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The Elusive Fortifications of Yafo (Jaffa)

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The port city of Yafo was fortified during much of its four millennia of existence. However, today, even its most recent Ottoman walls are dismantled, and only fragmentary parts of its earlier fortifications have been traced despite decades of research and salvage excavations on the mound and its environs. These limited discoveries cannot provide a comprehensive delineation of any pre-Ottoman defensive lines. Nevertheless, new discoveries, the mapping of scattered sites, comparative observations and consultation with historical sources can shed some light on Yafo's otherwise obscure fortifications through its many phases, as well as on various related issues. Through these we may gain new perspectives and a better understanding of the convoluted history of this ancient port.

Keywords: Jaffa, fortifications, urban development, mapping, reconstruction

Introduction

Beyond their primary defensive purpose, city walls reflect political circumstances, financial situations, cultural choices and the projection of power, control and executive capacities that local governments sought to convey. In fact, in some periods and places, the defensive role is secondary to other motives for the construction of ramparts. Such may have been the case for the massive walls enclosing the Early Bronze Age II–III cities, the first to be constructed in Israel (Ashkenazi 2020; and see references therein for examples in Israel and elsewhere). Key defensive elements were lacking in these walls and there appear to have been no actual threats that justified these building efforts; rather, they may have served local rulers as markers of boundaries, means to unify and control their populations, and as a symbolic image of the settlement's power and affluence, which might deter rivals and avert violent conflicts (Ashkenazi 2020:61–62).

Whether primarily for the sake of security or for other obscure purposes, Yafo was a fortified city for most of its long history. Its Ottoman walls, bastions and gates feature in the textual and visual testimonies of pilgrims, explorers, officers, historians, artists and, more

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recently, tourists, while earlier fortifications were described by contemporary chroniclers. Still, unlike other historical cities in the Holy Land, there is hardly a visible trace of the later walls and archaeological remains of pre-Ottoman fortifications are scant. This situation is exceptional given the robust nature of such massive structures.

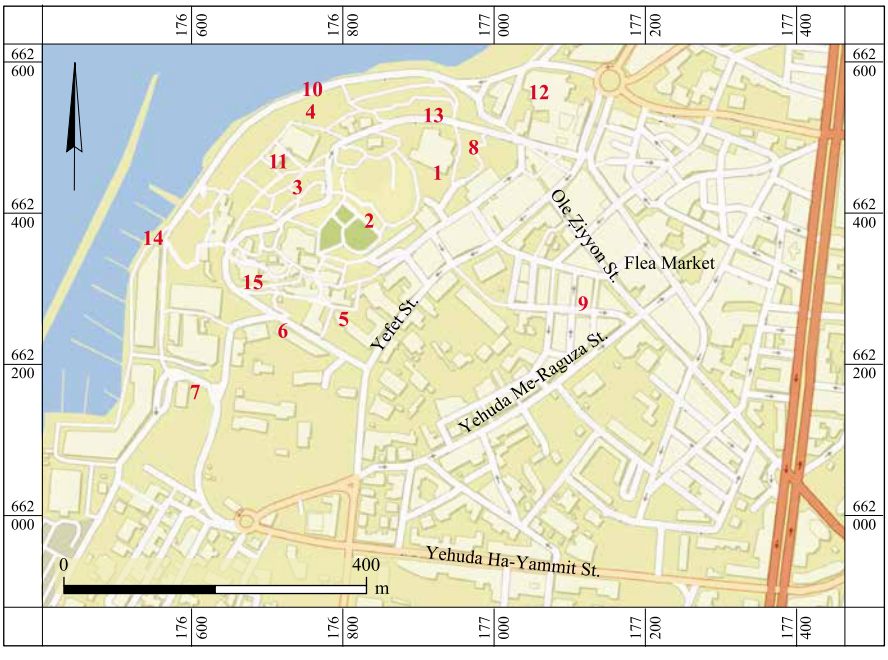
A fortification may disappear for many reasons. An occupying power might deny conquered cities physical defenses to discourage dissent and maintain control. In prolonged times of peace and security, governments might remove old city walls to enable development and free up space for new construction. Such a mass of readily available construction materials certainly would be exploited by officials and regular citizens alike. These patterns of urban development can be traced in many cities of the Holy Land; in Yafo their imprint was extraordinary. Historical fortifications in Jerusalem, Tiberias, ʻAkko (Acre) and Ashqelon all suffered periodic destruction, but surviving segments still feature in their cityscape. Such examples are few in Yafo, and hardly discernible.

This article surveys the archaeological evidence of Yafo's defenses from the Middle Bronze Age to the nineteenth century CE, based on data from both published and unpublished excavations. The presentation is by necessity succinct, as wide-ranging papers cannot elaborate in either the presentation of data or the various interpretations as narrower thematic studies. Such surveys, however, do gather, collect, and contextualize data relevant to their subjects, concentrating materials otherwise scattered through reports and other related literature. In so doing, they allow a broader perspective and a comparative outlook in the investigation of the diachronic role of settlements through historical change and development, which can serve as a starting point in the study of specific cultures and periods. Following the data presentation, this article concludes with an analysis of the causes for the striking scarcity of Yafo's remaining fortifications and a summary discussion on Yafo's urban development considering its standing and exposed defenses.

THE BRONZE AND IRON AGES

During the Middle Bronze Age (MBA; c. 2000–1550/1500 BCE), Yafo enjoyed a period of growth, as part of the general urban revival throughout much of the region, which included the construction of massive fortifications. Relations between Canaan's cities and Egypt were complex and varied over time. However, as with some other Middle Bronze Age towns, Yafo experienced violence and destruction during the Late Bronze Age as the Egyptian Eighteenth Dynasty expanded its influence and projected its military power (Burke 2008:101).

A massive rampart of beaten earth and local *kurkar* sandstone was discovered by J. Kaplan on the northeastern slopes of Yafo's mound, near the Ottoman Ḥammam (Area B, Fig. 1:1; Kaplan 1964a:286; Burke 2008:272; 2011:67). Kaplan dated it to the second half of the Middle Bronze Age (1750 to 1550 BCE). The segment in the former area was exposed to a length of 10 m, with five mud-brick layers that were 4 m deep; it undoubtedly supported a substantial mud-brick wall (Burke 2011:67). Additional mud-brick defenses



1 Kaplan's Area B
2 Kaplan's Area A
3 Early Islamic mound fort
4 Early Islamic waterfront wall
5 The French Hospital site
6 Crusader wall on Pasteur St.
7 Crusader moat on Yehuda HaYammit St.
8 Crusader corner and Ottoman city gate at Ruslan St.
9 Crusader fortifications at the Flea Market
10 Crusader seawall remains
11 St. Peter Monastery
12 The Ottoman Qishle
13 Eighteenth-century wall on Ruslan St.
14 Ottoman harbor fort
15 Ottoman wall core on Pasteur St.

Fig. 1. Location map of the main fortification remains in Yafo (drafting: A. Dagot).

were recorded in Kaplan's Area A on the eastern slope of the mound (Fig. 1:2; Kaplan 1964a:286). Middle Bronze Age pottery from a deep probe in this rampart establishes it as the only demonstrable fortification segment in Yafo from that period. It has been suggested that a Middle Bronze Age gate existed in Kaplan's Area A under its Late Bronze Age successor (Herzog 2008:1791).

In the fifteenth century BCE, Yafo was occupied by Tuthmosis III, who turned it into an Egyptian administrative center. Under Rameses II (reign: 1303–1212 BCE), Egyptian control over Yafo reached its peak, but declined in his later years or soon after his demise. In c. 1235 BCE, Yafo's Egyptian citadel was burned, marking the end of Egyptian domination. During the gate's short-lived reconstruction, the debris was buried under a new floor. The structure and the plethora of artifacts from the sealed layer reflect the Egyptian cultural, military and commercial impact on Yafo during that period (Burke and Peilstöcker 2016:9–10). Contemporary Late Bronze Age Egyptian complexes were also discovered in Bet She'an (Mazar 2006:29) and Deir el-Balaḥ (Dothan and Brandl 2010).

The gate of Yafo's Egyptian citadel was discovered by Kaplan (Area A; Kaplan 1956:159–160; 1964b:273) and later excavated by Levy (1999:44–45), and by teams of the Jaffa Cultural Heritage Project (JCHP), directed by A. Burke and M. Peilstöcker (Burke et al. 2017:98–100, 105–121). The Late Bronze Age gate underwent several structural phases: in its prime, under Rameses II, the gate included two massive mud-brick towers built upon stone foundations and flanking a 4 × 18 m gateway (Figs. 1:2; 2). An earthen rampart led to it from the east. Eleven fragments of two monumental doorposts bearing the name and titles of Rameses II in hieroglyphic script were found in the debris. The threshold consisted of large stone slabs with drilled hinge joints for c. 20 cm thick wooden doors (Burke 2008:72). Numerous artifacts recovered from the destruction layer of this phase of the gate indicate that it functioned as a marketplace in peace times (Burke and Peilstöcker 2016:10).

During part of the Iron Age IIA–C (c. 1000–586 BCE), Yafo was a port-of-call in the longshore maritime routes, as is echoed in Biblical traditions (2 Chronicles 2:16; Ezra 3:7; Jonah 1:3). As such, it played meaningful roles in the political and military struggles of the period. The Assyrian prism stele (701 BCE) records the conquest in "Beth-Dagon, Joppa, Banaibarka, Asuru, cities of Sidqia [king of Ascalon]", who headed an anti-Assyrian Egyptian-backed coalition (cited in Luckenbill 1924:31).

Fig. 2. Burned debris in the Late Bronze Age gate's corridor, looking north (photograph: Burke et al. 2016: Fig. 19; courtesy of the Jaffa Cultural Heritage Project).

Fig. 3. The Iron Age II mud-brick glacis in Area B, looking northeast (Arbel 2017a: Fig. 25.4; Kaplan Archive, Photo B234-11; courtesy of the Jaffa Cultural Heritage Project).

In Kaplan's opinion, the Middle Bronze Age glacis near the Ottoman Ḥammam (Area B) and an additional 3 m long segment slightly to its west (Figs. 1:1; 3), were reused during Iron II after the addition of several mud-brick layers and a stone-slab coating (Kaplan 1961:191–192; 1964b:275). Based on the ceramic evidence, Burke (2008:272) and Keimer (2017:395) dated that fortification to the eighth century BCE.[2] A contemporary glacis composed of stone-covered compact earth and sand was found to the east of the Egyptian citadel (Kaplan 1964b:275). Kaplan's (1974:135–136) suggestion that the fortifications may have been refurbished in preparation for the Assyrian onslaught cannot be proven but makes sense, as Sidqia of Ashqelon would not have challenged Assyria from defenseless cities.

[2] For a more extensive stratigraphic and structural analysis, see Keimer 2017.

THE PERSIAN, HELLENISTIC AND ROMAN PERIODS

In 333 BCE, Alexander the Great's army entered Yafo without a fight. Three decades later, the land was annexed by the Egyptian-based Ptolemaic dynasty. Yafo blossomed under Ptolemaic rule, and for the first time a lower city developed to the east of the mound. In 198 BCE, the Seleucids of Antioch took over the land. Increasing Roman pressure and aggressive cultural assimilation imposed by Antiochus IV triggered the Hasmonean uprising. In 142 BCE, Yafo was conquered by the Hasmoneans, who replaced its pagan population with loyal Jewish settlers (Notley 2011:96–100).

Fortifications feature in the narratives of this period, but their physical traces are few. In Kaplan's Area A, a 25 m long segment of a robust wall (preserved height 2 m) built of *kurkar* ashlars in a headers' technique was ascribed to a fortress (Figs. 1:2; 4; Kaplan 1964b:276; 1974:135). Artifacts from a sequence of associated floors indicated that this wall originated in the Persian period and continued through the Hellenistic period, with three additional walls and possibly a tower that may have joined this wall in a casemate structure (Kaplan 1956:259; Tsuf 2018:63, 69–70). Apparently, parts of these presumably defensive structures survived into the first century CE. Whether these remains were parts of fortifications is inconclusive. Nonetheless, similarly-sized, headers-style defensive constructions are known from other Hellenistic sites, some of reused Persian-period walls (Tsuf 2018:58, 69, 73–74).

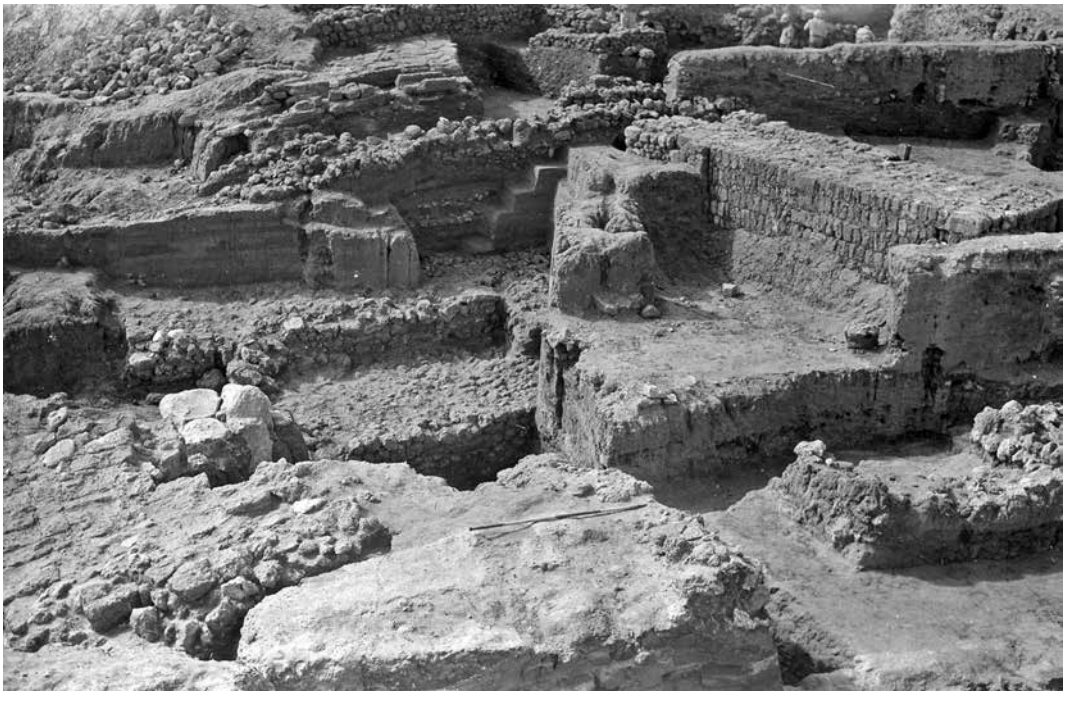


Fig. 4. The Hellenistic headers' wall (right), looking south
(Kaplan Archive; courtesy of O. Tsuf).

The Romans conquered Judea in 63 BCE. The predominantly anti-Roman sentiments of Yafo's Jewish population culminated in active participation in the First Jewish Revolt of 66–70 CE. Consequently, the city was twice razed by Roman legions. Following the war, the Romans allowed its reconstruction, although with more loyal and probably more heterogeneous residents.

Roman policy probably restricted the fortification of Jewish cities. Jerusalem's Hasmonean and Herodian ramparts were an obvious exception, but Agrippa I's attempt to add a third fortification line was curbed at Emperor Claudius's orders, despite Agrippa's status as a friend of the imperial court (Josephus, *Antiquities* XIX, 7:2). The walls the Romans faced during the Jewish Revolts had been haphazardly built with the outbreak of hostilities (Josephus, *Life*, 37). The spaces between the peripheral dwellings were blocked at the northern towns of Gamla and Yodfat, and rooms filled with rocks and earth (Yavor 2010:15–16; Aviam 2002:125–127). Similar improvising was probably carried out at Tiberias (Miller 2016:224), and during the Bar Kokhba Revolt (132–135 CE) at Betar (Ussishkin 1993:94). Even less was done at Yafo, where the rebels "had made no provision beforehand for a fight" (Josephus, *Jewish War* II, 18:10). At most they utilized old Hellenistic defenses, evinced by Roman stone catapults found within the Hellenistic casemate wall and tower (Tsuf 2018:42). The only archaeological reference to actual fortifications in Yafo during this period is Kaplan's uncorroborated mention of "a portion of thick building foundation (a fort?) of the first century A.D." between Areas A and C (Kaplan 1970:225). As Yafo's rebels could not have hoped to withstand a Roman attack under these conditions, their failure to fortify the city reflects the spontaneous, ill-prepared local character of the First Jewish Revolt.

The Byzantine and Early Islamic Periods

Pilgrims frequented Byzantine Yafo both on their way to and from Jerusalem, as well as to view the location of St. Peter's miracles (*Acts* 9:36–43; 10:9–16) and Jonah's place of departure. Steady income from pilgrimage, trade and rich farmland contributed to a period of affluence and expansion, later compromised by predicaments such as the Justinianic plague (541–549 CE), the earthquake of 551 CE and a temporary Sassanid takeover (614–629 CE). In 634 CE, the Holy Land fell to the Muslims.

Glick's reference to a "city wall" at the harbor is the only allusion to a Byzantine fortification in Yafo (Glick 2013). Soil containing Byzantine pottery covered its single remaining ashlar course. However, given its location, this wall was probably not solely for defense, but part of a pier that assisted in monitoring ship traffic and anchoring.

The "base of a massive wall" (Re'em 2010) was exposed for a length of 11 m in the Byzantine stratum at the French Hospital site, at the junction of present-day Yefet and Pasteur Streets. It was a stone-built, 2.5 m thick edifice, but the excavator refrained from suggesting that it was a fortification, leaving it to have been part of some other public structure.

From 661 CE, the Holy Land was ruled by the Umayyads of Damascus, who built several coastal forts (*Ribatat*) for protection against Byzantine naval assaults, for military communication and for the exchange of prisoners (Haddad 2013:294–295). One fort was built in Yafo, which functioned as the port of Ramla, the district center founded in 714 CE, and as a link between other coastal positions. Yafo retained these roles after the Abbasid takeover in 750.

In 878 CE, Ahmad ibn Tulun, the Abbasid governor of Egypt, assumed control of the Holy Land and reinforced Yafo's citadel. In 969 CE, the city was taken by the Egyptian Fatimids, who used that citadel to repel Karmati attacks (971–973 CE). In the eleventh century CE, Yafo's walls held back the Seljuks despite having suffered earthquake damage in 1033 CE. Muslim rule of this strategic harbor ended with the Crusader conquest in the summer of 1099 CE.

Early Islamic fortifications were discovered in two locations. At Qedumim Square (Fig. 1:3), two segments of a wall, at least 20 m long and 2.1 m thick, were recently unearthed (Avraham Tendler, pers. comm.). It was built of ashlars in header-and-stretcher technique, set into a foundation trench that contained seventh-century CE pottery; the excavator proposed that the remains belonged to a *ribat*. If correct, this would be the first archaeological evidence for Yafo's part in this network of coastal fortifications.

Excavations under the church of the Armenian Convent, at the northeastern access to the harbor, revealed a 9.4 m stretch of a 1.5 m thick wall on an east–west axis (Arbel 2017a:332); twenty courses, c. 5 m high, survived. The faces were coated with ashlars, fieldstones and mortar at the core (Figs. 1:4; 5). This robust structure was almost certainly a fortification. The latest pottery in the dwellings abutting its base dated between the eighth and tenth centuries CE (Vincenz 2017:345–348, Figs. 22.1–22.3).

Fig. 5. The Early Islamic wall under the Armenian Convent, looking north (photography: Y. Arbel).

The Crusader Period

Crusader Yafo enjoyed vital and strategic commercial, military and pilgrimage links with Europe, and served as a point of departure for campaigns inland. As such, the history of its fortifications during this period may be characterized by Crusader construction and Muslim razing, depending on who occupied it any given time. This pattern began in the early days of the Crusader presence. Entering Yafo in 1099, the Crusaders found the walls and castle in ruins and, according to the Crusader chronicler Raymond d'Aguilers, Godfrey of Bouillon, ruler of the nascent Kingdom of Jerusalem, had them restored (Boas 2011:121). In the ensuing four decades, the ramparts faced several land and sea challenges in the form of Fatimid attacks and internecine Crusader conflicts.

Anticipating the Third Crusade and aware of Yafo's importance to the Crusaders, Ṣalāḥ al-Dīn destroyed it (1187), but it was retaken by Richard the Lionheart (1191), who rebuilt it preparation for his desire to reconquer Jerusalem. However, Ṣalāḥ al-Dīn's brother, al-Ādil, retook Yafo in 1197 again razing its fortifications. Once retaking the city, Crusader monarchs such as Friedrich II (1228) had them rebuilt. Friedrich's project is commemorated in a bilingual Latin and Arabic inscription (Clermont-Ganneau 1896:155; Sharon 2017:37–56). Richard of Cornwall bolstered the walls in 1240; his efforts saved Yafo from the Khwarazmians four years later.

Between 1252 and 1253 King Louis IX of France and Jean d'Ibellin erected a new line of fortifications to the east of the mound, with 24 reported towers, three gates and ditch. Nevertheless, on March 7, 1268, Yafo succumbed to the Mamluk Sultan al-Ẓāhir Baybars. The skeletons of several horses and donkeys and medieval arrowheads—one of which was wedged between an animal's ribs—were found in a structure at the modern flea market's Oley Zion Street, attesting to this final battle (Peilstöcker et al. 2006). Baybars razed the Crusader city and its fortifications for the final time.

The best-preserved excavated example of Yafo's Crusader fortifications was found at the French Hospital, a Catholic compound built in 1879 for the Sisters of St. Joseph (Re'em 2010). It presently houses the Jaffa Hotel, where Crusader and Ottoman fortification remains are exhibited (Fig. 1:5). A 3 m high Crusader elliptical or circular glacis (diam. c. 35 m) was exposed alongside a moat. Up to eleven surviving ashlar courses abutted the hewn bedrock. The moat was approximately 14 m wide at the top and 7 m at the bottom. Part of a tower, or possibly a gate or bridge, stood next to it on arches supported by four pillars. Another pair of pillars were added in a second phase. An 11 m long foundation trench and scattered ashlars were left of the presumably 2 m thick Crusader wall. Associated finds include medieval pottery, arrowheads, spearheads, a battle-axe and calthrops (multi-spiked iron items against charging horsemen).

A segment of another rock-cut Crusader moat was found across Yefet Street, on the grounds of the French Catholic school (Arbel and Talmi 2020; 474–475; Stern 2020). The moats at both sites were apparently filled in the aftermath of the Mamluk conquest.

Fig. 6. The Pasteur St. Crusader fortification, looking west (photography; Y. Arbel).

Excavations on Louis Pasteur Street, between the French Hospital and Yehuda Ha-Yamit Street, revealed an unusually large wall (Figs. 1:6; 6). Its foundations reached bedrock and its eastward-sloping face was built of rough ashlars, with fourteen preserved courses (c. 3 m high; Arbel and Rauchberger 2018). The Louis Pasteur Street wall was built on a north–south orientation perpendicularly to Yafo's natural southern boundary and thus, it may have belonged to a protruding tower.

A 6.6 m long stretch of an east–west Crusader moat was exposed on Yehuda Ha-Yammit Street, near the southern access to the harbor (Fig. 1:7; Haddad and Rauchberger 2019:28–32). Its northern and southern faces were coated with ashlars and mortar. During the Mamluk dismantling operations, detached fragments were dumped into the ditch. The associated pottery dated between the twelfth century CE and the Mamluk period.

The robust corner of a possible fortification was discovered on Ruslan Street, next to the Ottoman city gate and the Clock Tower square (Fig. 1:8). Up to five courses of roughly-cut masonry survived (Arbel 2017b:75). The exposed width reached 0.6 m. A Crusader dagger, two arrowheads, two coins of Amaury I of Jerusalem (reigned 1163–1174 CE) and one of Raymond III Count of Tripoli (governed 1152–1187 CE) were found with twelfth-century CE pottery in the abutting soil.

A slightly tilted, 1.2 m wide wall of similar style and materials was discovered on Ami'ad Street, approximately 100 m to the south of Ruslan and in a roughly corresponding north–south orientation (Arbel 2017b:75). Five courses survived to a maximum height of 1.6 m. Related pottery dated to the late twelfth and thirteenth centuries CE.

Two adjacent segments of Crusader fortifications were discovered at the eastern limits of Yafo's Flea Market (Fig. 1:9). A postern or small gate on a four-pillar base was exposed at the intersection between Rabbi Yehuda Me-Raguza and Oley Zion Streets (Peilstöcker et al. 2006), and a massive ashlar wall was found at the junction between Me-Raguza and Rabbi Pinchas Streets (Arbel 2017b:75–76, Figs. 3.10, 3.11). The wall was exposed to a length of 2.5 m and was 2.7 m high. The two segments were set along the same contour and must have been connected.

Parts of Crusader Yafo's waterline fortifications were exposed along the modern sea promenade. A 30 m long and 2.5 m thick wall was excavated on a northeast–southwest orientation at the harbor's northern access (Fig. 1:10), next to the Sea Mosque and the Armenian Convent (Priel 2002; Haddad 2013:36). Up to eight courses survived to a height of 2.3 meters. A 2 m thick segment of another ashlar wall was exposed in the same general location (Peilstöcker and Priel 2000).

An additional 20 m of the Crusader Seawall were cleared at a short distance to the south. The ashlar-and-mortar wall was 1.5 m thick and survived up to seven courses high (1.3 m). As its western face showed signs of marine erosion, it must have been built by the waterline, although due to later construction the site is presently at some distance from the sea. Nearby was the southeastern corner of a more than 2.4 m wide wall built on an east–west orientation that survived to height of 1.2 m (Haddad and Glick 2022:143–148). Its base is curved, suggesting a robust round structure—possibly a tower (Glick 2013)—controlling access to the harbor.

The Mamluk and Early Ottoman Periods

Having conquered Yafo, the Mamluks systematically destroyed the city, just as they ruined all coastal towns to prevent any future Crusader bridgeheads for inland incursions. Yafo remained abandoned until the mid-seventeenth century CE, but its harbor continued to operate on behalf of the district center of Ramla. Commercial and pilgrim traffic was monitored by harbor guards and officials stationed on Yafo's hill. Recovery began with Ottoman-sanctioned construction of Christian religious institutions next to the harbor. Thus, the burgeoning city attracted settlers, traders, farmers and others, but also Bedouin raiders, sea privateers and other outlaws and dissidents, against whom Yafo's sea and land walls were rebuilt in the eighteenth century CE (Tolkowsky 1924:126–136, 138, see original sources there).

As no sources attest to Mamluk construction in Yafo, the towers which housed the harbor guards were probably restored structures of the dilapidated Crusader citadel. Their most likely location was the site of St. Peter's monastery, built in the 1890s on the site of the Ottoman citadel (Fig. 1:11). A circular chapel in the monastery with unusually thick walls and narrow windows resembling embrasures could be part of a medieval tower. According to Kaplan (1970:226), some square rubble-and-mortar foundations (c. 0.9 × 0.9 m) in Area A supported the walls of the sixteenth-century CE citadel, but as no citadel is known to have stood during that century, and lacking a precise location and stratigraphic context, this element remains obscure.

THE LATE OTTOMAN PERIOD

Count Constantine de Volney, who visited Yafo in the 1780s, reported that its walls were "twelve to fourteen feet high, and two or three in thickness with battlements at the top", with no rampart or ditch (cited in Tolkowsky 1924:144). These walls were breached in 1776 by Abu al-Dahab of Egypt and in 1799, by Napoleon Bonaparte. With the reinstitution of Ottoman rule, Yafo's defenses were restored and reinforced with British assistance. No fighting was involved in Ibrahim Pasha's occupation of Yafo in 1831 and withdrawal in 1840. In 1834, the Peasants Revolt's irregulars unsuccessfully challenged Yafo's new fortifications for the first and last time. In the late 1860s, additional gates were opened in the eastern wall to facilitate traffic (Aleksandrowicz and Giler 2017). This would not have happened while the walls safeguarded the city, but by then the stable political conditions and upgraded artillery made their defensive character obsolete. Bedford's map of 1863 is the last to show the full fortification line (Fig. 7). During the 1870s and 1880s, the walls that had become a hindrance to urban development, were dismantled and their building stones were incorporated into new structures (Kark 1990:100–104).

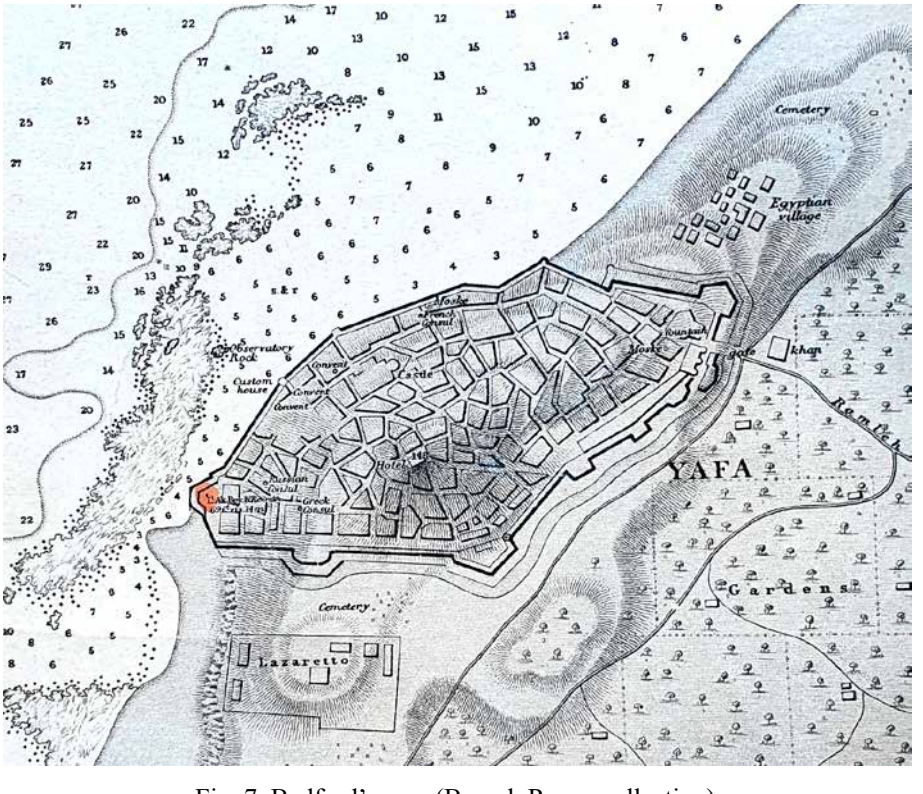


Fig. 7. Bedford's map (Baruch Rosen collection).

The Eighteenth-Century Walls

Remains of Yafo's eighteenth-century fortifications were identified in seven locations. A square tower with rounded corners (5.5 m high) that incorporated parts of the Crusader fortification was discovered at the French Hospital site (Fig. 1:5; Re'em 2010). It was linked to a 2.2 m wide northeast–southwest wall, of which 15 m was excavated. Both elements rested on relief arches. The excavator suggested that this wall was part of the *Tour ébréchée* (cracked tower), which Napoleon bombarded on March 6, 1799.

A semicircular tower and a linked wall built of *kurkar* ashlars were exposed at the Ottoman military compound (*Qishle*) (Arbel 2021:32–35), now the Setai Hotel next to the Clock Tower Square (Fig. 1:12). Six courses of the tower's superstructure stood upon solid stone foundations. This tower is probably marked on the 1799 map of Pierre Jacotin, a cartographer with Napoleon's army (Shacham 2011:149, Fig. 13.8). The attached wall was built of similar ashlars but was supported by irregular relief arches.

A 1.3 m thick ashlar wall on an east–west orientation was discovered at Ruslan Street's northwestern end, slightly to the west of the *Qishle* compound (Arbel 2017b:77). Its twelve remaining courses rested on relief arches (Figs. 1:13; 8). A postern gate incorporated in the wall may have led to and from a secondary track marked on Jacotin's map.

An eighteenth-century phase of Yafo's seawall was discovered at the harbor's eastern side. The wall was set on the same line as a 45 m long section of the seawall exposed at the harbor's center (Haddad and Glick 2022:154). It was tilted seaward, and its preserved top was 2 m above mean sea level. This wall supported the harbor's water line and had no vertical superstructure. Its minor defensive value was exploited during a sea landing by units of Napoleon's army.

Fig. 8. The eighteenth-century CE wall on Ruslan Street, looking south (photography: A. Peretz).

The remains of an eighteenth-century fort were discovered by Kaplan in the southern part of the harbor (Fig. 1:14), near the British Mandate Hangar 1 (Haddad 2013:203–206, 232–233). Its original phase comprised a 3 m thick wall of large ashlars (50 × 70 cm) on an east–west orientation. The lowest of its four surviving northward-tilted courses are at sea level. The fort underwent several later Ottoman phases that affected its structural plan but not its original function guarding the southern access to the harbor and monitoring activities therein.

P.L.O. Guy's excavations near St. Peter's Monastery on Yafo's mound in 1948–1949 exposed c. 20 ashlar courses of a solid, eastward-tilted wall (Figs. 1:11; 9). The wall had no western face and its top protruded from the topsoil. In the absence of any associated floors, the wall could not be dated by pottery, but its building materials and style correspond to Ottoman construction. Moreover, its location fits the site of the citadel mentioned in the narratives of Napoleon's conquest and in nineteenth-century sources.

Kaplan recorded the discovery of the corner of an eighteenth-century fortified tower near the house of Simon the Tanner, south of Qedumim Square (Kaplan 1964a:286). This tower was built of ashlars and surrounded by a ditch, but the masonry was unfinished, suggesting hasty construction. According to Kaplan, the walls were battered, possibly by siege operations. Nothing else is known about this discovery.

Fig. 9. The possible eastern base wall of the Ottoman citadel, looking north (photography: P.L.O. Guy(?), IAA Archives).

The Nineteenth-Century Walls

A c. 60 m long segment of Yafo's nineteenth-century southern wall still stands along the eastern side of Louis Pasteur Street, which links Yefet Street and the southern entrance to the harbor (Figs. 1:15; 10). The ashlar exterior was removed but the core of fieldstones and mortar remains on the original relief arches; the maximum preservation reached a height of 4.5 m. This wall underwent extensive conservation by the Israel Antiquities Authorities in 2019.

Parts of the main city gate—known as the Jerusalem Gate, after the eastern road to which it linked, or the Abu Nabbut gate, honoring its Ottoman builder—also survived intact near the Clock Tower Square (Fig. 1:8). Other segments of the complex were revealed

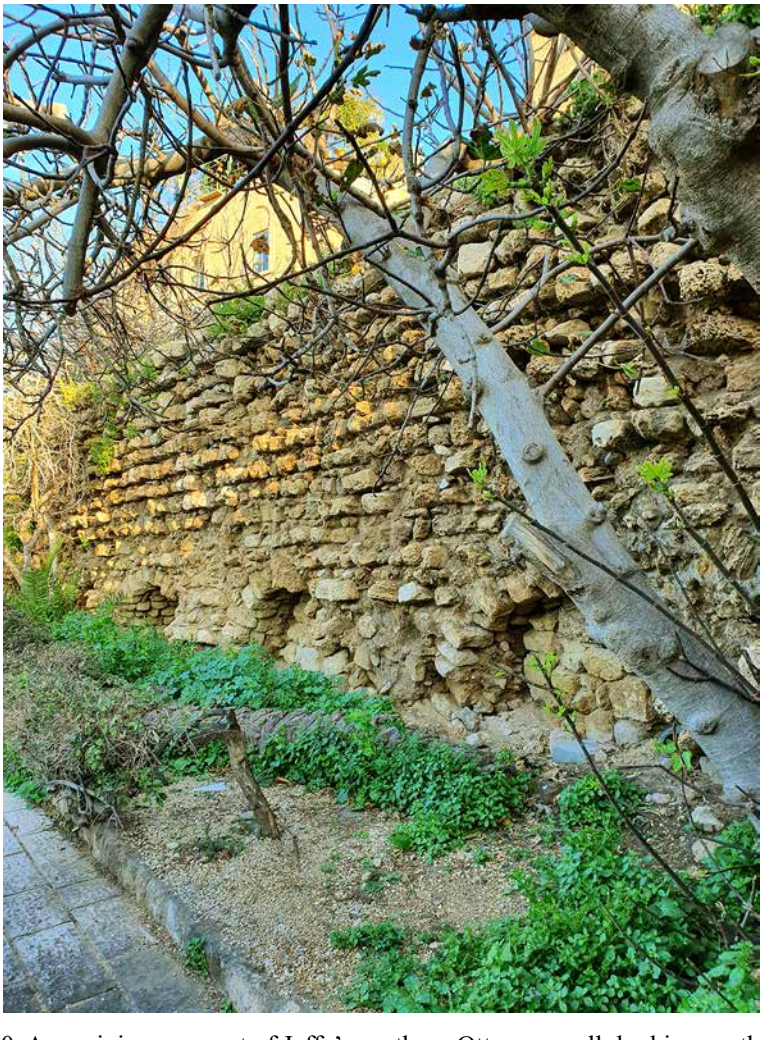


Fig. 10. A surviving segment of Jaffa's southern Ottoman wall, looking northwest (photography: by Y. Arbel).

in excavations (Arbel and Rauchberger 2017). The gate's components appear in detail on Lieutenant Skyring's map from 1842, and in two photographs by Louis Vignes from 1860 and Felix Bonfils from the 1870s (Shacham 2011, Figs. 13.13; 2017). Pedestrians would cross the moat over a bridge, reach an enclosed courtyard (12.7 × 18.3 m) and turn southward to the gateway, over which stood a tower with rounded corners. The component still-standing parts include: the arched gateway (height 4.2 m, width 5.1 m), whose cylindrical frieze over the entrance—as in the Ottoman Land Gate at 'Akko—is clearly discernible in Vigne's photograph; three of the gate tower's curved buttresses embedded in the gate's inner courtyard and in adjacent late nineteenth-century buildings; and the intact marble-coated, triple-spouted and richly inscribed fountain (*sabīl*) in the outer courtyard.

Excavated parts include the 1.4 m wide foundations of a high wall that enclosed the gate's outer courtyard from the west. This wall, built on relief arches, compelled pedestrians to turn left to the gate, preventing direct advance into the city. Similar defensive architectural measures appear as early as the Iron Age (Ussishkin 2004:514–523; Mazar 1997:113–121), as well as in Crusader Caesarea (Holum et al. 1988:230) and Jerusalem's Ottoman walls. Based on details on the Vignes and Bonfils photographs, the wall stood 4–5 m high.

The bridge across the moat still supports the present street. It was built over two ashlar-and-mortar arches and was 10 m long. Nearly four meters of its width were cleared in the excavations. The bridge's floor was paved with stone slabs, of which only a strip at the northern edge survived.

Yafo's southeastern bastion, called after British Admiral Sidney Smith, was its largest nineteenth-century fortification (Fig. 1:5). Excavations at the French Hospital compound exposed the southeastern corner of a two-story pentagonal complex, comprising inner and outer walls (1.5 m and 2.5 m thick, respectively) with an open area in between, the protruding bastion and a forward rampart (*fausse-braye*) (Re'em 2010). A c. 3 m high segment of the outer wall is incorporated in the present Jaffa Hotel's perimeter fence at Mazal Te'omim Lane (Re'em 2010: Fig. 13). Part of the forward rampart and an 8 m long segment of the adjoined moat (c. 13 m wide) were also discovered. A forge to produce cannon balls operated in the inner courtyard, as attested by the ash, charcoal, iron slag, and several balls, some deformed. A lavish ceremony that was held by the Ottomans to celebrate the construction of this complex was noted in the British press at the time (*The Sporting Magazine*, Volume 17, 1801. London, pp. 180–181).

Artistic representations and military maps relay the structural plan and appearance of the nineteenth-century northeastern bastion. It was a seven-cannon polygonal structure possessing a 270° field-of-fire that controlled the routes to the harbor and the Jerusalem Gate (Shacham 2021). Four ashlar courses of one of its parts, built on a fieldstone foundation, were exposed at the *Qishle* compound (Arbel 2021:35–36). Adjoining its north was a 2.5 m deep and 3.5 m wide moat. Other parts of the nineteenth-century fortifications were found in that compound's eastern and western courtyards and under a former office (Figs. 1:12; 11; Arbel 2021:36–37).

Fig. 11. Part of the nineteenth-century wall at the Qishle's front courtyard, looking southwest (photography: T. Sagiv).

The bastion still appears on the German Sandel Map from 1878, after the eastern walls, including the Sidney Smith bastion, were dismantled, but its designation as the "old fort" (*Alt Fort*) suggests an antiquated and irrelevant structure. A few years later it was replaced by an Ottoman military base.

Based on textual and cartographic sources, Yafo's nineteenth-century seawall dates between 1820 and 1841 (probably before 1830), thus completed decades after the main fortifications (Haddad 2013:288). The seawall is still visible in a photograph taken by Bonfils in 1875. In 1978, Kaplan was the first to excavate parts of it, but ashlars with drafted margins in the foundation courses led him to consider it Crusader (Haddad 2013:34). As margins were not usually drafted in late Ottoman masonry, hypothetically, those stones may have been taken from Crusader ruins and placed here in secondary use.

Three wall lines were discovered at the harbor and the sea promenade in 1997. The most substantial of these was founded on the bedrock and was 2.5 m thick, with two ashlar faces and stones and mortar between them. Considering shells and worn sherds in the abutting layer, the wall must have reached the water line (Peilstöcker and Priel 2000). Parts of the seawall were more recently investigated in Haddad's extensive excavations at the harbor in 2007, 2008 and 2010 (Haddad and Glick 2022).

YAFO'S SHADOW FORTIFICATIONS

Pharaonic, Assyrian, Hellenistic, Arab, Seljuk, Crusader, Mamluk, French and irregular forces—all faced walls, bastions, towers and reinforced gates when assaulting Yafo. Yet, while in many comparable cities impressive ramparts remain visible, and others were discovered in archaeological excavations, in Yafo they have eluded generations of scholars, with only isolated fragments appearing in its cityscape and archaeological sites. The following factors may explain this striking absence:

Apart from occasional and partial destruction, Yafo's historical fortifications were twice subjected to systematic dismantling. In the late thirteenth century, on Baybars' orders the Mamluks wiped out most of the Crusader defenses. The Ottoman walls met a similar fate six centuries later when they lost their defensive significance and obstructed development.

In continuously inhabited towns, derelict structures offered a readily available source for building stones. Fortifications may be turned into perfect quarries, where no hewing or stonecutting is required. Transportation investments would also be reduced, as city walls tend to be closer to new urban sites than field quarries. It is highly likely that thousands of *kurkar* ashlars from the Ottoman eastern city wall are embedded in the late nineteenth century buildings on the western perimeter of Yefet Street, which was paved along the former eastern fortification line.

Construction under late Ottoman, British Mandate and early Israeli administrations could have obliterated substantial fortification remains dating back centuries and millennia within days or weeks.

Unlike long-abandoned mound sites, Yafo remains a living, vibrant city. While the destruction of the old town in the first half of the twentieth century freed some grounds for archaeological excavations, much of the historical city core remains inhabited and active. Access to many potential sites for exploration is thus limited or non-existent.

The bulk of Yafo's excavations in recent decades have been salvage projects, where archaeologists were rigidly constrained to the perimeter of construction sites and the limits and course of sub-street infrastructures. Fortifications, if discovered in such sites, may not be sufficiently exposed to be identified accurately and were rarely traced to an extent where their full outline could be clarified.

Regarding fortifications, Yafo is not the only example of dissonance between textual records and material evidence. The city of Ramla (c. 20 km southeast of Yafo), founded by the Umayyads in the early eighth century CE, was a significant urban center throughout centuries of Muslim rule. Based on their interpretation of historical records, most scholars consider that Ramla was fortified. Yet with very few debatable exceptions, over 200 archaeological excavations in diverse parts of the town have failed to discover remains of city walls (Gorzalczany 2014:71–72). Apart from intentional dismantling, all of the aforementioned factors discussed for Yafo are equally applicable to the case of Ramla.

Nevertheless, Yafo's surviving and exposed fortifications, however fragmentary, have contributed much to urban research. Key issues of the city's history have been addressed

through them, providing physical realia to be added to information from textual and illustrative sources, and their discovery has allowed a better reconstruction of Yafo's limits through the ages.

Conclusions: The Wider Urban Perspective

Based on his local excavations and comparisons with other sites, Kaplan (1964b:273) viewed Middle Bronze Age Yafo as a citadel-like rectangular enclosure protected by massive ramparts still discernable in the present topography. Later scholars generally agree that the dimensions of the enclosed settlement were no more than c. 3 hectares, far less than other contemporary towns (Burke 2011:67).

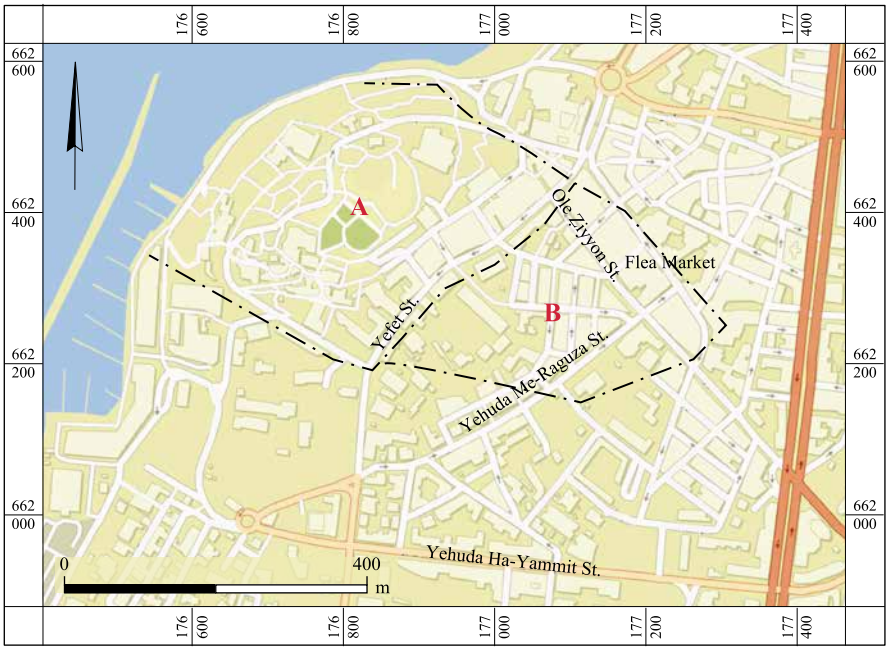
The Late Bronze Age fortifications probably contained only the Egyptian citadel (c. 2 hectares). Like most Late Bronze Age Canaanite towns, urban Yafo remained unwalled, possibly due to Egyptian directives (Mazar 1992:243).

Iron Age II installations and pottery concentrations at sites east and northeast of the mound demonstrate on expansion of activities, but as the ramparts on the northeastern slope of the mound indicate, the fortified zone was not much larger, if at all, than the Middle Bronze Age city.

The Persian–Hellenistic discoveries on the mound provide some archaeological evidence for Yafo's fortifications during those periods. Their location indicates that they belonged to an inner citadel. The city walls remain undiscovered. However, whatever their precise contour, they probably only encircled the city's core. Structural remains in various sites east of the mound (Arbel 2017b:69–70) prove that the eastward expansion that began in the late Iron Age intensified, but there is no evidence for the fortifying of the new quarters. These new areas were abandoned in the aftermath of the Hasmonean conquest. This was the first but not the last time that a Lower City developed to the east of the mound (Fig. 12). This expansion involved the sacrifice of portions of fertile ground, in an area lacking the defensive advantages of Yafo's low but imposing hill. As such, it evinces economic success, demographic growth, and a sense of security.

Grave distribution in the lower southern and eastern grounds prove that during the Roman period Yafo generally kept to its mound and had no protective walls (Jakoel 2016). No Byzantine physical defenses were discovered either, despite Yafo's affluence during that time and the subsequent spread of public and industrial activity (Arbel 2017b:71–73). In that respect, Yafo differed from contemporaneous cities such as Jerusalem (Zelinger 2007), Scythopolis-Bet She'an (Bar-Nathan and Mazor 2007:xiv) and Caesarea (Gendelman 2021:148–150).

The two Early Islamic fortifications exposed on the mound and at the harbor correspond to a description by the tenth-century CE Arab geographer al-Muqaddasī of medieval Yafo as a "small town . . . protected by an impregnable fortress, with iron gates; and the sea-gates are also of iron" (1886:54). Early Islamic Yafo did not extend beyond the mound's limits. Excavations in the grounds to the east of the mound show that activity continued there, but there was no trace of fortifications.



12. Yafo's ancient core (A) and estimated range of its eastward expansion (B).

Yafo's Crusader fortifications at the harbor and the sea promenade probably originated in the twelfth century CE and are the earliest indication of a harbor at this particular location. Based on the ceramic and numismatic evidence, the fortifications exposed at the French Hospital were dated by the excavator (Re'em 2010) to the late twelfth or the thirteenth century CE. Richard the Lionheart, Frederic II Barbarossa or Louis IX may have initiated their construction. In the twelfth century CE, the fortifications there would have marked the southeastern corner of Crusader Yafo. In the thirteenth century CE they would be integrated into the expanded defense system. As the large wall at Louis Pasteur Street was sealed under thirteenth-century CE dwellings, it must be dated to the twelfth century CE.

Assuming that the fragmentary remains on Ruslan and Ami'ad Streets represent fortifications, an original twelfth-century CE date is likely, as they protected the urban core that predated the eastward expansion. The wall and postern at the Oley Zion–Rabbi Pinchas-Yehuda Me-Raguza intersection belong to the first and only historical defensive system that enclosed the broad area to the east of the mound. As this area was not significantly settled before the thirteenth century, the new walls should be credited to Friedrich II Barbarossa or to Louis IX and Jean 'Ibellin. The moats at Yehuda Ha-Yammit Street and at the French School to the south and southeast of the city should also date to the thirteenth century, as pottery from that time was mixed in the soil and debris with which they were filled.

Yafo's northern and northeastern Crusader fortification lines remain an enigma, but we may feasibly reconstruct twelfth-century CE, fortified Yafo as confined to the larger mound's

perimeter. In the thirteenth century CE the walls also covered the area of the present-day flea market, along the Yehuda Me-Raguza Street.

The period between the Mamluk conquest and the mid-seventeenth century under Ottoman rule is virtually missing from Yafo's stratigraphy, confirming the extensive textual attestation of an occupational gap. Archaeological strata and fortification segments date no earlier than the eighteenth century CE. Fortifications are also Yafo's most conspicuous nineteenth-century CE architectural remains, prior their dismantling in 1880s.

While meaningful to various other research aspects, the contribution of the exposed fortifications to the delineation of the Ottoman city's boundaries is minor. Spatial analysis reveals the striking accuracy of Skyring's 1842 map, which emphasized the city walls. The maps of Jacotin from 1799 and Bedford from 1863 were more focused on military positions and bathymetric details, but they offer complementary information (Pierce 2011:55–56; Shacham 2011:138–139, Figs. 13.4; 13.5; 13.13; 13.15). Combining cartographic and archaeological data, walled Ottoman Yafo comprised the area between the seacoast to the west and north, the western limits of present-day Clocktower Square to the northeast, and Yefet and Louis Pasteur Streets to the east and the south, respectively. The eastern and probably also southern nineteenth-century walls generally followed the eighteenth-century CE lines, even if partly reconstructed after Napoleon's withdrawal. The only significant alteration was noted in the northeast. Cartographic comparisons between Jacotin and Skyring's maps and the archaeological evidence, demonstrate that the eighteenth-century CE semicircular tower was replaced by a polygonal bastion, built c. 40 m to the northeast (Pierce 2011:58). The Ottomans and their British advisors may have done so to overcome the weak point revealed when General Louis-André Bon of Napoleon's army successfully bypassed the eighteenth-century defenses and entered the city from this direction. Once Yafo's last fortifications were removed in the late nineteenth century CE, it gradually expanded into its historically unprecedented present size.

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