W114. These two walls, which meet at a right angle on the edge of the excavated area, are possibly remains of an enclosing wall.

Fig. 20. Thickening of W118 and W113, looking north.

The Eastern Half of the Bathhouse.— The plan of this area was not clarified due to the dismantling and robbing of walls and floors. Wall 509 runs a distance of 6 m, roughly parallel to W105, as a staggered two-section wall with its eastern section extending about 0.5 m to the north. It is built upon two support arches in the basal clay (see Fig. 14). The eastern arch is approximately 1 m in length and 1 m in height; the western arch appears to be smaller, but it enters the balk and its dimensions are not determinable. Although no structural context can be associated with this wall, remnants of the two levels of the bathhouse floor were found on its surface. On the eastern section of the wall, above the arch, are a number of limestone floor-tiles identical to those in Hot Rooms 321 and 324 (Fig. 21). In close proximity is a section of the upper floor (L510), which, it is assumed, reached W505. As a result of the robbing of the stones of W505, a trench was created parallel to W505 and W509, which descended down to the wide base of W505. This disturbance isolated W509, which thereby was separated from any connecting structure.

It appears that W509 was cut on its eastern end by W525. A broken arch remains on the lower part of W509 (Fig. 22). Wall 525 may have been the eastern wall of the bathhouse complex, forming the northeastern corner at a conjectured intersection with W105.

Wall 505, in the south, likewise had a vault springing from it to the east that was possibly destroyed by the construction of W508.

Walls 508 and 525 were connected by an arch which collapsed, but whose springers are apparent on the two walls. Both walls had a *debesh* fill, while their facing stones were robbed. These two walls in fact do not run in an identical line, but rather meet at a somewhat oblique angle. They are each of a different width. Wall 525 was 1.4–1.5 m wide, while W508 was an impressive large wall, 1.8 m wide and preserved to a height of c. 1.9 m. It was built in separate compartmentalized sections, similar to W509, which were bound by thick horizontal layers of mortar. To its southeast was the remnant of a Crusader-period floor (L514). The massive size of W508 is out of step with the nature of the walls of the bathhouse and it appears that it should be primarily associated with an as yet unknown additional element, perhaps in conjunction with the similarly large W505 (Figs. 23, 24).

Fig. 21. Square limestone floor tiles on W509, looking south.

Fig. 22. Wall 509, cut by W525, looking north; the broken vault of the arch in W509 may be seen extending from the end of the wall.

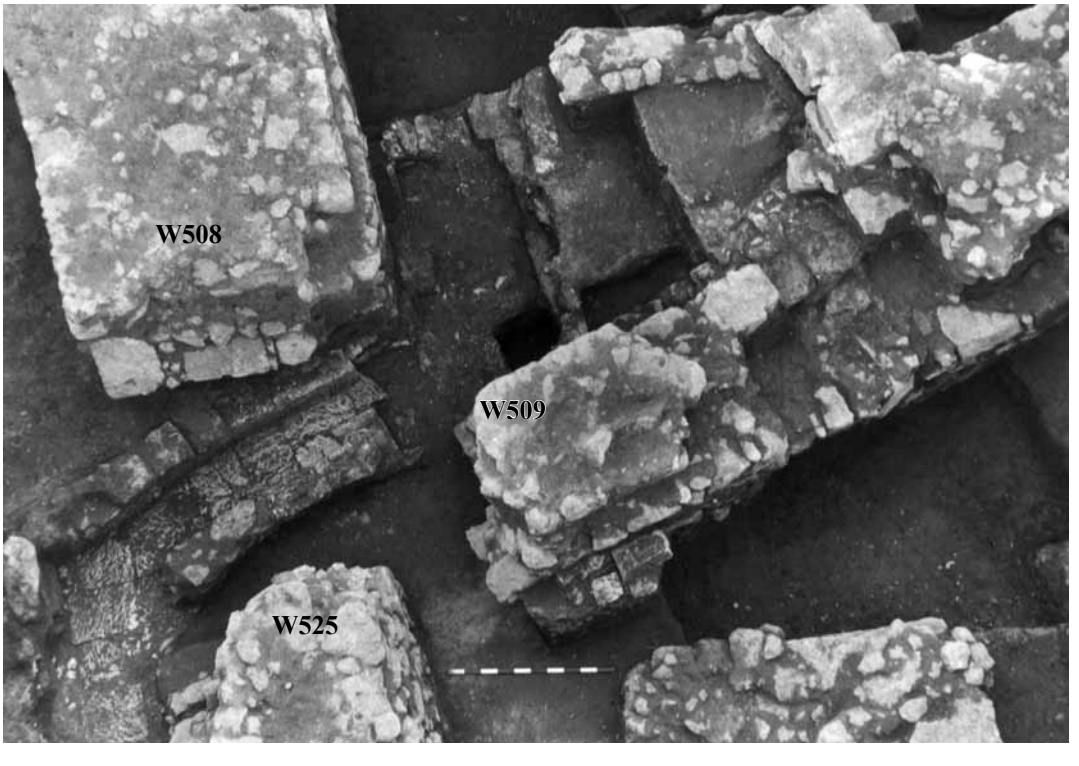


Fig. 23. Walls 508, W509 and W525, looking south.

Fig. 24. The cut and partially robbed W505 as photographed from atop W508, looking southwest.

Fig. 25. The broken arch of W508 above the paved channel (L526), looking south.

The arch that had connected W508 and W525 vaulted over a well-built water channel (L526). The channel floor is constructed of flat limestone slabs, similar to, but smaller than, those in the bathhouse floor. The channel's width varies between 0.3–0.4 m. It is bordered by curbs of two courses of squared limestone blocks and attains a depth of 0.40–0.45 m (Fig. 25). The channel slopes down in a north–south direction, turning west after 2 m. After two more meters of descent to the west, as it approaches W509, it bends to the south once again and disappears in the disturbance of this area. It may be surmised that the channel continued below the destroyed arch of W505 to the south. The channel slopes down 0.36 m over the course of c. 3.8 m, i.e., from its entrance into the excavated area to its final identified floor-stone. The channel's general orientation fits that of the bathhouse complex and it is clear that it functioned as a water carrier for the complex. The channel runs directly along the lower eastern face of W525, thereby adding weight to the assumption that W525 is the eastern wall of the complex. The channel runs, however, at an oblique angle to the W508/525 arch, further complicating the understanding of this portion of the complex.

THE FINDS

Ceramic Finds[5]

The ceramic finds discussed below originated from various elements in the site: the Crusader-period bathhouse and possibly buildings that were in close proximity to it; robber trenches of walls dismantled during the Ottoman period; an Ottoman-period plaster floor; and the fill of the British Mandatory-period road. These finds include fragmentary ceramic vessels, water pipes and ceramic glazed tiles dating from the Crusader period.

The ceramic wares will be presented typologically.[6] It is not always clear to what context within the bathhouse complex each

pottery type belongs, due to the destruction of the building and the robbing of its walls. In an attempt to identify and define the pottery from the bathhouse exclusively, the rim sherds from selected secure loci were counted and are discussed in the summary below.

Unglazed Wares

The unglazed wares show a large variety of functional types that were utilized for transporting, storing, transferring, preparing and serving food (amphorae, storage jars, cooking wares, basins, bowls), and also for industrial use (sugar vessels). All of the vessels are wheel-made, except for two handmade types, a basin and a cooking pot. Most of the vessels were locally produced, having been manufactured in the vicinity of Acre or along the Lebanese coast, and thus can be considered characteristic of the Latin Kingdom of Jerusalem (Stern and Waksman 2003). Imports consist of a Cypriot cooking pot and two types of transport amphorae.

'Acre Bowls' (Fig. 26:1, 2).— These vessels are characterized by a distinct fabric known as 'Acre Bowls Ware'. They are named after the simple bowls, of uniform shape, that have been largely

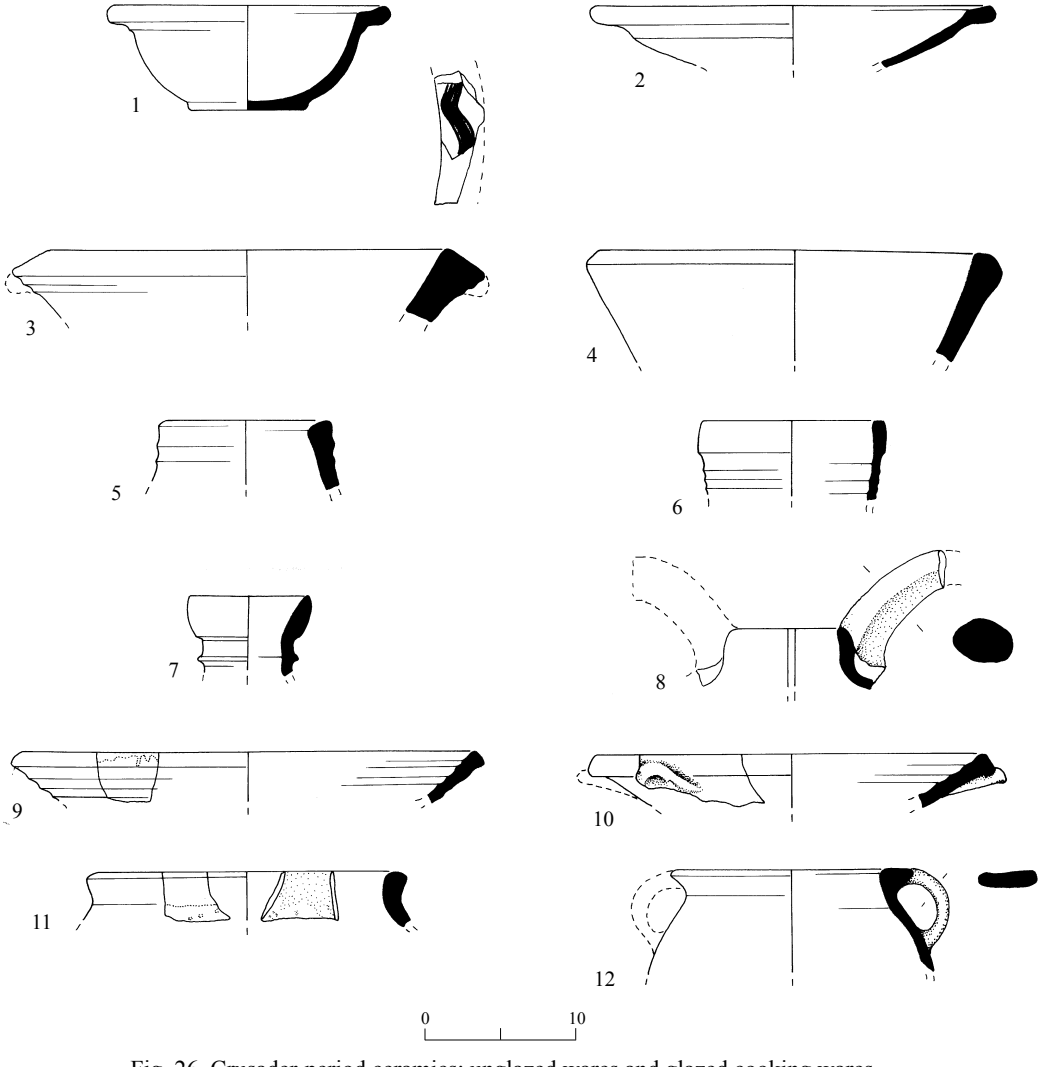


Fig. 26. Crusader-period ceramics: unglazed wares and glazed cooking wares.

found in Acre (Pringle 1997:138, Fig. 6:5–11; Stern 1997:37–39; Avissar and Stern 2005:83, Type II.1.1.2; Vitto 2005:161, Fig. 11:1) and its close vicinity (Ḥorbat Manot—Stern 2001:286, Fig. 6:4–7; Ḥorbat ʻUẓa—Stern and Tatcher 2009:133–135, Fig. 3.21:3, 4; Ḥorbat Ẓefat ʻAdi—Stern and Smithline 2004 [pottery yet unpublished]). In this excavation, bowls and plates were found. The typical bowl, which may vary in size, has a hemispherical body, a short ledge rim and a flat base (Fig. 26:1). The plates have a simple rounded rim and a flat base (not preserved; Fig. 26:2). The fabric is coarse and gritty, and all vessels have a whitish or light-colored exterior. The coarseness of the fabric and the poor workmanship indicate that these simple wares were mass-produced. Aside from Meron, approximately 45 km to the east of Acre (Smithline, forthcoming), ʻAcre bowls' have not as yet been found in excavations outside of Acre, and they appear to be veritably unique to Acre and its vicinity.[7] While they have been found in nearly all of the excavations dating to the Crusader period in Acre, the Hospitaller compound yielded extremely large quantities of these bowls. The presence of over-fired wasters in the Hospitaller compound, as well as petrographic analysis, indicate that the ʻAcre bowls' were produced locally (Stern and Waksman 2003:168–169, 173–175, 178, Fig. 2).

◂ **Fig. 26**

No.	Reg. No.	Type	Description
1	321-3155	ʻAcre bowl'	Complete profile; red 2.5YR4/6; ext. is mostly light red 10R5/4, int. mostly pale brown 10YR6/3; some sand and white spots due to vitrification
2	104-1045	ʻAcre bowl' plate	Rim and upper part of body; reddish brown 5YR4/4; ext. is mostly light brown 7.5YR6/3, int. light reddish brown 2.5YR6/4; some sand and white spots due to vitrification
3	514-5061	Basin	Rim; gray 10YR5/1 core; light reddish brown 2.5YR6/4 surface; some gray dolomite inclusions, grog and some black grits; chaff negatives
4	517-5134	Sugar pot	Rim and upper part of body; reddish brown 5YR5/4 core; light reddish brown 2.5YR6/4 to pink 5YR7/3 surface; much coarse sand and some white grits (these are possibly white spots due to vitrification)
5	504-5046	Molasses jar	Rim and upper part of body; yellowish red 5YR5/6; reddish brown 5YR5/4 core; pink 7.5YR7/3 ext., light reddish brown 5YR6/4 int.; some fine sand and limestone inclusions; fired at a low temperature
6	506-5029	Storage jar	Rim and upper part of neck; red 2.5YR4/6; brown 7.5YR4/3 core, white 10YR8/2 to very pale brown 10YR7/3 surface; much quartz and rare gray inclusions
7	303-3032	Amphora	Rim and upper part of neck; light brown to brown 7.5YR6/4 to 5/4; very pale brown 10YR7/3 surface; polymineral fine sand, limestone and black inclusions; very small quantity of mica; rare negatives of organic material
8	521-5115	Amphora	Rim; neck and handles; light reddish brown 5YR6/6; remains of whitish slip on ext.; much fine mica and rare lime inclusions.
9	306-3040	Baking dish	Rim; reddish brown 5YR4/4; some quartz sand in fabric; glaze on int. and spilling to ext. of rim
10	317-3097	Baking dish	Rim; yellowish red 5YR5/6; some quartz sand in fabric; glaze on int.; spots of glaze on ext.
11	325-3111	Cooking pot	Rim and neck; red 2.5YR4/6 to light red 10R5/4; much quartz sand in the fabric; transparent glaze on int. and on ext. of rim
12	506-5036	Cypriot cooking pot	Rim, neck and handles; red 2.5YR4/6; reddish brown 5YR4/3 core; light reddish brown 2.5YR4/2 to 4/3 surface; polymineral grits and possibly some grog

Table 1. Quantitative Analysis of Crusader Ceramic Types in the Bathhouse (No. of Rims)

Locus	Water Pipes	'Acre Bowls'	Storage Jars	Amphorae (First Type)	Local Cooking Pots	Levantine Glazed Bowls	Port St. Symeon Wares
310	2	1					1
316	4	6	1	1	2		1
321	7	10					
324	5						
524						1	
Total	*18*	*17*	*1*	*1*	*2*	*1*	*2*

Large quantities of 'Acre bowls' were found in the fill of the British Mandatory-period road (L305). It appears that they were brought from an indeterminable nearby site. In addition, the 'Acre bowl' is the main pottery type found within the bathhouse (Table 1). The common occurrence of the 'Acre bowls' at the site demonstrates the predominance of this type in Acre.

Basin (Fig. 26:3).— The basin has a thick, slanting rim and a flat base. This type of basin occasionally has a combed decoration on the rim, as does the illustrated example, and/or on the exterior walls. It is handmade and is characterized by a very coarse fabric, which contains many large inclusions and small limestone grits. The vessels were fired to a light orange-brown color with a darker core. Although they were handmade, they differ in fabric, shape and decoration from other local, handmade wares. Petrographic analyses of similar basins found in other excavations in Acre have shown that they were produced in northern Israel (Shapiro 2012:106–107). Similar vessels have been found in Crusader-period assemblages in northern Israel: in other excavations at Acre, as well as at Bet Zeneta, Ḥorbat 'Uẓa, Yoqne'am and Caesarea (Avissar and Stern 2005:84, Type II.1.2.2; Stern and Tatcher 2009:132–133, Fig. 3.21:1, 2).

Sugar Pot (Fig. 26:4).— A large and rather crude vessel with thick sloping walls and a slightly thickened rim was found. Its shape suggests its having been a sugar pot, one of the two vessels required for sugar production. The pierced base, essential to the identification of this vessel as a sugar pot, is, however, missing, thus raising the possibility that Fig. 26:4 is a form of a large basin. The presence of a molasses jar (Fig. 26:5), the second essential sugar production vessel, among the finds, supports the assumption that this is, nevertheless, a sugar pot. The fabric, like that of the sugar pots that were found in the Hospitaller compound in Acre, is similar to that of the 'Acre bowls' (E.J. Stern 1999:75–76, 136; Stern 2001:303, Fig. 19). In addition to the inordinate amount of sugar pots found in the Hospitaller Complex, similar pots were also found in three separate excavations in the eastern part of Acre (Stern 2001:303, n. 12), at Ḥorbat Manot and at other sugar production sites in Israel (Stern 2001:286–287, Fig. 7:1–9; Avissar and Stern 2005:86, Type II.2.1.3). From this data, and from historical sources, it can be concluded that there was a sugar production site in the vicinity of the city of Acre. It does not seem probable, though, that this industry was situated in the primarily residential Montmusard.

Molasses Jar (Fig. 26:5).— The molasses jar is a tall, handleless jar. It has a narrow opening with a simple rim, and it seems that the body was ovoid. The fabric of the molasses jar that was found here is similar to that of the 'Acre bowls' and other molasses jars found in Acre.

Similarly shaped molasses jars, made of different fabrics, were found at Ḥorbat Manot and other sugar production sites in Israel (E.J. Stern 1999:136; Stern 2001:287, Fig. 7:10–13; Avissar and Stern 2005:103, Type II.3.1.5).

Storage Jar (Fig. 26:6).— A storage jar with a high, ribbed neck and an out-folded rim was found. The fabric is sandy and similar to the fabric of the 'Acre bowls'. Petrographic analyses of similar jars found in other excavations in Acre have shown that they were also produced from the same fabric as the 'Acre bowls' (Shapiro 2012:104–105). Similar jars were found at Acre, Ḥorbat Manot, Ḥorbat ʻUẓa, ʻAtlit, Yoqneʻam and Tell ʻArqa (Avissar and Stern 2005:106, Type II.3.2.4; Stern and Tatcher 2009:136–137, Fig. 3.22:1–3).

Amphorae (Fig. 26:7, 8).— Rim fragments of three amphora types were found. The first type, made of a sandy fabric, has a thickened rim with a ridge below it (Fig. 26:7). This amphora type was found in sites in northern Israel, and seems to be a local type. Petrographic analyses indicated that it was produced on the Lebanese coast (Goren 1997:72; Shapiro 2012:106). A few examples are known from Acre and Caesarea, where a complete vessel was unearthed (Stern 1997:39–40, Fig. 4:13, 14). Fragments of this amphora type were found also at Ḥorbat Manot, Ḥorbat ʻUẓa and at Yoqneʻam (Stern 2001:286, Fig. 6:10, 11; Avissar and Stern 2005:105–106, Type II.3.2.3; Stern and Tatcher 2009:137–139, Fig. 3.22:12–14). A complete vessel, of similar fabric and comparably styled, but possessing a single handle, was found in Kinet, in the Bay of Iskanderun, Turkey, where it was defined as a jug. It is dated there to post-1290 contexts (Redford et al. 2001:90, Fig. 36; pers. comm.)

The second type is an amphora with a carrot-shaped body, high, narrow neck and two handles that rise above the rim (not illustrated). The upper part of the thick-walled body has a crude, combed pattern. Such amphorae are common in Acre (Stern 1997:38–40, Fig. 4:10–12; Stern and Waksman 2003:169; Vitto 2005:162, Fig. 11:3), and in other sites in Israel (Avissar and Stern 2005:105, Type II.3.2.1; Stern and Tatcher 2009:137–138, Fig. 3.22:11). This type, with variations in size and body shape, apparently originated in the eastern Mediterranean. It is similar to Günsenin Type III and Saraçhane Type 61 (Günsenin 1989:271–274, Figs. 8–10; Hayes 1992:76, Fig. 26:10).

The third type has a wide globular body and a short neck that ends with a thin rim that merges with two heavy handles (Fig. 26:8). The fabric is fine and hard. Fragments of this imported amphora type were found in other excavations in Acre (Stern and Waksman 2003:169; Vitto 2005:162, Fig. 11:2) and at Ḥorbat Mana in western Galilee (Frankel and Stern 1996:114, Fig. 11:16). It was apparently imported from the Black Sea region of modern Turkey and is similar to Günsenin Type IV and Saraçhane Type 62 (Günsenin 1989:274–276, Figs. 12–14; Hayes 1992:76. Fig. 24:12, 13).

Cooking Wares

The cooking wares that were found in this excavation are divided into open vessels (baking dishes) and closed vessels (globular cooking pots). One type of cooking pot was imported from Cyprus, while the others are of types common in Acre and in other contemporaneous sites in Israel. Recent chemical and petrographic analyses of such cooking wares found in Acre have shown that they were manufactured in the Levant, most probably along the Lebanese coast (Stern and Waksman 2003:169–170, 173–175, 178, Fig. 3). It has been recently suggested that this type of cooking vessel was produced in Beirut, as attested by pottery workshops excavated there and chemical analysis of the finds (Waksman 2002; François et al. 2003). These cooking wares are glazed on the inside of the base with a transparent glaze that appears brown. Occasional splashes of glaze appear on the exterior.

Baking Dishes (Fig. 26:9, 10).— The baking dishes, made of a coarse, sandy dark fabric, are of a type that possesses thick walls, a thickened

rim, usually two horizontal lug handles and glaze. This type dates to the thirteenth century and is the typical baking dish found in Acre (Pringle 1997:139, Fig. 7:17; Stern 1997:42–43, Fig. 5:38; Vitto 2005:162–163, Fig. 12:5), and in other sites in Israel (Avissar and Stern 2005:96–97, Type II.2.3.2; Stern and Tatcher 2009:139–141, Fig. 3.23:17).

Cooking Pots (Fig. 26:11, 12).— Two types of cooking pots were found. One is a local type whose fabric is similar to that of the baking dishes (Fig. 26:11). This type may be styled with variously shaped rims. Vessels of this type have been found in Acre (Pringle 1997:139, Fig. 6:12, 13; Stern 1997:40–42, Fig. 5:22–33) and in other sites throughout the Latin Kingdom of Jerusalem (Avissar and Stern 2005:92, Type II.2.1.4). This type is dated to the thirteenth century.

The rim that is presented here is of a less common shape. Pots with a similarly shaped rim were found at Ḥorbat ʻUẓa (Stern and Tatcher 2009:139–141, Fig. 3.23:5), Caesarea (Brosh 1986:71, Fig. 4:10) and Khirbat Shari (Avissar and Stern 2005:93–94, Fig. 39:8).

The second type is a handmade cooking pot, characterized by an everted rim and broad strap handles pulled from the rim to the shoulder (Fig. 26:12). This cooking pot was apparently imported from Cyprus, as attested by petrographic analysis (Goren 1997:72–73). Cooking pots of this type were found at various sites in Cyprus: in Paphos (Megaw 1971:124, Fig. 3:6; Gabrieli, McCall and Green 2001:346–347, Fig. 3:1), Kouklia (Maier and von Wartburg 1997:188, 191, Figs. 11:11; 15:25) and in Nicosia (Flourentzos 1994:12–13, Pls. 22:46, 51; 24:52, 53). Sherds of cooking pots of this type were found in Israel in Acre (Edelstein and Avissar 1997: Fig. 1:6; Stern 1997:43, Fig. 5:37), ʻAtlit and Ḥorbat ʻUẓa (Avissar and Stern 2005:94, Type II.2.2.1; Stern and Tatcher 2009:140–141, Fig. 3.23:10).

Glazed Table Wares

The glazed table wares that were found in this excavation are of types known from previous excavations in Acre. The majority were imported from different provenances in the Mediterranean basin and only one type was produced in the Levant. These wares are dated to the thirteenth century.

Levantine Glazed Bowl (not illustrated).— One example of a Levantine glazed bowl was found. This type of bowl may be monochrome, or decorated with sgraffito, or in reserved slip or slip-painted techniques. The fabric of these bowls is coarse, sandy, brick-red in color and contains grits and occasionally large white inclusions. They have low, wide ring bases, and a small and narrow, or large and wide ledge rim. Scientific analysis indicates that these bowls were manufactured along the Lebanese littoral (Stern and Waksman 2003:170–171, 175, 178, Fig. 5). Like the cooking wares, it has been suggested on the basis of chemical analysis of the finds, that this type of glazed bowl was produced in Beirut by the pottery workshops excavated there (Waksman 2002; François et al. 2003). These bowls are common in Acre (Pringle 1997:142, Fig. 7:40–47; Stern 1997:45, Fig. 6:46; Vitto 2005:163, Fig. 13: 1–4) and in various Crusader-period sites in Israel and Lebanon. They were also exported from the Levant to Cyprus (Avissar and Stern 2005:8, Type I.1.2; Stern and Tatcher 2009:144, 148, Figs. 3.25:1; 3.27:1–5).

Aegean Wares (Fig. 27:13, 14).— This type, imported from the Aegean area, was manufactured from the late twelfth to the early thirteenth centuries. The Aegean wares comprise mainly bowls, deep and shallow, with low and wide ring bases and variously shaped rims. The fabric is coarse and the pots are coarsely potted and have wheel ridges and a thin layer of white slip on the exterior. Most of the bowls are decorated with a coarse, free-hand incised design (Fig. 27:13). The interior is covered with a transparent yellow lead glaze that occasionally has splashes of green glaze (Fig. 27:14). Aegean wares were found in Acre (Stern 1997:46, Fig. 6:62, 63; 58, Fig. 13:99–101;

Vitto 2005:164–166, Fig. 14) and in many other sites in Israel (Avissar and Stern 2005:45–47, Type I.5; Stern and Tatcher 2009:157, Fig. 3.30:1–4).

'Zeuxippus Influenced Ware' (not illustrated).— 'Zeuxippus Influenced Ware' is a subgroup of Zeuxippus Ware (Megaw 1968; 1989) and is similar in appearance to the Cypriot thirteenth-century Sgraffito Ware (see below), and to the 'Zeuxippus Derivative' found in Sparta (Armstrong 1992). This type was apparently produced at a number of centers at least until the third quarter of the thirteenth century (Armstrong 1993:310, 332). 'Zeuxippus Derivative' has been published mainly from sites in Greece (Armstrong 1989; 1993), although it was certainly found in other places, but not identified as such. Bowls of 'Zeuxippus Influenced Ware' were found in excavations in Acre (Stern 1997:54–56, Fig. 12:87–94; Stern and Waksman 2003:171–172, 176, 178, Fig. 6) and at other sites in Israel (Avissar and Stern 2005:51, Type I.6.3).

Cypriot Thirteenth Century Wares (Fig. 27:15–18).— From the beginning of the thirteenth century until the early fourteenth century, this ware was manufactured in the Paphos region in southwestern Cyprus, as attested by several kiln sites that were excavated there (Papanikola-Bakirzis 1996:215–217; von Wartburg 1997:336, 340). This distinctive type includes bowls and jugs that were decorated in slip-painted and sgraffito techniques. Illustrated here are examples of a slip-painted bowl (Fig. 27:16), bowls with sgraffito design and a monochrome glazed background (Fig. 27:15, 17), and one with a sgraffito polychrome design with additions of painted lines in green and yellow-brown glaze, contrasting with the light background (Fig. 27:18). The floral pattern on this example somehow imitates the Port St. Symeon Wares (see below). The rim and the bases presented here are typical of this type. The Cypriot ware is one of the most common wares imported to Israel during the Crusader period. It has been found in Acre (Edelstein and Avissar 1997:130; Pringle 1997:143–145, Figs. 11:55–60, 64; 12:66–70; Stern 1997:48–51; Vitto 2005:165–168, Fig. 15:1–3, 5, 6) and at many other sites in Israel (Avissar and Stern 2005:57–62, Type I.8; Stern and Tatcher 2009:159–162, Fig. 3.30:8–18).

Port St. Symeon Wares (Fig. 27:19).— These are typically plates or hemispherical bowls, made of a rather coarse fabric, with variously shaped rims and a low ring base. They are defined by their characteristic incisions and splotches of various colors—green, yellow and brown—under a light yellow glazed background. They are decorated with either geometric patterns or incised floral designs arranged within concentric bands. Occasionally, figures of animals, birds, monsters and humans appear. A bird is depicted on the illustrated bowl fragment.

This type is named after the site, Port St. Symeon (al-Mina), located on the northern Syrian coast, today in Turkey, where it was first largely found. Kiln wasters of this ware, in conjunction with a large quantity of vessels and fragments, led to the assumption that they were manufactured there (Lane 1937:45–53). Similar ware was apparently manufactured at other sites in Turkey and northern Syria (Sardis: Scott and Kamilli 1981:685–687; Misis: Hild and Hellenkemper 1990:358, Figs. 312–315; Kinet and Epiphaneia: Redford et al. 2001:71, 97, Fig. 8; Blackman and Redford 2005:92–96, 104, Figs. 13–54). Port St. Symeon ware was found in Acre (Pringle 1997:144–145, Figs. 4; 11:65; Stern 1997:56–58, Fig. 13:95–98; Vitto 2005:168, Fig. 16:1) and in other Crusader sites in Israel (Avissar and Stern 2005:54–56, Type I.7.4; Stern and Tatcher 2009:162–163, Fig. 3.31:1–5).

Proto-Maiolica Ware (Fig. 27:20, 21).— Proto-maiolica Ware was imported to the Crusader Kingdom from Sicily and Southern Italy and is found in Israel mainly in coastal sites dating to the thirteenth century. This ware has a light buff-colored fabric and is decorated

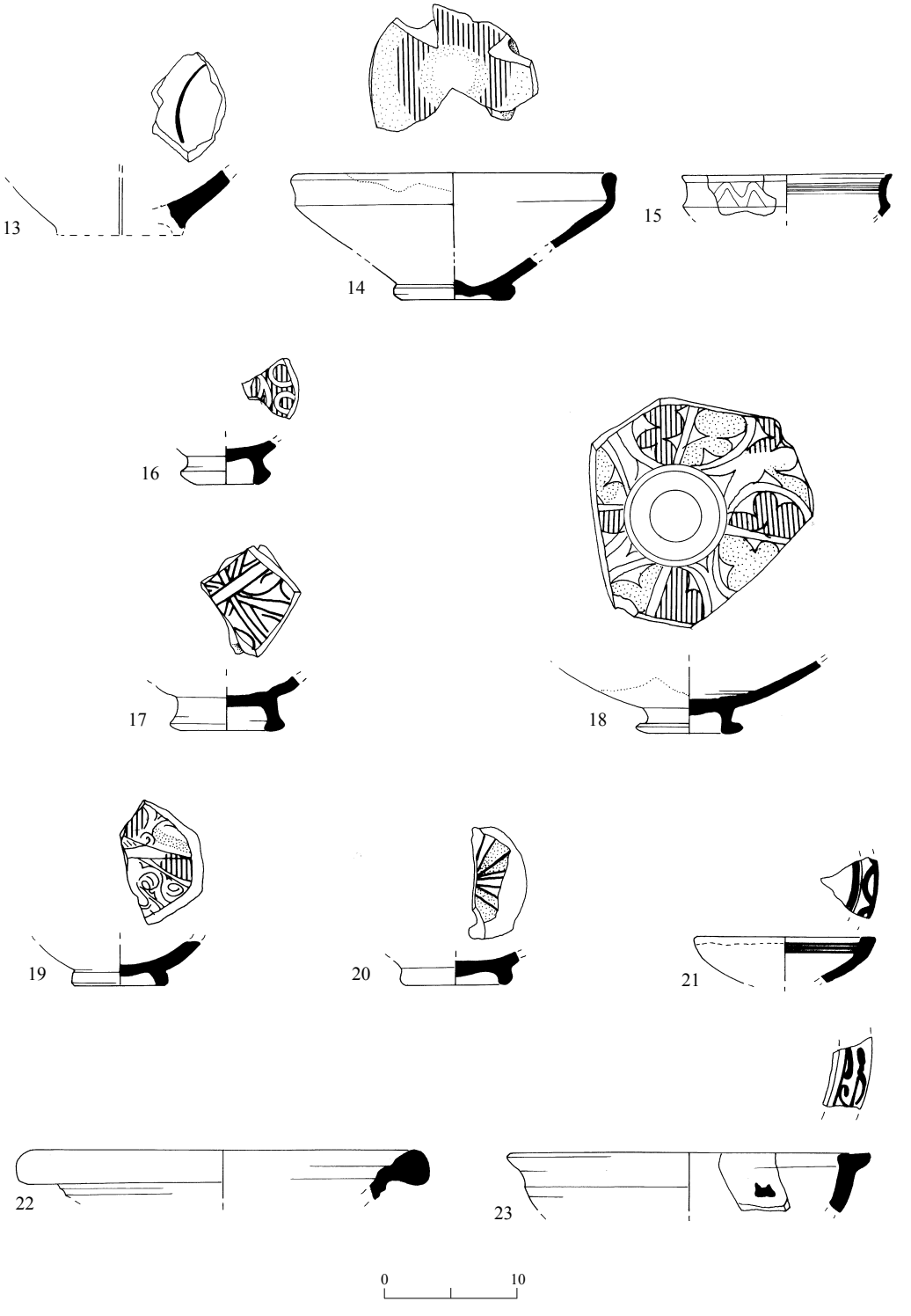


Fig. 27. Crusader-period ceramics: glazed wares.

◂ **Fig. 27**

No.	Reg. No.	Type	Description
13	316-3077	Aegean Ware bowl	Base; Yellowish red 5YR5/6; light reddish brown 5YR6/4 ext.; very fine quartz particles and some very fine mica; rare limestone grits and very rare limestone and reddish inclusions; on int., white slip under a deep yellow glaze; incised line on int.
14	112-1048	Aegean Ware bowl	Almost complete profile; light red 2.5YR6/6 int.; pink 7.5YR7/4 ext.; light reddish brown 5YR6/4 ext. surface; rare particles of quartz sand in fabric; on int., white slip under a lemon-yellow glaze; addition of green glaze on base and int. rim; thin white slip on ext.
15	316-3092	Cypriot 13th c. Sgraffito Ware bowl	Slightly concave, vertical rim; dark gray 10YR4/1, over-burnt and very clean; on int., white slip under a dark yellow glaze, and four parallel incised lines; on ext., a slip-painted running zigzag line, covered with glaze
16	523-5140	Cypriot 13th c. Slip-Painted Ware bowl	High ring base slightly out-turned at the edge; reddish brown 5YR5/4 to dark grayish brown 10YR4/2; rare lime grits and some very fine mica; on int., slip-painted design of concentric loops and a central round design, under a yellow glaze
17	316-3077	Cypriot 13th c. Sgraffito Ware bowl	High ring base slightly out-turned at the edge; red 2.5YR5/6; reddish brown 2.5YR5/3 to 5/4 ext. surface; occasional lime grits; on int., white slip under dark yellow glaze and incised design
18	320-3114	Cypriot 13th c. Sgraffito Ware bowl	High ring base out-turned at the edge and lower part of body; gray 10YR5/1 to reddish brown 5YR5/6; white grits and some fine quartz sand; small amount of very fine mica; on int., white slip under a light yellow glaze and an incised design enhanced with dark yellow and green glaze
19	316-3080	Port St. Symeon Ware bowl	Base; light brown 7.5YR6/4; some fine mica and rare white grits; on int., white slip under a light yellow glaze and incised design enhanced with dark yellow and green glaze
20	317-3097/2	Proto-Maiolica Ware bowl	Base with drilled hole; very pale brown 10YR7/4; light brown 7.5YR6/4 core; some very fine sand and rare red grits; small amount of mica; white slip with dark brown; thick yellow painted design under transparent glaze on int.
21	317-3125	Proto-Maiolica Ware bowl	Thickened rim and upper part of body; light brown 7.5YR6/4; very pale brown 10YR7/3 ext. surface; some very fine sand and rare black inclusions; white slip with a dark brown painted design under a transparent glaze on int. extending over ext. rim
22	310-3035	Catalan Glazed basin	Rim; light brown 7.5YR6/3; light reddish brown 5YR6/4 core; very pale brown 10YR7/3 ext. surface; some fine quartz sand; gray and red inclusions; rare grass negatives; dark yellow glaze on int.
23	317-3054	North African Cobalt and Manganese Ware basin	Rim and upper part of body; very pale brown 10YR8/4; pale yellow 2.5Y8/3 core; much quartz sand and rare black grits; white glaze on int. and ext.; rim design painted in blue and brown; painting in blue on int.

with geometric or floral designs or, less frequently, animal and human figures, painted in tin-opacified glaze over a white glazed background. The most common design consists of a central medallion with a gridiron pattern. The painted designs on the vessels and the choice of colors vary in accordance with their place of production in southern Italy and Sicily (Whitehouse 1980:78–80). The two examples presented here are of the Apulian type of proto-maiolica. One example of Gela Ware was found as well (not illustrated; for a similar fragment, see Stern 1997:59, Fig. 15:108). Proto-maiolica Ware is a very common import to the Latin Kingdom of Jerusalem and was largely found in Acre (Edelstein and Avissar 1997:130, Fig. 1:5; Pringle 1997:139, Fig. 6:12, 13; Stern 1997:58–63; Vitto 2005:168–169, Fig. 16:3) and in other sites throughout Israel (Avissar and Stern 2005:63–68, Type I.9.1; Stern and Tatcher 2009:163–164, Fig. 3.31:6, 7).

Roulette Ware (not illustrated).— Only one example of this type was found. The bowl has a roller-stamped decoration made with a rotating instrument that produces a series of well-arranged indentations in parallel lines on the exterior wall of the vessel. The bowl has brown glaze on the interior and exterior. This ware was produced in northeastern Italy, and was exported from Venice to the Levant in the last quarter of the thirteenth century (Gelichi 1984; Avissar and Stern 2005:71, Type I.9.3.2). Bowls of this type are rare in Israel and have only been published from Crusader contexts at Acre (Stern and Waksman 2003:172) and Ḥorbat ʻUẓa (Stern and Tatcher 2009:152–153, Fig. 3.28:3).

Catalan Glazed Basin (Fig. 27:22).— The basin is made of a coarse, light brown fabric with mica inclusions. Although only the out-folded thickened rim and sloping straight walls are preserved, the shape is known to have a flat base. The dark yellow glaze is applied to the interior surface with no slip and extends to the rim. This type was imported into the Latin Kingdom of Jerusalem from Catalonia and is dated to the thirteenth century. It is very rare in Israel and has been identified only in Crusader-period levels at various sites within Acre (Avissar and Stern 2005:78, Type I.11.2). This type of basin has been found in other Mediterranean sites as well, e.g., Marseilles (Marchesi and Vallauri 1997:86, Fig. 59:12, see additional references therein).

North African Cobalt and Manganese Ware (Fig. 27:23).— These vessels, mostly bowls or basins with very thick walls, are made of light yellowish sandy ware. They are decorated with patterns of geometric, vegetal and animal motifs and pseudo-script designs painted in blue and brown tin-glaze over a white opaque glaze. They were manufactured in Tunis during the Almohad and Hafsid periods (twelfth–fourteenth centuries). Vessels of this type have been found at sites in Tunis, Italy and southern France (Whitehouse 1980:81; Daoulatli 1994: 106–107; Avissar and Stern 2005:76, Type I.10.1).

It appears that this vessel type was imported into Israel together with the Proto-maiolica Wares during the thirteenth century. It has been found at various sites in Acre (Stern and Waksman 2003:172), Caesarea (Pringle 1985:199–200, Fig. 16:90; Arnon 1999:227, Fig. 11:a) and Ḥorbat ʻUẓa (Stern and Tatcher 2009:163–165, Fig. 3.31:8, 9). Vessels of this type were also found in Alexandria (François 1999:99–100, Figs. 22, 23).

Water Pipes

Ceramic water pipes were found throughout the excavation (Fig. 28:24–26). Most of them were broken as a result of their having been torn from the walls in the course of the Ottoman-period robbing activities. On most of the water pipes were remnants of the mortar that sealed the joints.

Two predominant sizes of ceramic water pipes were distinguished, and although both of them are cylindrical, they differ in the finish of their open ends. The first type is smaller (c. 20 cm in length), and tapers down from its wide-

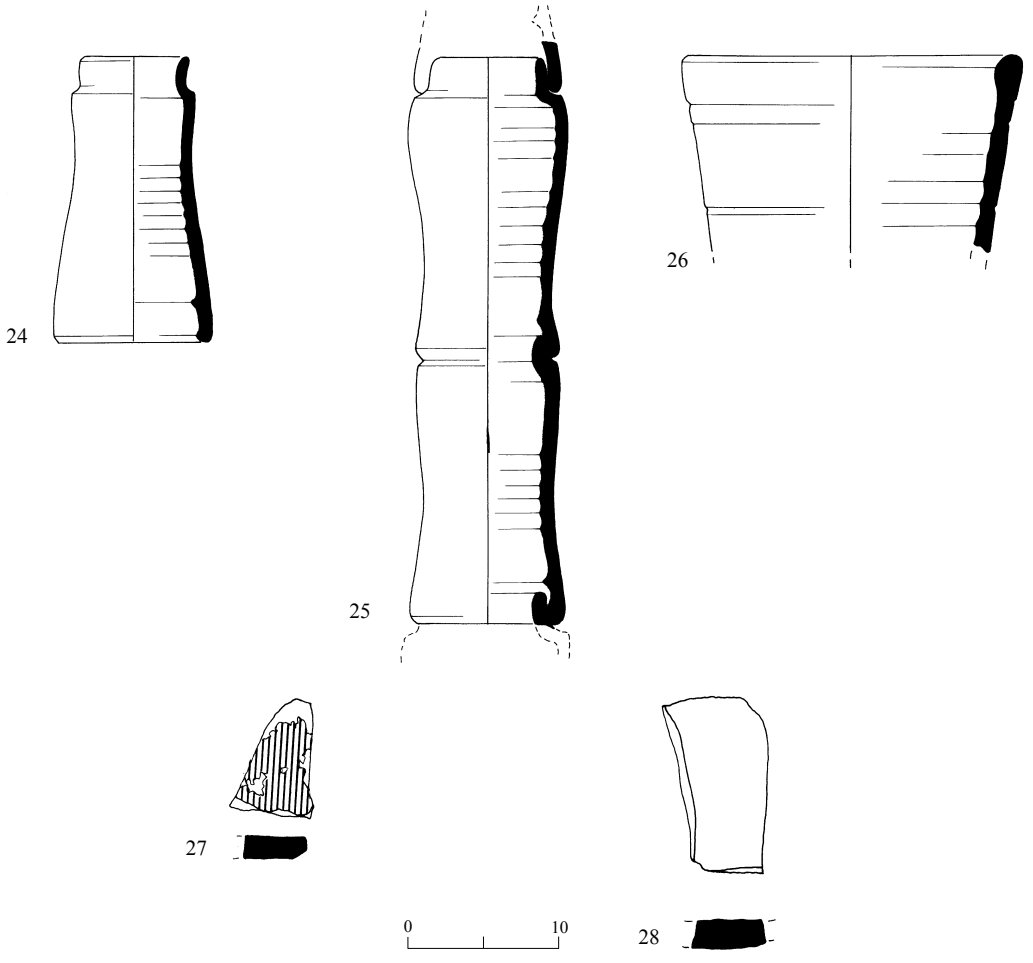


Fig. 28. Crusader-period ceramics: water pipes and tiles.

No.	Reg. No.	Type	Description
24	310-3056	Water pipe	Light brown 7.5YR6/4; pale yellow 2.5Y7/3 core; very pale brown 10YR8/3 surface; much fine quartz sand; fired at a very high temperature
25	521-5115	Water pipe	Grayish brown 10YR5/2; reddish brown 5YR5/4 thick core; very pale brown 10YR 7/3 surface; much fine quartz sand; fired at a very high temperature
26	308-3093	Water pipe	Light gray 10YR7/2; much fine quartz sand; fired at a very high temperature
27	316-3092	Glazed tile	Pink 7/5YR7/4; some coarse quartz sand and rare reddish inclusions; greenish yellow glaze on ext.
28	512-5065	Glazed tile	Light brown 7/5YR6/4; some fine quartz sand and red and black grits; straw negatives; green glaze on ext.

ended opening of c. 10 cm in diameter, to a narrower c. 7 cm opening opposite (Fig. 28:24). The tapering facilitated the placing of one pipe into another (Fig. 28:25).

The second type is larger, being approximately 22.5 cm in diameter (Fig. 28:26). No complete pipe was found nor restored, but it can be inferred from the fragments that this type had an identically styled thickened rim at each end, but with one end having a slightly smaller diameter.

Both types of water pipes were made of a fabric similar to that of the ʻAcre bowls', indicating that they are of local production. They

differ, however, in the finer-sized sand particles in the clay of the pipes in comparison with that of the 'Acre bowls'. In addition, the water pipes were fired at a significantly higher temperature than vessels made of similar fabric. The high temperature resulted in near vitrification. This technique was probably intentional in order to achieve water-tight pipes.

The extremely functional shape of ceramic water pipes barely changed from the Roman period through the Ottoman period (Roman: Berry 1988:247, Fig. 8–14:144; Ottoman: Stern 1991:105). It is important to note that square-sectioned ceramic flues (*tubuli*), that were utilized in the Roman period for conveying hot air, were not in use here (Berry 1988:248).

Ceramic Glazed Tiles

Two fragments of glazed tiles were found (Fig. 28:27, 28). The tiles are decorated with monochrome glaze: one is green and the other is greenish yellow. These tiles present the possibility that the bathhouse walls, or certain areas of them, were covered with glazed tiles. Only two fragments, however, were found.

The fabric from which these tiles were made, as well as their green glaze, is very similar to the Port St. Symeon Ware. Similar tiles found in other excavations in Acre that underwent petrographical analysis show a similarity in fabric to that of the Port St. Symeon Wares (Shapiro 2012:110). Tiles with a sgrafitto design and splashes of polychrome glaze in the style of Port St. Symeon Wares were found at one of the Port St. Symeon Wares' production sites, at Kinet, verifying the connection of the tiles to these wares (Blackman and Redford 2005:104, Figs. 51:IV-ZZ; 52:IV-BBB, IV-CCC, IV-DDD).

Glazed tiles are not a common find in Israel. Similar tiles were found at other excavated sites in Acre (the Knights' Parking Lot—Syon and Tatcher 2000; the Hospitaller Complex—E. Stern 1999b; the church of St. John—E. Stern 1999a; 2007). A tile, dating to the Crusader period, with a painted decoration in blue and brown was found at Ḥorbat 'Uẓa (Stern and Tatcher 2009:167, Fig. 3.33). Glazed painted tiles of a different type are known from the Late Byzantine period (eleventh–twelfth centuries) in Turkey and Bulgaria (Papanikola-Bakirtzi, Mavrikiou and Bakirtzis 1999:17–20).

Summary of the Ceramic Finds

The Crusader-period ceramic wares that were found in the bathhouse and its vicinity are clearly dated to the thirteenth century, thereby dating the bathhouse to the thirteenth century. This accords with what is known from historical sources regarding the Montmusard quarter as having been established in the thirteenth century. These ceramic wares are typical of other Acre Crusader assemblages (Edelstein and Avissar 1997:130–132; Pringle 1997; Stern 1997; Stern and Waksman 2003; Vitto 2005:161–171).

As stated above, rim sherds found in secure loci within the bathhouse were counted (see Table 1). Unfortunately, the small number of sherds found in these loci and their fragmentary nature limit the conclusions that may be drawn from their occurrence. Nevertheless, dominant in this assemblage are the 'Acre bowls' and, as can be expected, water pipes. We suggest that the relatively large quantity of 'Acre bowls' in these loci, and in the excavation in general, reflect their having served a dual function: in their usual capacity as a simple bowl, in addition to being a vessel conveniently utilized to scoop water over the bodies of the bathers. The remaining vessel-types were used for storing, cooking and serving food, which may suggest that food was served somewhere in the bathhouse. However, this conclusion must be taken with a degree of caution, because of the small number of the food-affiliated vessels found in secure loci in the bathhouse, and because of the disturbed nature of the finds. If, however, our interpretation is valid, this information would add a new aspect to the activities undertaken in the bathhouses.

It remains unclear if other vessel types, that were found in fills but not in these selected loci, also originated from rooms in the bathhouse complex, or from adjacent buildings, or were transported here from further afield.

No subsequent Mamluk-period pottery, datable to the late thirteenth and fourteenth centuries, was uncovered, indicating that the bathhouse site was abandoned after the destruction of Acre in 1291.

Stone Objects

In spite of the fact that this thirteenth-century bathhouse experienced extensive destructive activity, many fragments, architectural and decorative, were found, which hint at its ornate decoration.

A variety of floor- and wall-tiles made of marble or marblized limestone was found in the debris of the structure's collapse (Fig. 29:1–3). The broken tiles were found in several colors: white, gray, green, red and purple. Very often they were cut with bevelled edges and were smoothed on both faces. Occasionally, they were worked on one face only, leaving a very coarse underside to facilitate application to a surface. No complete tiles were found; thus, their dimensions remain unknown. The largest of the fragments was 22 cm wide. Their thickness varied from 2.5–3.5 cm. Tiles smoothed only on one face were as much as 6.5 cm thick.

The use of marble was not restricted to simple square or rectangular tiles. Decorative marble inlay was also applied, as triangular bevelled fragments testify.

Numerous fragments of marble basins were found in the adjoining Hot Room 321 and

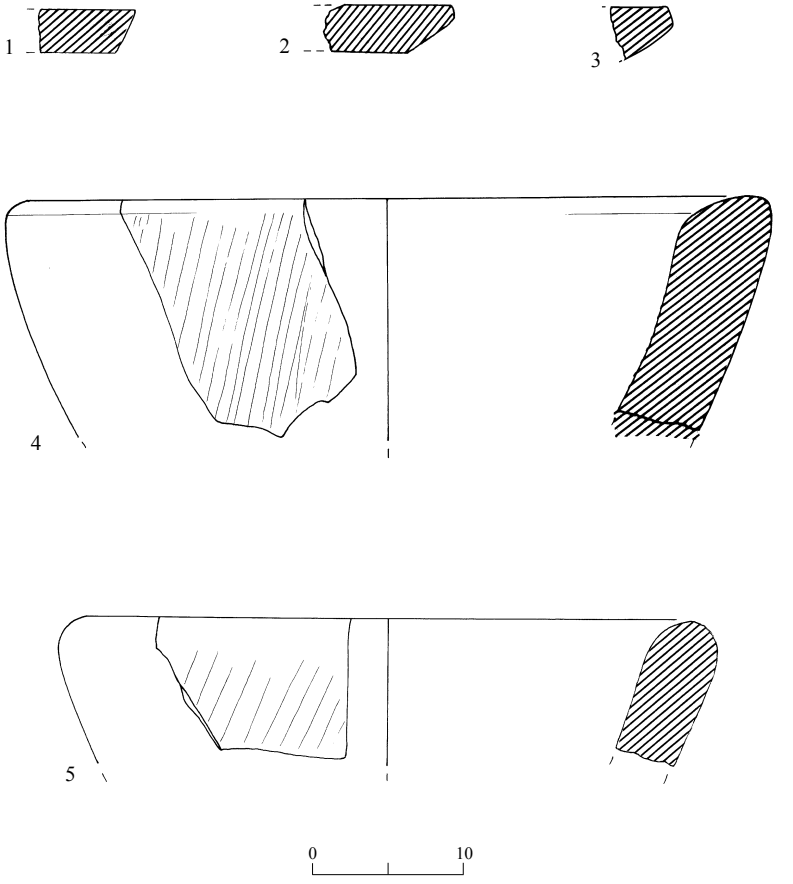


Fig. 29. Stone objects.

Fig. 30. Fragmentary capital.

Water Installation 338 (Fig. 29:4, 5). Number 4 is the rim of a large basin, with a c. 50 cm rim diameter. The outer surface of the basins is roughly dressed with prominent diagonal tooling striations.

Fragments of marble pillars and a fragment of a marble capital of an undetermined date were also found in the collapse. A horizontal register of freely carved acanthus leaves between two bulging strips is all that remains of a badly damaged capital (Fig. 30).

Glass Finds

For a discussion of the glass finds, see Gorin-Rosen, this volume.

The Coins

Danny Syon

Out of a total of 14 coins found at the bathhouse site, only five were identifiable to some degree. All are commonly found in ʻAkko. The coins range in date between the second century BCE and the sixteenth century CE.

1. Reg. No. 1035A, L103, IAA 49310.
Antiochus III, c. 200–187 BCE, ʻAkko-Ptolemais.
Obv.: Head r.
Rev.: ΒΑΣΙΛΕΩΣ ΑΝΤΙΟΧΟΥ Apollo standing l., leaning on bow.
Æ, ↑, 1.47 g, 13 mm.
SC 1:416, No. 1096.

2. Reg. No. 2015, L201, IAA 49308.
Same (reverse obliterated).
Æ, 1.97 g, 12 mm.

3. Reg. No. 2020, L202, IAA 49309.
Antiochus IV (175–164 BCE), Antioch.
Obv.: Head r., radiate.
Rev.: [---] Zeus standing l., wreath in his outstretched hand.
Æ, ↑, 3.00 g, 15 mm.
SC 2:70, No. 1417.

4. Reg. No. 1004, L101, IAA 49307.
Al-ʻAdil I, AH 598 (1202 CE), Damascus.
Obv.: شمان وتسعين... … Traces of inscription.
Rev.: Traces of inscription.
Æ *fals*, 5.06 g, 23 mm.
Cf. Balog 1980:135, No. 318.

5. Reg. No. 3078, L316, IAA 84470.
Mamlûk or Ottoman (fourteenth–sixteenth centuries CE)
Obv.: Traces of Arabic inscription.
Rev.: Obliterated.
Æ *fals*, 0.90 g, 17 mm.

DISCUSSION AND CONCLUSIONS

The Acre Crusader bathhouse in the Montmusard suburb north of the city wall was a large complex, whose plan, as a result of dismantling and stone robbing during the eighteenth and early nineteenth centuries, can only be partially reconstructed. No entrance to the structure was uncovered. The northwestern corner (W319 and W322) is the only well-preserved external wall of the bathhouse. A number of the excavated walls were internal walls, some serving as supports for the floor, as the limestone tiles placed on top of them would indicate. Flooring and wall fragments in the north suggest the existence of an enclosing wall that possibly extended from W322 eastward to W120.

Heating was provided by a large furnace that distributed hot air through channels to hot rooms to its north (L104 and L321) and east (L324).

The hypocaust system was organized through a series of channels created by equidistantly placed rectangular limestone pillars on a stone floor. The stone pillars supported an upper floor with marble flooring.

The large quantity of broken windowpanes indicates that lighting was provided by numerous windows that cannot be reconstructed due to the poor condition of the structure and the glass fragments. Gorin-Rosen (this volume) suggests the possible existence of a dome provided with rounded windows as may be seen in the Ottoman hammam.

The large amount of water necessary for the proper operation of the bathhouse was provided by a channel that transported the water from an unknown source in the northeast. The water was distributed through the bathhouse complex by a system of ceramic pipes. Although numerous pipes were uncovered, none was found in its original position and thus, no reconstruction of this system is possible.

The ceramic repertoire of the bathhouse is typical of thirteenth-century Crusader ceramic assemblages from Acre (Edelstein and Avissar 1997:130–132; Pringle 1997; Stern 1997; Stern and Waksman 2003). The fact that this complex is outside the Crusader city wall and in the Montmusard suburb strongly supports its being dated to the thirteenth century, the time of the expansion of the Crusader city to the north. The variety of the ceramic vessels suggests that during the Crusader period the bathhouse had more than one function; it served not only in a hygienic capacity, but had perhaps also a social function.[8]

With the destruction of Acre in 1291, the bathhouse apparently ceased functioning and no subsequent late thirteenth and fourteenth-century Mamluk pottery, nor construction, were found on the site. The tobacco pipes, all dated to the eighteenth and early nineteenth centuries, reflect a period of intense robbing of the bathhouse building stones. The heightened building activities undertaken in Acre by Daher el-ʻOmar and Jazzar Pasha were probably the cause of this dismantling.

Other bathhouses in Israel, dated to the twelfth and thirteenth centuries, have been found in ʻAtlit (Johns 1932:125), Mount Tabor (Battista and Bagatti 1976:65), Jerusalem[9] and possibly, Nazareth.[10] The bathhouse in ʻAtlit was built into a pre-existing barrel-vaulted structure. The bathhouse, which measures 15 × 3 m, consists of a furnace and two hot rooms. It had a double floor, the upper level of which apparently had marble inlay and was supported by stone pillars. In the center of one of the rooms was a stone cold-water basin. Johns at first, incorrectly, dated the bathhouse to the Mamluk period (Johns 1932:129). He later changed its dating to the thirteenth century and related it to Frankish use (Johns 1947:88–89).

At Mt. Tabor, two bathhouses were incorporated into the monastery building. The southern one is larger and apparently was an Ayyubid addition in the thirteenth century (Battista and Bagatti 1976:56–62, Figs. 3, 4; Pringle 1998:76, Fig. 18:11), while the northern one seems to be a private bathhouse for the use of no more than two or three people (Battista and Bagatti 1976:62–66, Figs. 5, 6; Pringle 1998:78, Fig. 18). Pringle pointed out that the date and the function of the Frankish or Ayyubid second bathhouse remains uncertain (Pringle 1998:78).

Several nearly contemporaneous bathhouses have been excavated outside of Israel. At Tel Hesban, a 14.5 × 4.5 m bathhouse complex, with an entry room, dressing room, hallway, a hot room, furnace room and adjoining service yard, was excavated. This is an example of a small bathhouse situated in a rural area. It was suggested, according to typological considerations, that it was built in the Mamluk period (DeVries 1986). However, recent excavations at the site suggest an earlier, Abbasid, date for its original construction with subsequent reconstruction and reuse in the fourteenth century (Bethany Walker, pers. comm.; Savage, Keller and Tuttle 2008:517). Other bathhouses, similar to that in Acre, have been found in various sites in Jordan and Syria (Creswell 1989:115).

A bathhouse dating from the end of the eleventh to the mid-twelfth centuries was excavated at Corinth (Williams II, Barnes and Snyder 1997:38). It is a rectangular structure, 10 × 4 m, consisting of a furnace room with two small bathing rooms and a service yard. The upper level of the double floor in the hot rooms is supported by stone pillars. Several technological characteristics are identical to those found in Acre. The furnace is of stone construction, faced by ceramic bricks, as are the arched openings that enabled the passage of air from the furnace to the hot rooms. In spite of this use of bricks, the floor-support pillars are constructed of soft limestone and not bricks. The foundations of walls that came into direct contact with the hot air were lined by the same soft limestone. The hot air was distributed through channels between the two levels of the floor and through flues.

The Acre bathhouse complex, as described above, compares favorably with the cited bathhouses. It consists of a possible bathing installation, a service and stoking room to the west of the furnace, two hot rooms, one to the north and a second to the east of the furnace, and a paved water channel. Here, as in the other cited bathhouses, the upper level of the floor was carried by stone pillars and had variously colored marble inlays. Light entered the structure through dozens of glass windows, possibly part of a dome.

Crusader-period bathhouses in Israel fit in with the general tenor of bathhouses existing in the Levant at this time. Between the ninth and the fourteenth centuries, bathhouses were primarily small and served a limited, local clientele. From a recreational complex, the bathhouse was transformed into an essentially functional aspect of society, providing a facility for personal bathing and public hygiene. The basic bathhouse technique of heating by distributing hot air through double floors supported by stone pillars was, however, maintained. Essentially they serve as a bridge between the earlier ornate Roman and Byzantine complexes and the later Ottoman hammam, which once again functioned as a major public complex. In addition, the hammam introduced a new heating technology that utilized steam as the basic heating element. Large tubs of water were boiled and the resultant steam was distributed by way of channels below the floor. The use of steam created a hotter and more humid environment.

The Acre bathhouse, although rather large and well-built, may be categorized with the small bathhouses typical of the ninth to fourteenth centuries, which served a local population, in this case the Montmusard quarter. Extant records demonstrate the existence of contemporaneous bathhouses within the walls of the old city as well (Pringle 2009:28, 82–85, 88, 124, 156).

The study and archaeology of Montmusard is as yet a relatively unknown field. Further excavations within its boundaries should contribute much to the understanding of the development and planning of a new urban area adjacent to a major existing urban center during the Crusader period.

NOTES

[1] Both excavations were conducted on behalf of the IAA and funded by the municipality of ʻAkko and the Ministry of Infrastructure. The 1996 excavation (Permit No. A-2439) was directed by Eliezer Stern with the participation of David Goren (field supervisor) and Itzhak Stark (surveying and drawing). The 1997 excavation (Permit No. A-2734) was directed by Howard Smithline with the participation of Eliezer Stern and Edna J. Stern; Israel Vatkin, Vadim Essman and Rachel Graff

(surveying and drawing). Both excavations were assisted by Leea Porat (pottery restoration), Hagit Tahan (pottery drawing), Tania Kornfeld (glass drawings), Gerald Finkielsztejn (imported amphora identification and epigraphy), Yael Gorin-Rosen (glass), Danny Syon (numismatics), Anastasia Shapiro (petrography) and Eldad Barzilay (soil morphology). The rich Hellenistic finds from the site are to be published separately.

[2] In addition to Vitto's cited excavation, Ze'ev Goldman, the municipal archaeologist and the director of the Municipal Archaeological Museum from the 1950s to the 1970s, conducted several as yet unpublished excavations in the vicinity.

While preparing this article for publication, two more Crusader-period structures were excavated in the Montmusard; here too, mainly the foundations were preserved (Stern 2010; 2011; Abu-ʻUqsa and Abu Hamid 2012).

[3] Interestingly, the rich accumulation of material above the floor is nearly exclusively Hellenistic. This is common in Acre, where Hellenistic remains are so ubiquitous, and fills and accumulations are heavily Hellenistic-oriented. This often results in inverted stratigraphy where earlier material clearly lies above later material.

[4] For a list of tobacco pipes from excavations, see Milwright 2000:203–205; for a detailed study of tobacco pipes from a single excavation, see Simpson 2000. For a more recent summary of tobacco pipes from Acre, see Shapiro 2010.

[5] Since the article was written, in the mid 2000s, new publications of Crusader-period pottery relevant to this study have come out. It was impossible to incorprate them in the article during the editing stage; however, the principal ones are listed in the references, and may be consulted for up-to-date information on the pottery types disscused here. These are: Arnon 2008; Gabrieli 2008; Stern 2007; 2012; forthcoming; Waksman and von Wartburg 2006; Waksman et al. 2008.

[6] Please note that not all the vessel types are illustrated, and some are only mentioned in the text. These include a carrot-shaped amphora, a Levantine glazed bowl, a 'Zeuxippus Influenced Ware' bowl, a Gela Ware (Proto-maiolica) bowl and a Roulette Ware bowl.

[7] Since the article was written 'Acre bowls' were identifed in strata dated to the Crusader period in other geographical regions, including Tiberias (Stern, forthcoming), Safed (Stern, in prep.), Jaffa (Strange-Burke and Stern, forthcoming) and Arsur (Apollonia-Arsūf—Roll 2007:75 and pers. comm.).

[8] The number of cooking and serving vessels found in the bathhouse at Acre may indeed indicate that food was served there. This assumption is reinforced by information obtained during the final editing stage of this study. It appears that eating and drinking in bathhouses and heated spaces were quite common in medieval Europe. Medical beliefs regarding the digestion of food in heated spaces, as well as the social nature of the gathering, led to this custom (van Dam 2012 and pers. comm.). I would like to thank Fabiola I.W.M. van Dam for pointing this out, and for an illuminating discussion of medieval bathhouses in Europe. There is little doubt that comparative study of bathhouses in medieval Europe and the Latin Kingdom of Jerusalem, and of the activities that took place in them, seems to provide considerable scope for interpretation of social behavior.

[9] This bathhouse, excavated in the Jewish Quarter of Jerusalem, has not been published (A. Boas, pers. comm).

[10] An unexcavated bathhouse, possibly dating to the Crusader period (Tzvi Shaham, pers. comm.).

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