

REMAINS FROM MIDDLE BRONZE AGE II AND THE HELLENISTIC, ROMAN, BYZANTINE, CRUSADER, LATE OTTOMAN AND BRITISH MANDATE PERIODS ON RABBI YEHUDA ME-RAGUZA STREET, YAFO (JAFFA)

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INTRODUCTION

From November 2011 until April 2013, excavations were conducted in anticipation of extensive renovations of the infrastructure under Rabbi Yehuda Me-Raguza Street (map ref. 176655–7191/661990–2267; Fig. 1) at the initiation of the Tel Aviv-Yafo municipality.¹ During two previous excavations conducted along the street in 1996 and 1999, four burials were discovered (Peilstöcker 1998; 2006), three of which could be dated, and attributed to the Byzantine period. In recent decades, large-scale salvage excavations were carried out in the adjacent Flea Market (Peilstöcker et al. 2006; Arbel 2008), the Magen Avraham Compound (Arbel and Rauchberger, this volume) and the Greek Market (Arbel 2016) (Fig. 1), exposing layers dated from the Late Bronze Age through the Ottoman period, with substantial architectural finds and artifacts dated to the Hellenistic, Byzantine, Crusader and late Ottoman periods.

Rabbi Yehuda Me-Raguza Street, paved over a late Ottoman-period agricultural track, stretches from ‘Ole Ziyyon Street in the northeast to Yehuda Ha-Yammit Street in the southwest, climbing relatively steeply from both ends to a high point at the junction with

¹ The excavations (Permit Nos. A-6233 and A-6482) were conducted by the authors on behalf of the Israel Antiquities Authority, with several intervals. Assistance was provided by Vadim Shustin, Yitzhak Marmelstein, Ananya Worede Abegaz and Tal Greenwald (area supervision); Yoni Amrani and Eli Bachar (administration); Rivka Mishayev, Mark Kunin, Avraham Hajian and Mendel Kahn (surveying and drafting); Asaf Peretz (field photography), Clara Amit (small finds photography), Anna de Vincenz, Edna Stern, Katherine Strange-Burke, Peter Gendelman and Gerald Filnkielsztejn (pottery analysis); Marina Shuiskaya (finds drawing); Brigitte Ouahouna (identification of glass finds); Yosef Bukengoltz (pottery restoration); Lena Kupersmidt and Victoria Nosikovsky (cleaning of metal finds); Robert Kool (numismatics); Moshe Sade (archaeozoology); Inbar Ktalav (molluscs); Eli Yannai (early ceramics consultation) and Omry Barzilai (lithics); Alexander Glick (Ottoman weapons); Oren Ackermann (geology); and Chen Ben-Ari and Angelina Dagot (GPS). Students from Tel Aviv University participated in some of the excavation phases.

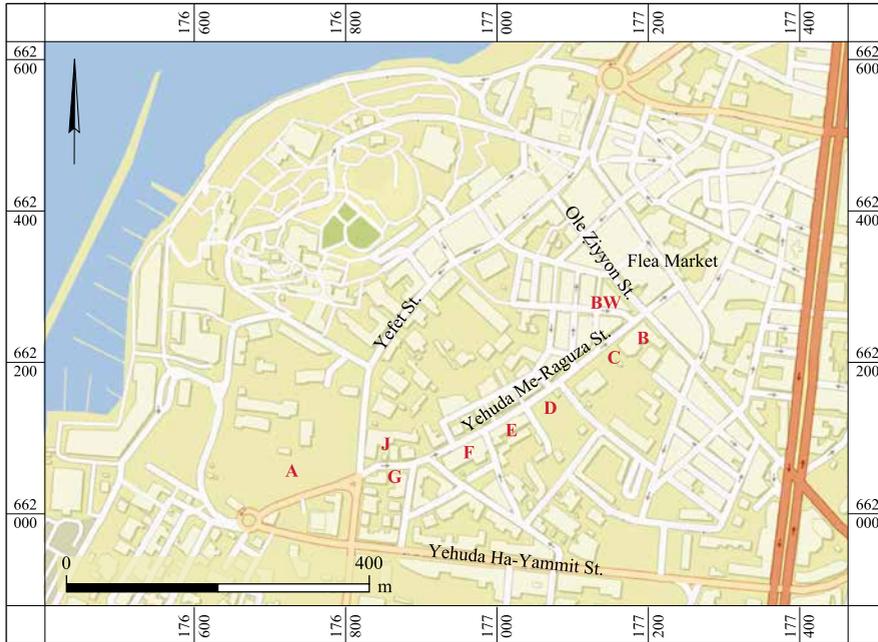


Fig. 1. Location map of the excavation areas
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Fig. 2. Gravestone of Rabbi Yehuda Me-Raguzi
 in the Jewish cemetery of Yafo.

Yefet Street. This topographic feature apparently set the limit to Yafo's expansion eastward until the time of the British Mandate. At present, Me-Raguza Street marks the southeastern boundary of Yafo's Flea Market. Southeast of the street are apartment buildings, as well as commerce and services structures. On the street's northwestern side is the old Jewish cemetery of Yafo, founded in 1840 and used until 1920, when a new burial ground was established at present day Trumpeldor Street in Tel Aviv (Kark 1990:299). The cemetery is the resting place of Rabbi Yehuda Ha-Levy Me-Raguza ('of Raguza'—present day Dubrovnik, Croatia), Yafo's Chief Rabbi between 1840 and 1879, after whom the street is named (Fig. 2).

THE EXCAVATION

The excavation was conducted along the planned course of the new infrastructure lines, while allowing traffic flow on the opposite side of the street. No expansion was possible beyond a single row of squares. While pottery appeared throughout the excavation area on the street, less than half of the squares yielded walls or other architectural features. Remains belonging to seven periods/strata (Table 1) were uncovered but the narrow confines of the street precluded function determination and architectural contextualization of the remains. In addition, limits were imposed on the excavation of graves, although partial exposure provided reliable dating in most cases.

Eight excavation areas were delineated (A–G, J; Fig. 1), a technical division, as the squares basically followed the segments of the street as the infrastructure work progressed. Two excavation squares, designated Area BW, were opened opposite Area B, a year after the completion of the main excavation. Except for Area A, there were no specific distinctions between the segments. The findings are discussed chronologically, and not by excavation area. The plans as well follow a chronological progression.

Table 1. Periods and Main Elements at the Site

Period	Stratum	Elements
MB II	VII	Infant jar burial(?)
Hellenistic	VI	Graves, waste pit
Roman	V	Graves
Byzantine	IV	Walls, graves
Crusader	III	Moat(?), industry(?)
Late Ottoman	II	Irrigation and drainage systems, massive retaining wall, graves
British Mandate	I	Street

Stratum VII: Middle Bronze Age II

Middle Bronze Age II is represented on the mound of Tel Yafo by various buildings and fortifications (Kaplan 1960; 1964a; 1964b:273; 1970:225). This period is virtually absent outside the boundaries of the mound, however, an MB Ila infant jar burial was discovered in Area D (L447), approximately 3 m under street level (Fig. 3; Plan 1; Table 2: No. 16). The burial was laid within a shallow pit hewn into the *kurkar* bedrock. It consisted of a jar, its upper part missing, and a jug placed inside it. The bones were not preserved, but infant burials of this type are typical of the period (see below). The Me-Raguza Street burial is so far the only MB II presence to surface in salvage excavation projects undertaken in recent decades. A jar burial was found in Area Y of Kaplan's excavations (Kaplan 1964a:286). Middle Bronze Age II infant jar burials have parallels in the vicinity of Yafo (Kaplan 1955:3; Kletter and Ayash 2000:35–36; Yannai 2004, Fig. 1.10; Jakoel and Brink 2014) and in the southern coastal plain (Gershuny 1996:131; 1997; 2007; Zelin 2002:86).

Table 2. The Burials, Arranged by Excavation Areas

No.	Area	Locus	Type	Goods	Period	Notes
1	A	118	Pit	?	Hellenistic	Unexcavated
2	A	119	Pit	?	Hellenistic	Unexcavated
3	A	124	Pit	?	Hellenistic	Unexcavated
4	A	112	Cist	Four glass candlestick bottles	Roman	Partially excavated
5	A	113	Cist	?	Roman	Unexcavated
6	A	116	Cist	?	Roman	Unexcavated
7	A	114	Cist	?	Roman	Unexcavated
8	A	127	Cave	?	Unknown	Unexcavated
9	B	261	Pit	?	Ottoman(?)	Unexcavated
10	B	265	Scatter	?	Ottoman(?)	Unexcavated; disturbed by British Mandate-period lime pit
11	Bw	237	Cist	?	Byzantine	Unexcavated
12	B/Bw	238	Cist	?	Byzantine	Unexcavated
13	B/Bw	236	Scatter	?	Ottoman(?)	Unexcavated; scattered Byzantine and Early Islamic pottery
14	C	316	Scatter	?	Unknown	Unexcavated; no related pottery
15	C	333–335	Scatter	?	Ottoman(?)	Unexcavated
16	D	447	Pit	Jar, jug (infant burial?)	MB Ila	No human remains
17	E	521	Scatter	?	?	Few bones in mixed sediment; scattered Hellenistic, Roman, Byzantine and Crusader pottery
18	J	842	Pit	?	Hellenistic(?)	Unexcavated

Other than the MB IIA infant burial, the only pre-Hellenistic find from Me-Raguza Street was a flint blade with a double dorsal truncation that can be dated to the Chalcolithic or Neolithic period (Omry Barzilai, pers. comm.). The blade was found in Area A in a fill layer under the modern street.

Stratum VI: The Hellenistic Period

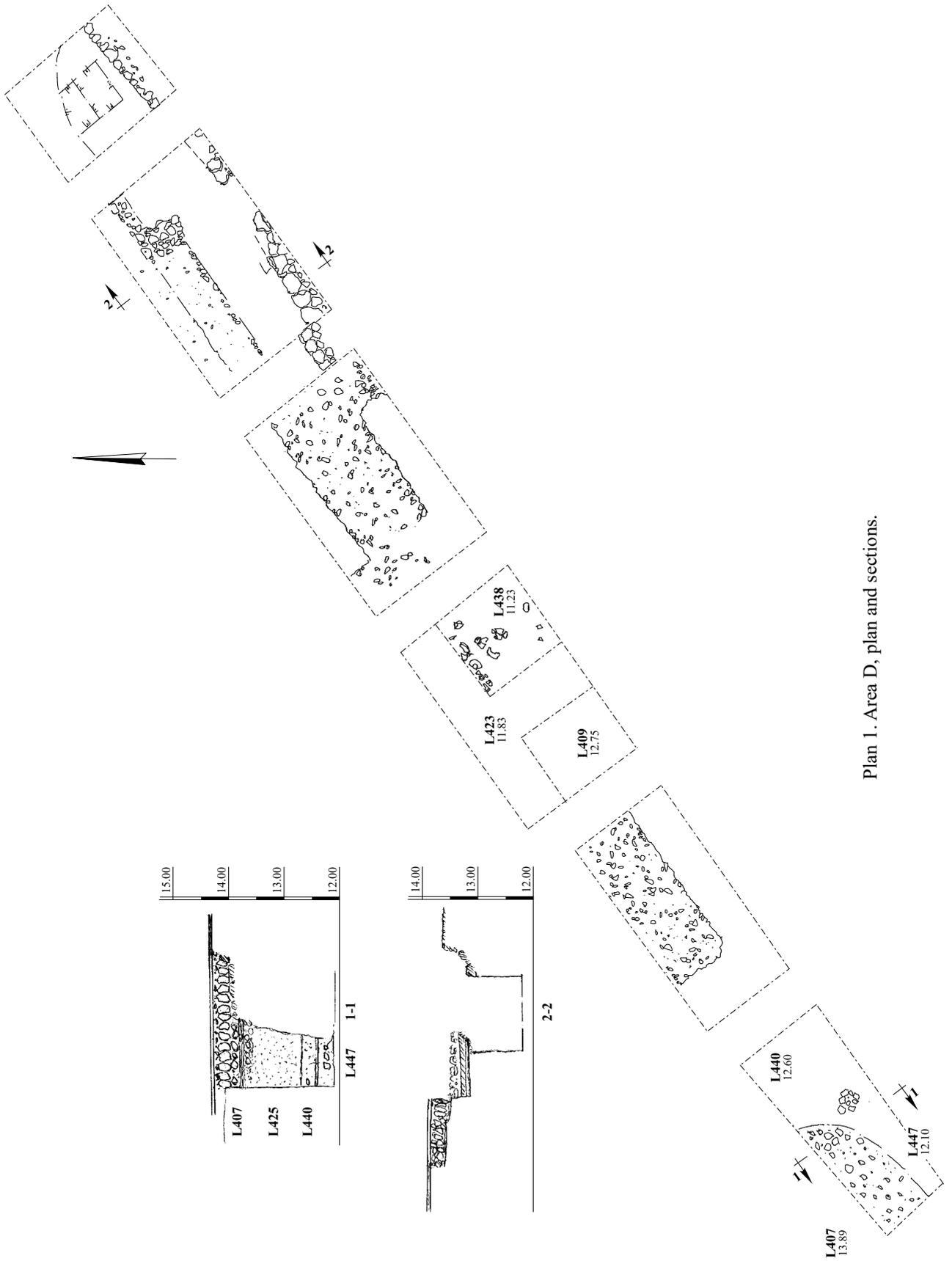
The early part of the Hellenistic period saw an expansion of Yafo's urban sphere from the mound it had occupied since MB II to the east. Under the Ptolemids (third century BCE), the city reached the present-day Flea Market and was probably surrounded by farms. Rich Hellenistic occupation layers and burial grounds were exposed both on the mound and in the surrounding area (Kaplan 1962; 1964b:276; Avner-Levy 1998; Peilstöcker et al. 2006; Arbel 2008; this volume [a]; Re'em 2010; Haddad and Rauchberger 2019; Peilstöcker and Burke 2011; Burke, Peilstöcker and Pierce 2014; Jakoel and Marcus 2017; for a summary of the Hellenistic finds in Yafo's extra-mound excavations, see Arbel 2017a:68–70).² After the mid-second century BCE, the Hellenistic occupation outside the mound dwindled to inconsequence, probably as a result of the Hasmonean conquest. No signs for extra-mound occupation during the first century BCE have come to light so far.

Hellenistic remains on Me-Raguza Street were scant. A single wall, five burials and a waste concentration were discovered in three different locations along the street. Four Hellenistic pit graves were found in Area A, close to the intersection of Yefet Street with Yehuda Ha-Yammit Street (Table 2: Nos. 1–3, 18); a fifth, possibly Hellenistic grave was found under the Ottoman layer in Area J, east and north of Yefet Street (L842; Plan 8). The graves resemble numerous burials previously excavated on Andromeda Hill and on Yehuda Ha-Yammit Street (Avner-Levy 1998:55; Ayash and Bouchenino 1999; Kapitaikin 1999:98; Ginzburg 2000). Three of the burials contained skeletal remains in articulation (L119, L124, L842; Plans 2; 6). The bodies were laid in pits close to bedrock and oriented northeast–southwest. Two other burials (L107, L109; Plan 2) were in a fragmentary state. The bones could not be retrieved for analysis and were reburied on site. No associated grave goods were found in any of the graves, yet sherds of various vessels found in the covering



Fig. 3. Jar and jug in Middle Bronze Age II funerary context, looking east.

² Substantial Hellenistic building remains and artifact assemblages were unearthed in 2019 on Bet Eshel Street, on the northern limits of Yafo's Flea Market (Permit No. A-8477; Michal Marmelstein, pers. comm.).



Plan 1. Area D, plan and sections.

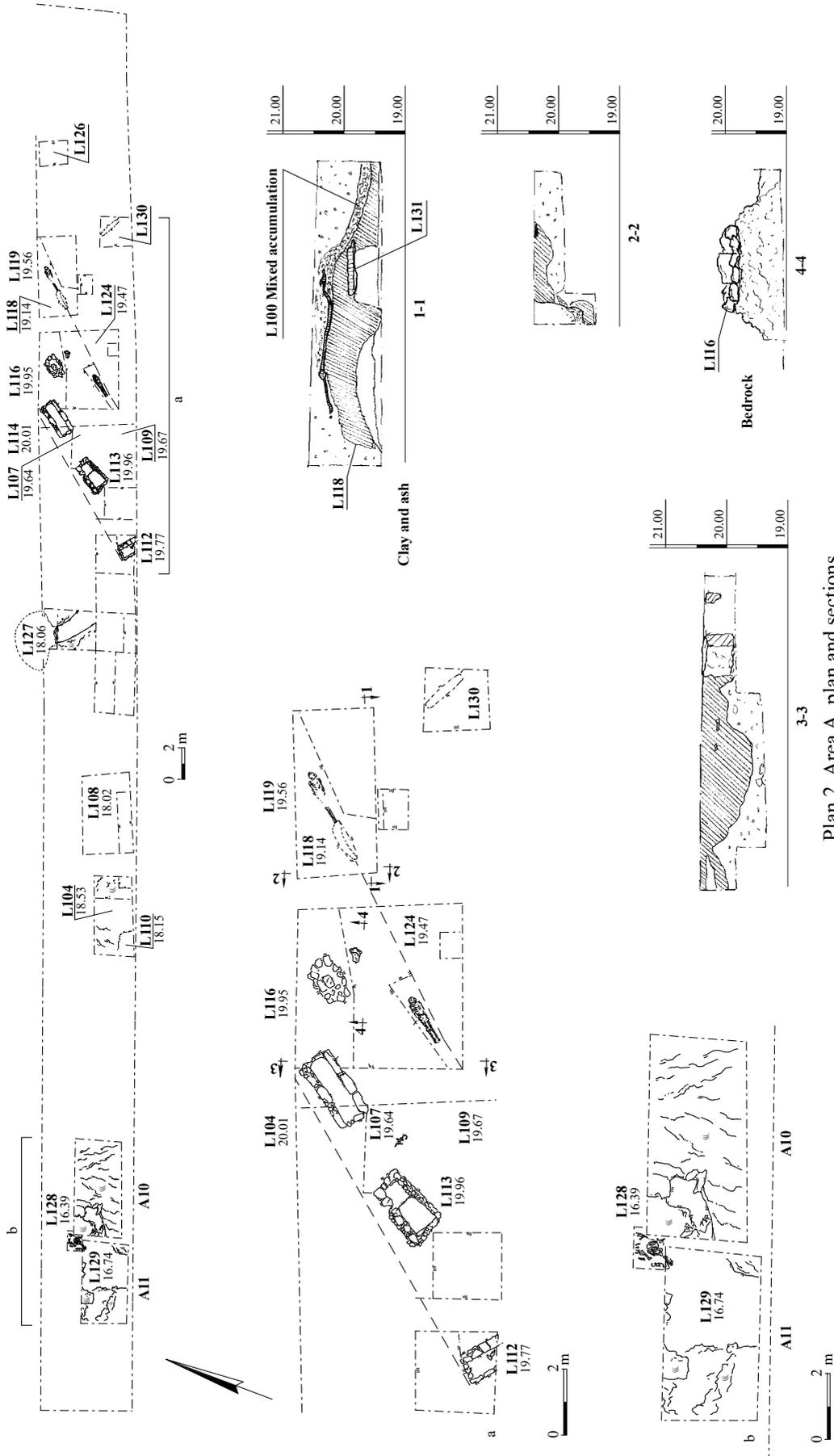
and adjacent soil dated to the Hellenistic period (see Gendelman, this volume; Finkielsztejn, this volume) and a complete unguentarium, of a type often found in funerary contexts, was discovered post-excitation during the removal of the adjoining sidewalk (see Gendelman, this volume: Fig. 2:3). A cowrie shell, possibly used for personal adornment or as an amulet, was found in soil accumulations above the Hellenistic burials (see Ktalav, this volume: Fig. 1:4), but its association with the burials is not solid.

A large space hewn into the *kurkar* bedrock (L127) to the west of the graves (Plan 2) may have served as a burial cave (Table 2: No. 8). Hellenistic burial caves on Andromeda Hill were sealed with masonry walls (Avner-Levy 1998:55), while this cave was loosely blocked with three upright *kurkar* slabs, possibly in a symbolic attempt to shut the space after it was broken in or partially collapsed (Fig. 4). The cave could not be excavated and the dating rests on the Andromeda Hill parallels. A concentration of fallen rocks in a depression southwest of the cave (L129) may mark a second caved-in space. Late Byzantine or Umayyad pottery on bedrock next to the debris may indicate the time of collapse (L128; see Vincenz, this volume: Fig. 1:9).

Additional sherds from this time span from two other locations in Area A (L108, L110; Plan 2; not illustrated) attest to activity there during that time, even if no building remains were recorded. A restorable Rhodian jar found on the shallow bedrock between the two spaces was dated by its stamped handle to between 215 and 200 BCE (see Finkielsztejn,



Fig. 4. Upright slabs blocking Hellenistic(?) burial cave, looking north.



Plan 2. Area A, plan and sections.

this volume: Fig. 1:22). Six more stamped handles were found in the excavation: three dated to 225–200 BCE (see Finkielsztejn, this volume: Fig. 1:23–25), one to the first half of the second century BCE (see Finkielsztejn, this volume: Fig. 1:26) and the remaining two (see Finkielsztejn, this volume: Fig. 1:27, 28), to the second half of the second century BCE.

A waste concentration found in Area D (L438; Plan 1), approximately 2 m under the present street level, contained sherds representing a wide variety of tableware and storage jars (see Gendelman, this volume: Figs. 1:5, 7, 8, 10–12, 14, 15, 17; 2:5–7, 9). Most of the vessels range in date from the fourth to the second century BCE, although the storage jars seem to belong to the earlier part of this period. Among the finds was a fragment of a figurine (Fig. 5:1; 6.5 × 2.5 cm) that appears to be of a standing female draped in a long multi-fold garment. Such images are common in figurines of the Hellenistic period and similar fragments are well-known (Erlich and Kloner 2008: Pls. 16:73; 17:85). While the excavation could not be expanded, the large number of vessels, several of which could be restored, and the lack of associated architecture, suggest a large refuse pit outside the city boundaries. A fragment of what seems to be either a mold for figurines or the back of a crude figurine (5.5 × 1.5 cm; Fig. 5:2) was found in Area C, within a sandy layer close to bedrock that contained Hellenistic pottery. The sherds were found within ashy soil with no affiliated architecture.

The stone foundations of a wall (W534), dry-built of roughly hewn *kurkar* stones, were exposed in Area E, an area otherwise devoid of architectural features (Plan 3: Section 1–1). The wall was discovered approximately 2 m under the present street level and adjoined a packed earth floor (L535). A Hellenistic oil lamp (see Gendelman, this volume: Fig. 2:10) and the lower part of a large jar from the same period were found in the soil above the floor (L524) (Fig. 6). In the jar was a coin of Ptolemy I (305–283 BCE; see Kool, this

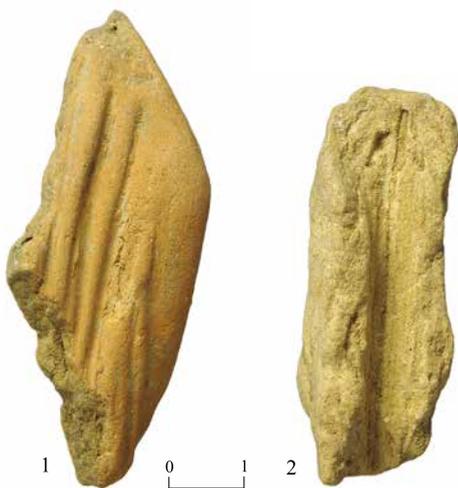
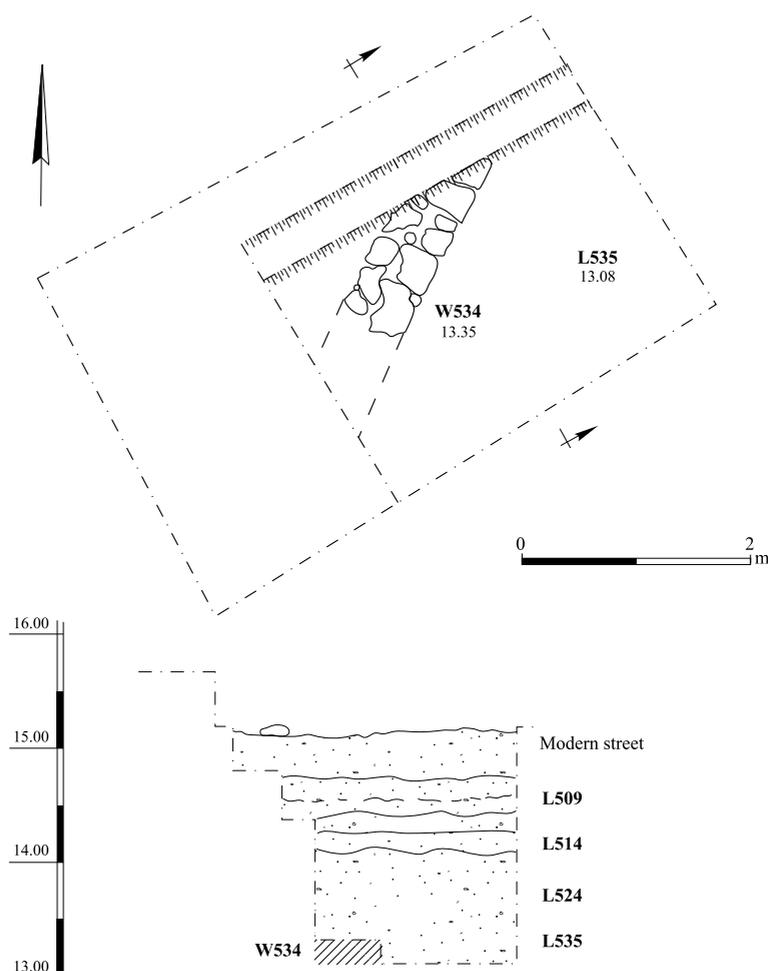


Fig. 5. Fragment of Hellenistic figurine (1) and Hellenistic figurine mold (2).



Fig. 6. Area E, remains of Hellenistic W534 and jar, looking southeast.



Plan 3. Area E, plan and section.

volume: Cat. No. 1). The only other Ptolemaic coin found in the excavations came from a late Ottoman layer in Area F (see Kool, this volume: Cat. No. 3); a pyramidal-shaped loomweight (height 8.5 cm, width at head 2.5 cm, width at base 5 cm) was found in the same Ottoman context (Fig. 7:1). Another, smaller loomweight (height 6 cm, width at head 1.5 cm, width at base 4 cm), was found in a mixed layer containing pottery from the Hellenistic through the Byzantine, medieval and late Ottoman periods (Fig. 7:2). Loomweights of this type were common finds at Hellenistic and Early Roman sites, and are reported from numerous excavations (Shamir 1996: Pl. 11.17, and see p. 148 for additional references; 2007: Photograph 1.1.b; Paz and Paz 2006: Fig. 14.13). Use of these weights ceased at the end of the first century CE with the spread of horizontal looms.



Fig. 7. Hellenistic-period pyramidal loomweights.

Stratum V: The Roman Period

Structures from various phases of the Roman period were discovered in Kaplan's Area C, presently within the visitors' center at Qedumim Square (Kaplan 1962:149; 1964c; Burke, Peilstöcker and Pierce 2014:12–13). Yet, with the exception of fragmentary Late Roman-period walls at the Ganor Compound (Peilstöcker and Burke 2011:180), no Roman building remains were discovered beyond the mound's perimeter; apparently, the grounds to the east of the mound were used exclusively for burial (Arbel 2017b:70–72). Other than the graves found at the Postal Compound, all Roman burials were associated with a pagan population (Jakoel 2013; 2017).

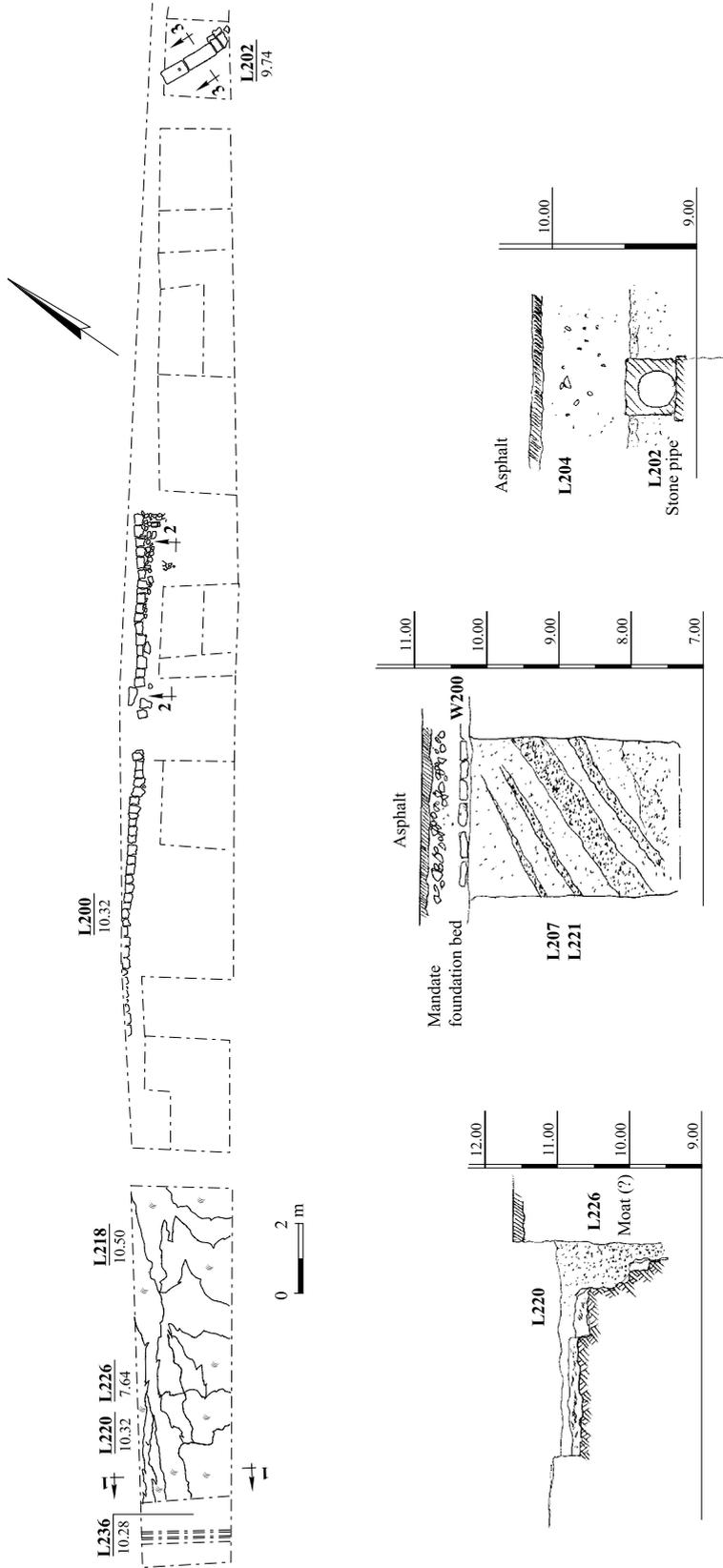
Several Late Roman graves were previously excavated near the southwestern portion of Me-Raguza Street (Ginzburg 2000:42; Jakoel 2013:90–101; Arbel 2015); they were part of the extensive burial complex on Andromeda Hill, south of the city's historical limits. Four additional Roman cist graves (L112–L114, L116) belonging to the same complex were exposed in Me-Raguza Street's Area A (Plan 2; Table 2: Nos. 4–7). The graves were delineated with local *kurkar* stones, some of them partially dressed (Fig. 8). At least one of the graves (L116) was installed on bedrock (Plan 2: Section 1–1). Cist Grave 112 was partially excavated. In its northwestern part, next to the skeleton's legs, were four glass bottles and a bowl or beaker dated to the Roman period. Three of the bottles (see Ouahnouna, this volume: Fig. 1:1–3), of the common candlestick type, were found intact. The globular bottle found in the same tomb (see Ouahnouna, this volume: Fig. 1:4) dates, based on comparative materials, to the third century CE, and is thus more useful as a means



Fig. 8. Area A, Late Roman cist grave (L116), looking southwest.

of attaining a finer resolution for the burial field. The other graves could not be excavated; however, they resembled Cist Grave 112 in their elevation, form and stratigraphic position above the Hellenistic pit graves.

A tripod basalt mortar was found in the layer covering the Roman burials (see Fig. 27:1). This is a vessel type that is common in many periods. An association with possible non-funerary activities in this area during the funerary stage remains speculative. A fragment of a Roman amphora dated to the first century CE was discovered in later contexts in Area F (not illustrated). Roman-period pottery was also found in Area B, in the northern part of the street (see Gendelman, this volume: Fig. 3). The small assemblage included several fragments of household vessels dated to the first century CE, discovered near bedrock level (L218, L220; Plan 4). Two Roman-period coins were also found (see Kool, this volume): the earlier coin (Cat. No. 6), struck under Nero (54–68 CE), was found in Area C in soil accumulations near bedrock level, along with pottery ranging from the Hellenistic to the Byzantine periods; the later coin (Cat. No. 7) is a Roman provincial mint from the second or third century CE, found out of context in waste accumulation in Area D (L438; Plan 1).



Plan 4. Area B, plan and sections.

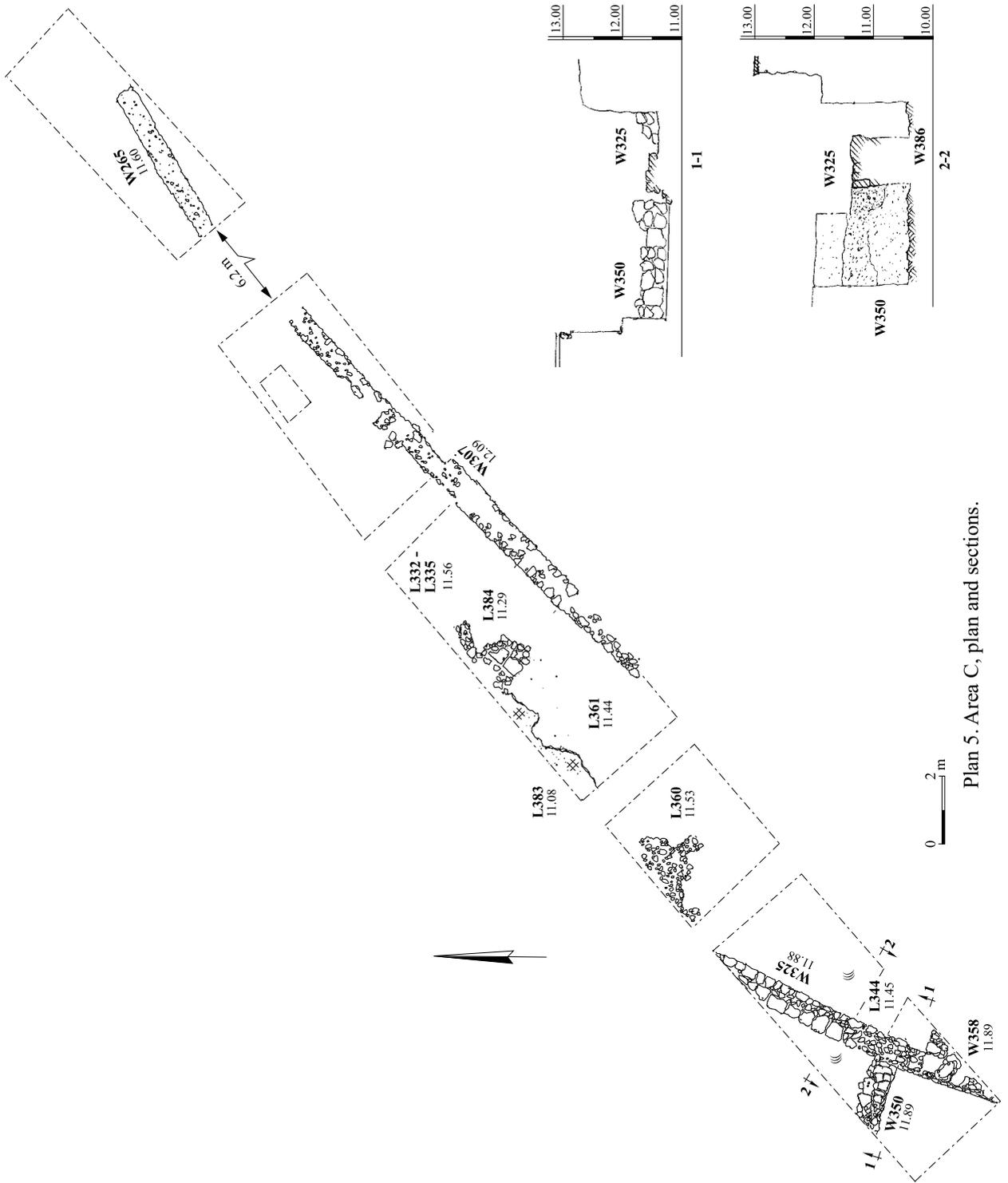
Stratum IV: The Byzantine Period

Following several centuries of Hasmonean and Roman rule, during which Yafo was limited to its mound, the town began expanding eastward again, a process that continued, to various extents, until the fall of the Crusader city in 1268. Byzantine strata were exposed in the area of the Flea Market, in the Ganor and French Hospital Compounds (Peilstöcker et al. 2006; Re'em 2010; Peilstöcker and Burke 2011:181) and on Shim'on Ha-Zadiq Street (Glick 2017). Among the remains were industrial and agricultural installations, graves, a bathhouse and two public structures.

Byzantine pottery was found in various parts of Me-Raguza Street (see, e.g., Vincenz, this volume: Figs. 1, 2). Structural remains were rare and close-by Byzantine potsherds consisted mostly of characteristic storage-jar body sherds (not illustrated; see, e.g., Vincenz, this volume: Fig. 2:1–6). Building remains were found only in Area C, comprising three adjoining walls with one to two surviving courses. Wall 325 seems to have been the structural spine of a building with rooms or courtyards on both its sides (Plan 5). Two perpendicular walls (W350, W358), of which only short parts could be exposed, formed at least four different spaces (Fig. 9). Wall 325 is slightly wider than the other walls, yet all



Fig. 9. Area D, Byzantine wall foundations, looking northeast.



Plan 5. Area C, plan and sections.

were similarly constructed of two rows of dry-built roughly cut fieldstones with smaller stones and dirt in between. The lack of openings, floors or installations indicate that these were building foundations. In the absence of floors, dating the walls is inconclusive, and it is likewise hard to define the building's function, although the wall dimensions and construction style suggest a domestic unit.

Although both Byzantine and Crusader dates are viable, several facts support the former option: (1) except for a single, possibly accidental sherd of a Crusader cooking pot (see Stern, this volume: Fig. 1:3), the latest sherds sealed under W325 were Byzantine (L386; see Vincenz, this volume: Fig. 1:4);³ (2) Early Islamic body sherds (not illustrated) were found in a robbers' trench under missing parts of W325; (3) remains of the Crusader fortifications were found to the west of Me-Raguza Street, marking the broadest expansion of the Crusader city, and therefore, the presence of a structure abutting the wall from the outside is unlikely.

Building remains of possible Byzantine date were discovered during inspection and mechanical clearing at the northeastern part of Area Bw. They could not be further exposed and were covered after basic documentation. Byzantine pottery was collected from soil close by. Two Byzantine cist graves (Area Bw, L237, L238; Fig. 10; Table 2: Nos. 11, 12),



Fig. 10. Area Bw, Byzantine-period graves, looking north.

³ A coin of the Hasmonean King Alexander Jannaeus (104–76 BCE) was also found under the wall (see Kool, this volume: Cat. No. 4). While out of context, the coin deserves mention, as it is one of the few Hasmonean mints to be found in Yafó's Lower City, which was nearly abandoned during the second half of the second century BCE (Arbel 2011:192). Another Hasmonean coin was found in Area A. The coin, a mint of Antiochus VII (138–129 BCE), comes from near topsoil level in a layer containing pottery from the Hellenistic to the Byzantine periods (see Kool, this volume: Cat. No. 2).

capped with *kurkar* and sandstone slabs, were found in that area. The partly excavated western grave was cut into bedrock and its inner space was framed with vertical slabs. The latest datable sherds sealed under the capping slabs apparently belonged to Byzantine bag-shaped jars (not illustrated). The bones could not be removed for analysis. The eastern grave was not opened.

The three Byzantine-period graves previously discovered on Me-Raguza Street were located at a short distance from Area Bw (Peilstöcker 1998). The presence of graves alongside industrial and residential remains may reflect alterations in the function of the area in the Byzantine period.

Only one Byzantine-period coin, dated to the first half of the sixth century CE, was found (see Kool, this volume: Cat. No. 8). It was retrieved from Area J, within sandy accumulations near topsoil, along with late Ottoman-period artifacts.

Stratum III: The Crusader Period

Two parts of Yafo's thirteenth-century CE defense wall were discovered at the junctions of Me-Raguza Street and Rabbi Pinhas Street (Arbel 2008) and of Me-Raguza Street and 'Ami'ad Street (Peilstöcker et al. 2006). These, and the architectural remains found in various parts of the Flea Market, place Me-Raguza Street on Crusader Yafo's eastern limits. No Crusader-period remains have been detected on or beyond the street, and the volume of medieval pottery and other artifacts also diminishes there significantly.

Crusader-period sherds appeared under a sandy layer that separated them from the higher Ottoman levels. Sand layers between late Ottoman and Crusader strata were noted at other sites in Yafo, notably on Ha-Zorfim Street, where the sand layer was interpreted as wind-blown deposits that had accumulated during centuries of abandonment between the two periods (Kaplan 1974; Arbel 2010). Contrary to the sand layers on Ha-Zorfim Street, on Me-Raguza Street there were small quantities of Ottoman-period pottery in the sand, which may indicate that the sand was introduced by human activity, perhaps to level the area for road-paving and construction during the late Ottoman or British Mandate period. Evidence of a Crusader moat along Me-Raguza Street, adjoining the above-mentioned Crusader ramparts, was detected in Area B (L226). Deep sand accumulations there abutted a roughly vertical, possibly artificially hewn face of the bedrock (Plan 4: Section 1–1). The more recent fill may have been intended to level a depression in the topsoil formed by the remains of the moat.

Crusader-period pottery showing evidence of fire was noted in Area A, near the junction of Me-Raguza Street with Yefet Street (L118, L131), within an accumulation of burned clay and ash (see Stern, this volume: Fig. 3). The sherds belonged to bowls produced in Beirut. Although one of the sherds was distorted, the sherds were not related to waste production but rather, to an incident of fire. The layer was exposed at a high spot unrelated to the earlier graves (Plan 2: Section 2–2). A thirteenth-century CE glass bottle was also found in L118 (see Ouahnouna, this volume: Fig. 2:3).



Fig. 11. Area C, remains of industrial waste(?), looking northwest.

Two concentrations of pebbles, ash, industrial waste, animal bones and pottery, as well as worked shells that may have been used as ornaments (see Ktalav, this volume: Fig. 1:5), were found near the Byzantine wall complex in Area C (L344, L360, L361, L384; Plan 5). They were probably related to a floor (L383), covered with a layer of crushed lime and ash and burned stones (Fig. 11). The latest ceramic and glass sherds retrieved there dated to the thirteenth century (see Stern, this volume: Fig. 2:6; Ouahnouna, this volume: Fig. 2:1).

Stratum II: The Late Ottoman Period

The only early Ottoman find from this excavation was a coin from the fifteenth or sixteenth century CE (Kool, this volume: Cat. No. 9) found in a mixed layer in Area E.

Most late Ottoman finds are related to agricultural activity in areas east of the mound during the eighteenth and nineteenth centuries CE (Arbel 2017a:77–82). Nothing remains of the orchards that had once existed here, other than small plots in private courtyards; however, wells and conduits that were part of the irrigation systems of those orchards are often unearthed in excavations. Several of these were found on Rabbi Yehuda Me-Raguza Street, which was paved over the route of the long track that ran through the agricultural plots and connected the harbor area with the roads to Jerusalem and to the north and south

of the country. The track is clearly seen in historical photographs taken by German pilots during World War I.

Two rectangular limestone blocks ($0.9 \times 0.4 \times 0.4$ m, $0.7 \times 0.4 \times 0.4$ m), each with circular shafts cut lengthwise, were found at the northeastern end of Area B (Plan 4: Section 2–2; Figs. 12, 13). The blocks (L202), probably in secondary use, met a channel segment constructed with *kurkar* slabs for frames and for roofing (L202; Table 3: No. 1). Such blocks were used in the Ottoman conduit that conveyed water from the springs of Kabri to ‘Akko (Syon and Tatcher, forthcoming: Figs. 1, 2); one is displayed at the Eretz Israel Museum, Tel Aviv. In Yafo, these are the first examples of such conduits to be discovered and their incorporation into standard channel construction reveals alterations in the operation of the water systems.



Fig. 12. Stone pipe segment.



Fig. 13. Stone pipes incorporated into a late Ottoman channel, looking north.

Table 3. Late Ottoman-Period Agricultural Installations

No.	Area	Locus	Type	Notes
1	B	202	Channel or drain	Stone pipes in secondary use
2	Bw	232	Channel or drain	Possible drain, iron grid against pollutants
3	F	637	Channel	Associated structures
4	West of Area J		Well	In modern courtyard outside excavation limits

Another channel segment found in Area Bw may be part of the same conduit (L232; Table 3: No. 2). The northern end forms a 90-degree corner, leading water eastward in the general direction of the stone blocks in Area B. Here as well, at least two construction phases were noted. The southwestern higher part was built of clay bricks, probably of French production, while *kurkar* slabs consolidated with thick red clay were used for the channel's southeastern extension. Both segments were coated with plaster. An iron grid for blocking pollutants was installed in the southwestern part, next to the corner (Fig. 14).

A longer channel segment (L637) came to light in Area F (Plan 6), at the southern, higher part of the street, near its junction with Deror Street (Table 3: No. 3; Plan 6: Sections 1–1; 2–2; Fig. 15). The channel, built of fieldstones consolidated with clay and mortar, was constructed in a sand layer (L629), where late Ottoman ceramic and glazed wares (see Vincenz, this volume: Figs. 5:7, 8; 6:4; 7:5) were found; its inner conduit was coated with light red plaster. No capstones remained. The channel descends north along the southeastern side of the street, turning east under present-day Deror Street. Water flow would have been strong here due to the relatively steep topography, thus the turn curves and the northern edge is 0.3 m higher than the southern edge. A stone-built corner above the curve (W631, W632; Plan 6) lends it additional support. Sherds of late Ottoman Gaza Ware jars, glazed bowls and pseudo-porcelain wares were found above the natural sand, under the layer of the channel (L640; see Vincenz, this volume: Figs. 3:5; 5:3; 9:3).

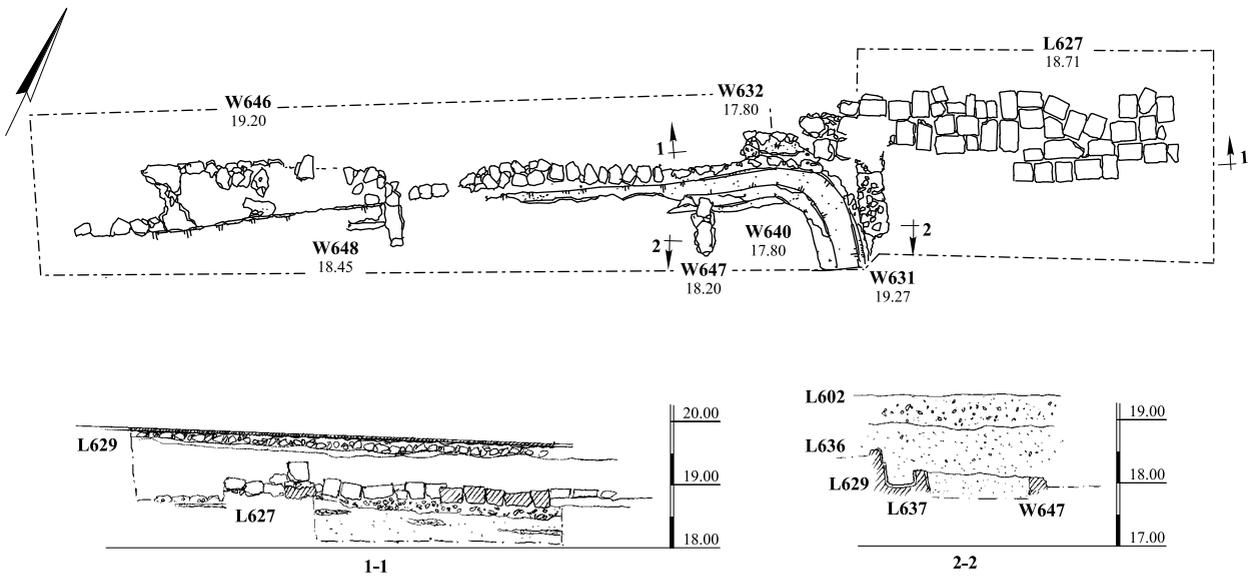
Sometime during the late nineteenth or early twentieth century, the channel was filled in (L636; see Vincenz, this volume: Fig. 4:4) and structures made of roughly cut blocks and fieldstones (W646, W647, W648) were built over it. Wall 646 is a relatively massive wall, built of large, roughly cut *kurkar* stones up to 1 m in width. Its southern part was destroyed,



Fig. 14. Area Bw, iron grid in Ottoman drainage channel, looking south.



Fig. 15. Area F, the late Ottoman irrigation channel, looking west.

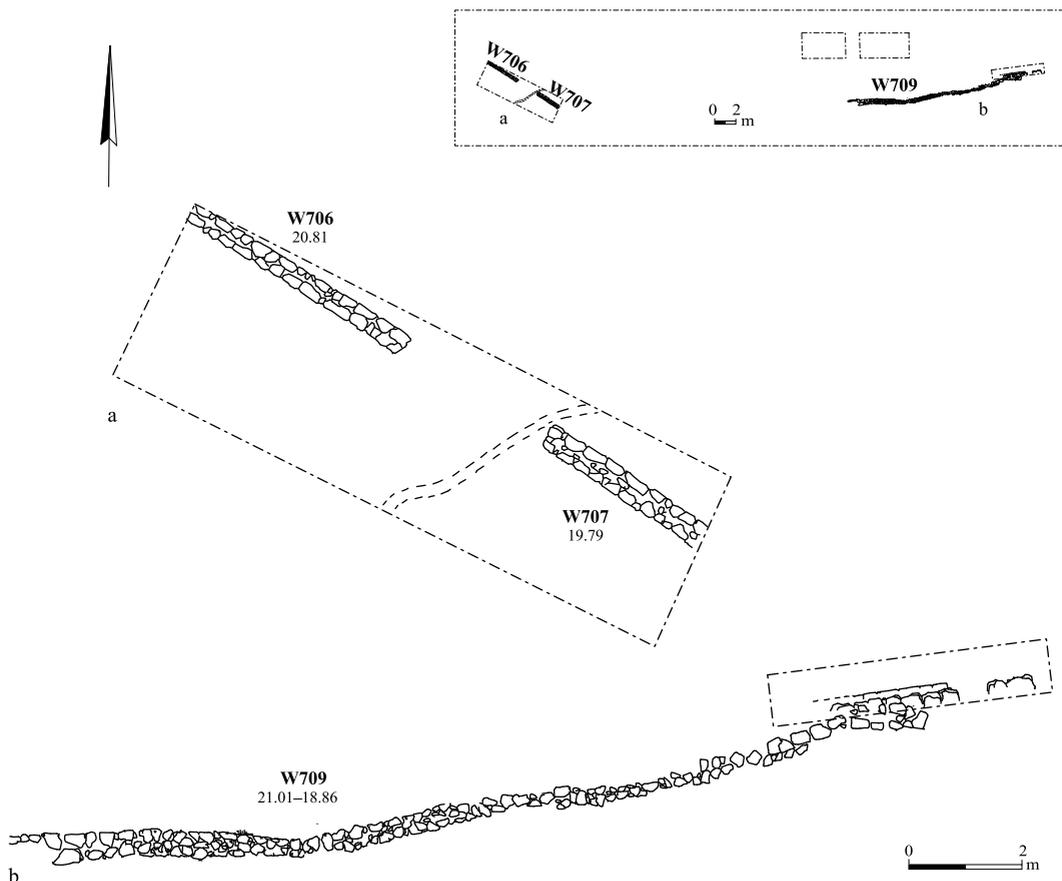


Plan 6. Area F, plan and sections.

and the stones extracted. The bronze tip of a *shebriyeh* scabbard was found in Area F (Fig. 27:3).

Wall 706 (Plan 7), discovered in Area G near the junction of Me-Raguza Street with Yefet Street, was built of stones consolidated with dense clay, a construction method characteristic of the late Ottoman period. It had no affiliated corners, openings or abutting floors and installations, and may have been a fence or a foundation. The wall was cut by a British Mandate electricity line (see Fig. 22). Three nineteenth-century Ottoman coins (see Kool, this volume: Cat. Nos. 10, 12, 13) were found in associated soil accumulations. The coins were mints of Abdul Mecid (1839–1861) and Abdul Aziz (1861–1873).

Wall 709 (Plan 7), exposed in Area G near the junction of Me-Raguza Street and Even Shoshan Street (Fig. 16), was apparently a retaining wall for the southeastern side of Me-Raguza Street, tilting slightly into the soil embankment against which it was built (exposed length approximately 13 m, width at least 0.8 m); it extended into the sections. The wall was constructed of uncut or partially cut *kurkar* stones with dense clayey material. Up to eleven courses remained, with larger stones used for the foundations. Some of the stones were removed from abandoned houses, as shown by remains of colored plaster on their



Plan 7. Area G, plan and sections.

faces. Wall 709 gradually curved toward the descent of present-day Even Shoshan Street, isolating the higher ground it was intended to support. A map and a photograph from the early twentieth century show tennis courts on the plot supported by the wall, although it is likely to have originally been built to support an earlier structure that was later demolished.

A feature (L627) assembled out of large *kurkar* building blocks (average size: $0.18 \times 0.22 \times 0.26$ m) was exposed to the south of Channel 637 (Fig. 17), directly under the foundation bed of the modern paving. The feature appears to be a concentration of dismantled building blocks intended for use in new construction. Its southern end formed a straight line, marking the feature's limit (Plan 6). Some of the stones were removed from Ottoman-period buildings, as shown by remains of painted plaster on their faces. Debris that included similar building stones found over the feature may have belonged to an associated or later structure, possibly the structure whose corner (W632/W631) was exposed at the feature's western end. Late Ottoman glazed and pseudo-porcelain bowls, as well as porcelain coffee cups, were found under the feature (see Vincenz, this volume: Figs. 5:6; 6:2, 6, 7, 9; 7:1, 6; 8:4), along with large glass bottles inscribed with the words "London" and "Palestine". British products were common imports during both the late Ottoman and Mandate periods (see Vincenz, this volume), thus the bottles may date to either one. Soil accumulations abutting the platform contained late Ottoman pottery and coins from the eighteenth and nineteenth centuries (see Kool, this volume: Cat. Nos. 11, 15).



Fig. 16. Area G, Retaining W709, looking north.



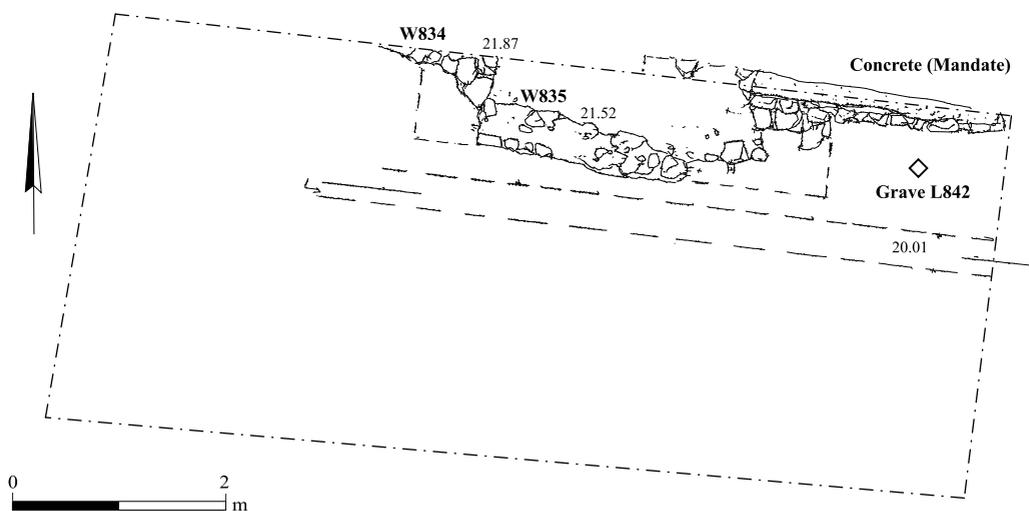
Fig. 17. Area F, the late Ottoman 'platform', looking west.

Three mother-of-pearl buttons, probably of European manufacture, were found in Ottoman layers (see Ktalav, this volume: Fig. 1:1–3). Mother-of-pearl shells reached Yafo as waste material of the European button industry and were transferred to Jerusalem and Bethlehem for secondary use in religious and other souvenir industries.

Two late Ottoman walls (W834, W835) were also found on the opposite side of this part of the street (Plan 8). The construction style, the pottery and a coin (see Kool, this volume: Cat. No. 14) of Abdul Ḥamid II (1876–1909) provide a clear late Ottoman date. The walls were disturbed and partly covered by British Mandate pipelines and a concrete block. Among the finds from the fill covering the walls was a lead *bullā*, similar to types used to seal documents as late as the nineteenth century CE, and a small lead weight (Fig. 27:2, 13). The skeleton of a horse found in an Ottoman layer in Area A (L129; see Sade, this volume) is the only example of articulated animal remains in the excavation.

Concentrations of disarticulated or partially articulated human bones were discovered in the northeastern part of Me-Raguza Street, near its junction with Rabbi Pinḥas Street (Area B/BW: L236 [Plan 4]; Area C: L332–L335 [Plan 1]; Table 2: Nos. 10, 13, 15), below the foundation bed of the present street. Late Ottoman pottery predominated in the layer containing the bones. This layer was disturbed by several early twentieth-century lime pits. Disarticulated bones in burials were also found in adjacent Rabbi Pinḥas Street, in the Flea Market (Arbel 2008). These burials were likely part of one cemetery, possibly dated to the seventeenth or eighteenth century. Burial in these grounds ceased once agricultural cultivation resumed and a new Muslim cemetery was inaugurated to the north of the city (Arbel 2017b:102).

Late Ottoman features were also observed and recorded along the street beyond the limits of the excavation. These include a well (Table 3: No. 4; Fig. 18) in a courtyard next to Area J (Me-Raguza Street 34), clay drainage pipes incorporated into the stone-built walls of a derelict Ottoman well-house (end of Avitsur Street, an alley off Me-Raguza Street 15; Fig.



Plan 8. Area J.

19) and steel rails with Ottoman commemorative inscriptions (Figs. 20, 21) in secondary use in the frame of a gate (15 Me-Raguza Street), which led into a structure identified in aerial photographs taken during World War I. The inscriptions, which mention the year 1907, consist of greetings from the Ottoman sultan upon the completion of the construction of part of the Hejaz



Fig. 18. An Ottoman-period well, looking west.



Fig. 20. Gate incorporating Ottoman rails, looking northeast.



Fig. 19. Ottoman clay drainage pipe, looking north.



Fig. 21. Segment of Ottoman rail, looking southwest.

railway (Levanoni 2006).⁴ Similar inscribed rails are incorporated in a private house in Bet Leḥem Ha-Gelilit, north of the Jezreel Valley, and in the sculpture “Holocaust” by the Israeli artist Yigal Tumarkin, at Bet Gabriel in the Kinneret Cultural and Social Center, Zemaḥ, at the southern tip of the Sea of Galilee.

Stratum I: The British Mandate Period

Present-day Me-Raguza Street was paved during the British Mandate period, when it was known as Zukak el-Butna (Alley of the Oak). The street ran along the eastern margins of a Mandate building complex, the present location of the Flea Market. Contemporaneous infrastructure, still active or obsolete, was discovered under all the excavation areas (Fig. 22) and the original electricity posts can still be seen on the sidewalks. Mandate-installed sewer lines functioned until the present renovations (Fig. 23). Two of the eight original sewer lids that until recently remained in their original locations in Yafo were on Yehuda Me-Raguza Street; a third was on Deror Street near its intersection with Me-Raguza Street (Fig. 24).⁵

Wall 200 (Area B), a long single course of stones that apparently served as the eastern limit of the street at an earlier phase (Fig. 25), is difficult to date with precision because it was covered by the foundation bed of the later British Mandate street (Plan 4: Section 7–7). A date in the 1920s is likely, as this is the time when the agricultural lands were gradually eliminated to provide land for the growing urban sphere.

A 5-mils coin from 1942 was found under the foundation bed of the British Mandate street in Area G (see Kool, this volume: Cat. No. 16). A button from a British military or police uniform was also recovered from the same area (Fig. 26); it measured 1.7 cm in diameter and was probably made of brass. On the front is a depiction of the British Royal Coat of Arms, with the English lion and the Scottish unicorn flanking a shield carrying the emblems of England, Scotland and Ireland. The motto *Honi soit qui mal y pense* (“Shame on him who thinks evil of it”) appears on a garter on the perimeter of the shield. Above it is a helmet with a crest and a crown, and below it, the royal motto *Dieu et mon droit* (“God and my Right”). The attachment ring was preserved on the button’s back.⁶ The button was well-

⁴ The rails unfortunately disappeared during the construction of the outer wall of a new housing complex on the same plot.

⁵ Inscriptions in Arabic and in English on the Me-Raguza Street lids read: “Jaffa Municipality. The Jaffa Foundry.” The lids were likely produced at the Palestine Iron and Brass Foundry established in 1931 on Jerusalem Road—present-day Bet Eshel Street; see original advertisement in <http://btd.palestine-studies.org/content/palestine-iron-and-brass-foundry>. The Deror Street lid and four lids from other locations in Yafo carry slightly different inscriptions: “Jaffa Municipality Company Limited. The Palestine Foundry (sic),” and can be traced to the Palestine Foundry and Metal Works near Haifa, established in 1933 (Klieman 1987:27). The Mandate lids were replaced by new ones in recent years and can no longer be found in this part of Yafo.

⁶ For summaries concerning such buttons and the British Coat of Arms, see: http://www.great-war-assoc.org/bef_regs.htm, <http://www.unicornlady.net/quotes/quotes2.html>, <http://www.britroyals.com/arms.htm>

preserved. Less preserved yet clearly identifiable examples from Yafo were found at the Qishle (Arbel, in press: Fig. 3.40a, b) and on Ha-Zorfim Street (Arbel, forthcoming: Figs. 2.54; 2.55). The Ha-Zorfim item carries the producer's name, "W. Deakin & Co.," on its back. A British button of a different type, depicting only a large crown, was found on Ruslan Street (Raphael, forthcoming: Fig. 14.16). Three British military buttons from Moza were published (Greenhut 2009: Fig. 9.2:11; Peretz 2019: Fig. 3:11, 12) and additional buttons were found at the site of Nebi Samuel, north of Jerusalem, and at other sites in the vicinity (Asaf Peretz, pers. comm.).⁷



Fig. 22. British electricity line cutting late Ottoman wall, looking north.



Fig. 23. British Mandate sewer line and lid, looking west.



Fig. 24. British Mandate sewer lids produced in Yafo, on Me-Raguza and Deror Streets.

⁷ Detailed information appears in Peretz' M.A. thesis (The Hebrew University, Jerusalem, in prep.).



Fig. 25. Stone curb on the original street, looking north.



Fig. 26. Button from a British uniform.

THE FINDS

Datable objects from clear occupation contexts were presented above within the stratigraphic description. Most of the items presented below come from mixed layers and various soil accumulations. The lack of a clear stratigraphic context of the items makes dating them with precision difficult and often impossible. Yet, the items are an important addition to the growing corpus of archaeological materials from Yafo, particularly the area outside the mound.

Tripod Basalt Bowl (diam. 11 cm, height 5 cm; Fig. 27:1).— This fragment represents approximately a third of the vessel. It was found in Area A, in the layer covering the Roman burial field, below the modern street's foundation bed. One of probably three stubby legs (height 4 cm) remains. It was fashioned from a single block of fine-grained basalt, its inner

surface polished. This type of vessel, used for grinding various materials for medical, cosmetic and other purposes, is known from as early as the Bronze and Iron Ages, but was also used in later periods. It is thus a common find in archaeological excavations (Singer-Avitz 1989: Fig. 31.2:1, 2; Hovers 1996:178; Stern 2007b: Fig. 4.11:1; Eirikh-Rose 2009: Fig. 8.5:2; Taxel 2009: Fig. 4). It is unclear whether it was associated with the burial ground or accidentally reached the spot of discovery.

Lead Bulla (diam. 2 cm; Fig. 27:2). The *bullae* is oval, with a knob on top, possibly part of a thread attachment. No writing or symbols could be discerned. This item was found in Area J, near the junction of Me-Raguza and Yefet Streets, in the foundation bed of what was probably the Ottoman dirt track that preceded the urban street. Lead *bullae* were found at other sites in Yafo, such as the Qishle, Ha-Zorfim Street, the Magen Avraham Compound, the Greek Market and Louis Pasteur Street. The best-preserved example was found under a late Ottoman stone paving on Ha-Zorfim Street. The legible inscription associates it with the Austrian Lloyd Shipping Company (Arbel 2014). A seal tentatively affiliated with the French Lafarge Company, which took part in the construction of the Suez Canal and is still in operation as an international company for construction materials, was found near a late Ottoman irrigation channel in the Greek Market (Arbel 2016).

Bronze Shebriyeh/Scabbard Tip (length 8 cm, width 3.5 cm; Fig. 27:3).— This artifact was found in Area F, within a sand layer containing Byzantine and late Ottoman pottery. The pointed edge of the weapon demanded a sheet-metal tip at the lower end of the scabbard, which was made of leather or some other organic material. A similar object was found in a late Ottoman context at the French School (Arbel and Talmi, this volume: Fig. 12). Similar objects were reported from a variety of sites and periods (Johns 1936:50: Fig. 16:8, 9; Khamis 2008:184, No. 85; Stiebel 2014: Fig. 4.22:74, 77).

Bronze Inlay (length 5 cm, width 1 cm; Fig. 27:4).— This violin-shaped inlay, with a circle on top, is likely to have decorated a wooden box. It was found in Area J, within the foundation bed of the late Ottoman field track that preceded the modern street. Various inlays were found in Yafo at the Qishle Compound (Raphael, in press: Fig. 20:19) and the Magen Avraham Compound (see Arbel, this volume: Fig. 2:4–7). These objects are often tentatively identified as box inlays due to their shape, their aesthetic exterior face and their similarity to both traditional and modern examples.

Bronze Spatula or Kohl Stick (length 12 cm; Fig. 27:5).— This plain shaft is bent at the middle, its blade missing; its original use cannot be clearly determined. It was found in Area G, in soil accumulations abutting a large late Ottoman retaining wall (W709). Similar items have been recorded from various sites and periods (Messika 2006: Fig. 23.1; Khamis 2008: Cat. Nos. 18a, 18b; Tal and Taxel 2008:197, Fig. 6.133:3; Taxel 2009: Fig. 5.6:5; Sardoyev and Sion 2014: Fig. 49:8).



Fig. 27. Various stone and metal objects.

Bronze Pin (length 3 cm; Fig. 27:6).— This thin fragile pin was probably used as a semi-decorative element in fine clothing. It was found intact under the late Ottoman field track in Area J.

Iron Nails (Fig. 27:7–10).— All these nails were found in mixed soil accumulations. Number 7 (length 11 cm, diam. 1.5 cm) comes from contexts dominated by late Ottoman pottery, while Nos. 8 (length 2.5 cm, diam. 1.5) and 9 (length 2 cm, diam. 0.8 cm) originated in accumulations containing pottery dated to the Hellenistic, Byzantine, Crusader and late

Ottoman periods. The nails are basic types that have remained almost unchanged throughout history (Amitai-Preiss 2004: Fig. 11:4; Stern 2007a, Photograph 8.4:1; Tal and Taxel 2008, Fig. 6.135:4–7; Taxel 2009: Fig. 5.4:2–6; Sardoyev and Sion 2014: Fig. 53:4; and many more examples), with smaller types still used in construction and maintenance till this day. Number 10 measures length 6 cm, diam. 0.9.

Iron Horseshoe (length 9 cm, width 2 cm; Fig. 27:11).— This open, U-shaped horseshoe, of a European type, was adopted by the Ottomans and prevailed in the region for centuries. It was found in Area D, in a soil accumulation containing mostly late Ottoman pottery. Horseshoes are frequently found in late Ottoman contexts in Yafo (Raphael 2017:236–238, Figs. 13:12, 13; 14). The largest concentration to date was found at the Qishle, which, as a police and military base, must have had its own stables (Raphael, in press: Fig. 20:1).

Bronze Disk (diam. 2 cm; Fig. 27:12).— The disk has a broad outer band, with three protruding concentric circles around a central perforation (diam. 0.3 cm). It was possibly part of a cartridge from hunting ammunition. It was found in Area J, in a sand layer containing mostly late Ottoman pottery. Alternatively, it may be an inlay or a button. A similar artifact was found on Ruslan Street, Yafo (Raphael, forthcoming: Fig. 14:17).

Lead Weight(?) (base diam. 1.5 cm, length 1.5 cm, weight 19 g; Fig. 27:13).— This solid, bell-shaped, flat-bottomed weight has a bent knob on top, possibly the remnant of a tying ring, and vertical decorative grooves along the body. It was found in Area J in mixed soil containing mostly late Ottoman pottery. Similar objects were found at the Flea Market (Raphael 2017:238–239, Fig. 13:1) and the Magen Avraham Compound (Arbel, this volume: Fig. 1:1). The type changed little over time and examples are found in layers dating from the Roman to the medieval period.

Iron Buckle (diam. 4 cm; Fig. 27:14).— This trapezoid buckle has a tang (4 cm). It was found in Area E, within a sandy layer containing pottery from the Hellenistic and Byzantine periods. Belt buckles show much variety with use of both bronze and, less frequently, iron (Boas 2006: Fig. 21:146; Taxel 2009: Fig. 6.6:4; Sardoyev and Sion 2014: Fig. 50:1–3; Raphael 2017:240, Fig. 13:20).

Slate Whetstone (length 7 cm, width 3.5 cm, thickness 1.5 cm; Fig. 27:15).— This rectangular, block-shaped, whetstone has one end broken. Grooves and use marks are visible on its surfaces. It was found within a Crusader waste pit in Area J. Whetstones of various shapes and materials were used from early antiquity until recent times. Various whetstones were found in Yafo, yet the context in which this item was found makes a Crusader dating likely.

CONCLUSIONS

The Me-Raguza Street MB IIA infant jar burial uncovered in Area D is a find of considerable significance, as it originated in Yafo in its nascent phase. It is hoped that future archaeological probes into deeper layers in this part of the city will yield additional discoveries that may shed more light on this period.

The Hellenistic burials and waste concentration, the Roman graves and the lack of Crusader buildings confirm the impression that Yafo's eastern limits did not extend beyond Rabbi Yehuda Me-Raguza Street, even during the city's farthest expansion. Most of the Hellenistic pottery types found at the site spanned the entire Hellenistic period (fourth–mid-second centuries BCE), but a statistical analysis of the storage jars and amphorae showed a marked advantage to the earlier types (late fourth–third centuries BCE). It is noteworthy that a single mold-made lamp, a frequent type during the second and first centuries BCE, was found together with several wheel-made types, whose range goes back far earlier. Apparently, Hellenistic occupation in this part of Yafo consisted of scattered dwellings and farms, with settlement beginning early in the period, possibly when Yafo was under Ptolemaic rule. The Hellenistic presence seems to have peaked during this time and evidence indicates a decrease in settlement density during the second century BCE. The Hasmonean conquest probably exacerbated the process of gradual diminishment. The time spanning the first century BCE–third century CE is represented in Yafo's lower grounds only by burials. The sherds and the coin of Nero mint from Area B lacked related architecture. Their presence this far from the mound reflects sporadic rather than permanent human presence. Late Roman graves are common at Andromeda Hill, and the graves at Me-Raguza are part of that extensive burial field.

The Byzantine structure in Area C is the only evidence of construction on Me-Raguza Street. Although the sizable amounts of Byzantine pottery do not appear in architectural contexts, their presence reflects the significant economic, agricultural and demographic development Yafo had enjoyed by the sixth century CE.

The agricultural use of the areas to the east of the mound during the late Ottoman period is well-documented in numerous textual, artistic, cartographic and photographic records. The channels and well on Me-Raguza Street join the growing corpus of archaeological finds reflecting the intense agricultural exploitation of these grounds during this period.

Area E may have played a role in one of Yafo's more obscure warfare episodes; eight out of the twelve cannon balls and cannon ball fragments found in the excavation were found here (see Glick, this volume: Nos. 1–6, 10, 11), five of them in two loci. These finds may indicate concentrated fire toward this spot, possibly an artillery battery. A typological analysis reveals that this ammunition postdates Napoleon's siege. Accordingly, this episode could have taken place either as part of the intra-Ottoman skirmishes following the French withdrawal or in the context of the Egyptian occupation of 1840–1932.

The excavations on Me-Raguza Street should be examined as part of a wider perspective of the investigation of the Lower City of Yafo and its environs, particularly within the context of the economic lifeline that supported the city and encouraged its progress and prosperity.

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