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"Holy Garbage": A Quantitative Study of the City-Dump of Early Roman Jerusalem

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The chance discovery of an Early Roman city dump (1st century CE) in Jerusalem has yielded for the first time ever quantitative data on garbage components that introduce us to the mundane daily life Jerusalemites led and the kind of animals that were featured in their diet. Most of the garbage consists of pottery shards, all common tableware, while prestige objects are entirely absent. Other significant garbage components include numerous fragments of cooking ovens, wall plaster, animal bones and plant remains. Of the pottery vessels, cooking pots are the most abundant type. Most of the refuse turns out to be "household garbage" originating in the domestic areas of the city, while large numbers of cooking pots may point to the presence of pilgrims. Significantly, the faunal assemblage, which is dominated by kosher species and the clear absence of pigs, set Jerusalem during its peak historical period apart from all other contemporaneous Roman urban centers.

Introduction

During the Early Roman Period (63 BCE to 70 CE), Jerusalem was a large metropolis (ca. 170 hectares) with a resident population of over 30,000 people. It was a temple-city housing the only shrine where the God of Israel could be worshipped. Large numbers of pilgrims gathered in the city three times a year for the main Jewish festivals. The city's prosperity largely derived from its religious status; produce was brought to the city from the many small farms in the Judaean Mountains surrounding the city (e.g. Baruch 1998). Pilgrims brought animal- and plant-based food provisions to the city, part of which was sacrificed on the altar, part given as tithe to the priests and part consumed by the pilgrims themselves. The greater part of the 'second tithe' was consumed by the pilgrims themselves, within the boundaries of the city. From the animal offerings the *Pessah* offering was consumed completely by the pilgrim, as well as greater parts of the *Zebah Shelamim* offering. Due to activities associated with the Temple and its animal sacrifice rites, Jerusalem's population, whether native or foreign, was a major consumer of meat. While historical and archaeological records have given us a wealth of insights into Jerusalem's religious rites and practices, we know virtually nothing about how people in the city spent their daily lives and the kind of animals that were featured in their diet.

Both the resident population and the annual cycles of pilgrimage naturally created large amounts of waste, such as broken pottery and food remains (e.g. animal bone fragments). Excavations near the Temple Mount and within the residential areas have already shown that no waste had accumulated there (Reich and Billig 2000), and thus waste must have been removed, most likely in an organized manner. Recently, the contemporaneous city-dump was identified on the eastern slope of the south-eastern hill of Jerusalem in the form of a thick mantle (up to 10 m, 200,000 m^3) (Reich and Shukron 2003). The dump is located roughly 100 m outside and south-east of the Temple Mount on the eastern slope of

Figure 1. *View of Early Roman Jerusalem city-dump looking south-west.*

the Kidron Valley (fig. 1), and extends at least 400 m and is 50–70 m wide. Large amounts of pottery and coins date the dump to the Early Roman period (the 1st century BCE and the 1st century CE up to the destruction of the city by the Romans in 70 CE). A preliminary study of the garbage (Bouchnik, Bar-Oz and Reich 2004; Bouchnik et al. 2005) showed the presence of animal bones, and a detailed multidisciplinary joint study of the debris was carried out.

While the south-eastern hill of Jerusalem was subject to many excavations in the last 150 years because of its identification with the biblical City of David, the area north of the Gihon Spring was never excavated (fig. 2). A damaged main drainage pipe at the head of the slope allowed the runoff waters of the winter rains to cut a deep (6–7 m) and long (~30 m) ravine perpendicular to the slope and into Early Roman deposits. The exposed ravine is roughly 100 m outside and southeast of the Temple Mount in an open area, c. 150 m north of Gihon spring. A first-hand examination of the section's sides has shown that it is made of a thick mantle of remains without any constructions.

The purpose of this paper is to present the material collected during our meticulous excavations at the dump. We present the garbage according to its components and provide a general summary of the artefacts, animal bone, shells, floral remains, and construction debris collected. We describe the abundance of the finds and attempt to explain the patterns observed in each of the contents of the dump. Preliminary analyses of the animal and floral remains recovered provide the basis for several broad conclusions regarding the composition of the assemblage. Quantitative analysis of the pottery assemblage serves to evaluate the variety of vessels used in Jerusalem.

Excavation and sampling methods

We carried out a large excavation in the Early Roman city-dump of Jerusalem and carefully sifted and floated sediments in order to achieve a maximum retrieval of faunal and floral remains. Excavation was performed along the deep ravine

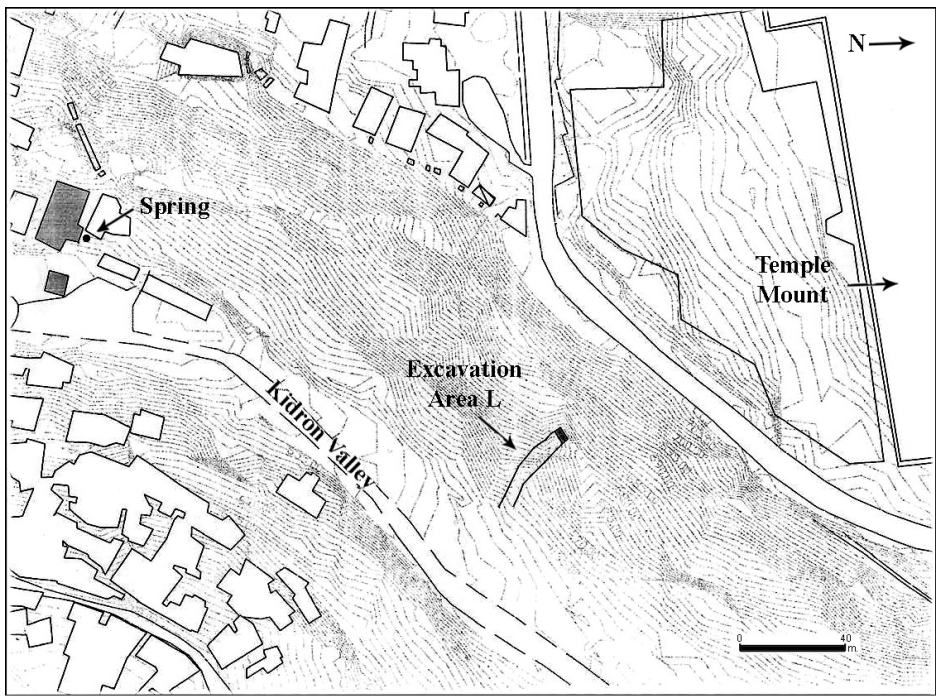

Figure 2. *Location of Early Roman Jerusalem city-dump. The area of excavation (area L) is roughly 100 m outside and south-east of the Temple Mount and 150 m north of Gihon Spring.*

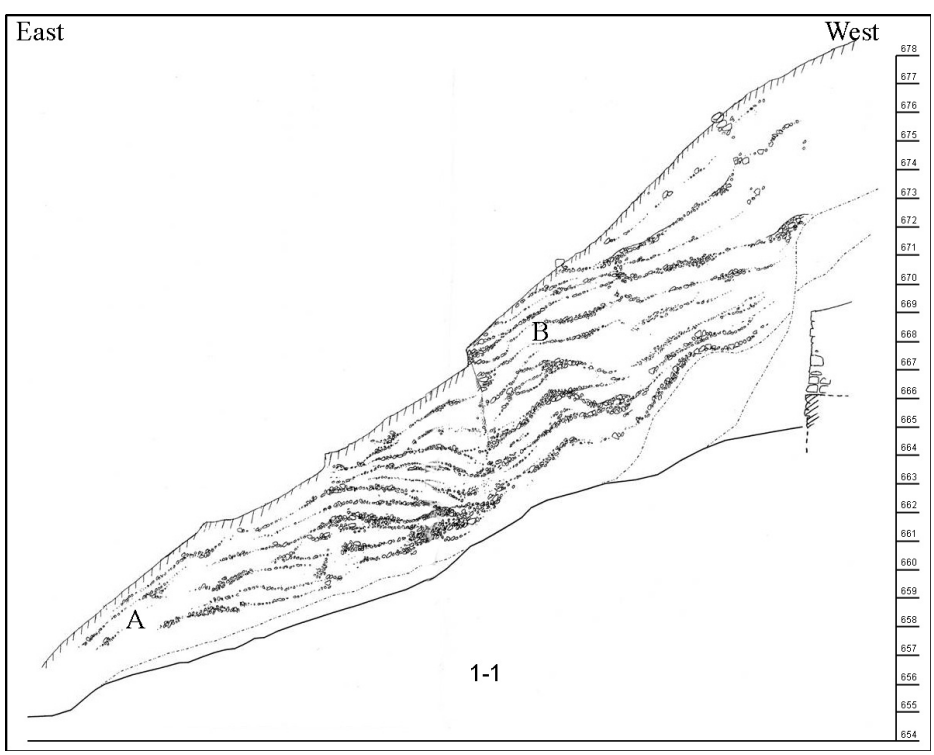

Figure 3. *Drawing of northern section of Jerusalem city-dump looking south. Locations A and B are approximately 15 m apart in distance and 10 m apart in level.*

Table 1. *Quantitative contents of Jerusalem Early Roman city-dump (see fig. 3 for locations of A and B).*

	Location B (upper part of section)		Location A (lower part of section)	
	Amount (g)	%	Amount (g)	%
Sifted earth	14,765	23.3	40,983	42.7
Large non separated residue	9,623	9.6	15,202	11.1
Small non separated residue	7,965	8.0	14,995	11.0
Stones and rubble	28,422	28.5	33,212	24.3
Oven fragments	7,144	7.2	2,028	1.5
Plaster fragments	7,277	7.2	3,700	2.7
Tesserae stones	39	0.05	100	0.07
Pottery shards	15,217	15.3	8,648	6.3
Stone vessels fragments	428	0.43	218	0.16
Animal bones	440	0.44	218	0.16
Total debris	99,700	100	136,850	100

that was created by the broken drainage pipe. Debris was dug at two locations within the ravine, which are c. 15 m apart in distance (areas A and B; fig. 3). Location A was dug by heavy machinery from the inner lower part of the section, while location B was dug by hand from the middle part of the section. All of the excavated sediments were hauled to the nearby premises at Peace Forest for wet-sifting, hand sorting and picking. At the same location, floatation took place for the retrieval of plant remains. Sifting and hand picking was carried out in three levels:

1. A group of 8–10 workers of the nearby village of Silwan were employed for 2 weeks in wet-sifting the debris in a 5 mm mesh sieve. In this way 1,628 buckets (approximately 20 m^3) were sifted. All collected artefacts and faunal remains were kept for further detailed study.
2. For a sample of 20 buckets (approximately 250 L) the entire contents was wet-sifted through 2 mm mesh. Of these, 10 buckets were taken from area A at the bottom of the section and 10 buckets from area B, at the middle part of the section. Following the sifting, the contents were separated into its fractions by hand picking and weighing. The remaining residue, which mainly consisted of soil and small stones, was sifted by a 5 mm mesh and weighed. The sorting and hand picking was done by the authors. This procedure enabled us to characterize the garbage according to its components.
3. The entire cut section was examined, and exposed animal bones were hand collected. This process was repeated after the winter rains that washed down the section from the damaged sewer.
4. Plant remains were collected by floatation. Samples were collected in 10 L buckets. A total number of 38 buckets were taken to floatation, totalling ~340 L of soil. The charred plant remains were recovered using the bucket floatation technique (Stewart and Robertson 1973; Richardson and MaCreey 1978). According to this procedure, a 1.5 mm screen was immersed within a 50 L plastic trash can, almost full of water. The soil was poured into the can, and the light fraction was skimmed out with a 0.3 mm sieve. After the silt was shaken through the screen, the heavy fractions were recovered and laid out to dry. The light fraction was taken indoors to dry slowly. After the light and heavy fractions had dried, they were sorted according to their content. The plant remains, mainly from the light fraction, were packed in cardboard boxes and sent to the laboratory for analysis.

Quantitative contents of the dump

The contents of the garbage by weight, retrieved from two locations, are given in table 1. The debris can be divided into two main categories:

a. Definable materials, including fragments of pottery and stone vessels, stones, animal bones and shells, fragments of cooking ovens, wall plaster debris, and tesserae stones.
b. Indefinable materials, including sifted earth and large and small non-separated residues of the materials mentioned above (smaller than 10 mm in maximum dimension).

A brief examination of table 1 shows some differences in the contents of the debris between locations A and B. The lower debris, which is located at the bottom of the slope (location A), is characterized by an high proportion of sifted earth and low proportions of oven and plaster fragments. Conversely, the upper part of the section (location B) contains low amounts of sifted earth and a high representation of oven and plaster fragments.

It appears that the lower debris is more weathered and disintegrated by the action of winter rain run-off, occasional collapses and landslides on the relatively steep slope. The high disintegration of the material from the lower slope is also reflected by the poor bone preservation, which is heavily weathered and trampled (discussed below). The high rate of

weathering and trampling also accounts for the relatively low proportion of pottery shards in the lower section, many of which have been broken beyond recognition and are represented in the large and small non-separated residues. The more brittle the material is, the bigger the change. Stone oven fragments, made of mud that is barely fired and hence is very brittle, decreased between these locations almost fivefold (from 7.2% to 1.5%). Similarly, plaster fragments decreased from 7.2% to 2.7%. The rest disintegrated into indefinable material of small size. Stones, which are the most durable material in the group, were weathered only slightly, and change between these locations only from 28% to 24.3% of the total.

The components of the dump

Animal Bone Remains

The majority of bones are unidentified long bone fragments. Faunal analysis procedures follow Bar-Oz (2004, 19–33). Intra-site taphonomic comparisons served to determine the most significant agents of assemblage formation (Bar-Oz and Dayan 2003; Bar-Oz and Munro 2004). Many of the bones from the lower section (location A) exhibit a significant amount of post-depositional breakage. This is evident from the high ratio of weathered bones. At least half of the identified bones from the lower section carried typical signs of bone cracking and exfoliation that resulted from the long exposure of bones to subaerial weathering conditions (stages 3–4 of Behrensmeyer's [1978] six weathering stages). It appears that bones from the lower section were exposed for several years prior to burial. Analysis of the breakage patterns (fracture angle, fracture outline, and fracture edge) of long bone shaft fragments (following Villa and Mahieu's [1991] fracture typology) points to the relatively high frequencies of dry bone fractures that are characterized by right, transverse and smooth fractures (over 40%; Bouchnik, personal communication). The high frequency of dry bone fractures suggests that many of the bones were broken after their deposition and were subjected to breakage and modifications by attritional processes such as sediment compaction and trampling. Conversely, the bone assemblage from the upper section (location B) bears low signs of weathering (most are of stages 1–2; Bouchnik, personal communication) and contains low and insignificant evidence of dry bone fractures (lower than 20%). These observations indicate rapid burial and accumulation of deposits. Other patterns of bone surface modifications are not different between the two bone assemblages. Both assemblages lack signs of root damaging and canine or rodent gnawing.

Preliminary analyses of a sample of 2,744 identified bones provide the basis for several broad conclusions regarding the composition of the animal bone assemblage. The faunal assemblage is dominated by domestic livestock. Of these, sheep and goat (79%) and to a lesser extent cattle (*Bos taurus*; 9%) were the major food resources. On the basis of taxonomically distinctive features (Boessneck 1969) sheep (*Ovis aries*) and goat (*Capra hircus*) are represented, in a ratio of 2:1 sheep to goats. Other taxa found include domestic fowl (*Gallus gallus*; 4%), pigeon (*Columba livia*; 4%) and marine and freshwater fish (Cichlidae, Mugilidae, Sparidae and Scombridae; 4%). The assemblage also contains beasts of burden (ass; *Equus asinus*) and small mammals such as rats (*Rattus rattus*), mice (*Mus* sp.) and perching birds (Passiformes) that lived in and around the dump. The small mammals most probably fed on the refuse in the dump or preyed on the invertebrates such as the land snails attracted to the deposits (see below).

The bone assemblage from the city-dump is entirely absent of pig remains. Also, the fish remains are only of kosher species. This clearly indicates that a population of a predominantly Jewish ethnic identity created the city-dump debris (but see also detailed discussions in Hesse 1990; Hesse and Wapnish 1997; and Lev-Tov 2003 on the problems of pigs as ethno-cultural markers). The bone assemblage contained a large proportion of bones of immature sheep and goats (60% are less than 12 months of age based on bone epiphyseal fusion; following Silver 1969), and cattle (over 80%, *ibid*). The high juvenile ratio of sheep and goat and cattle suggests that they were slaughtered primarily for their meat. This may well support the religious Jewish demand to sacrifice young lambs and calves (e.g. *Exodus* 29:28; *Leviticus* 9: 3, 12:6, 23:12 *Numbers* 12:14, 28:3). However, such slaughter patterns have been identified at several contemporaneous Roman sites from Israel (e.g. Horwitz and Tchernov 1989; Horwitz, Tchernov and Dar 1990; Horwitz 1996; 1998; 2000)

Preliminary study of butchery marks shows that they preserve evidence for the major activities of carcass processing, including slaughter, removal of the skin, dismemberment of the carcass, and filleting of meat from the bones (fig. 4). Skeletal part representation of the major taxa reveals that all body parts are represented, although none was recovered in anatomical articulation. The bone remains preserve several butchery marks that appear in very similar anatomical locations on the sheep and goat car-

Figure 4. *Dismemberment cut mark on an axis and a long bone of a sheep-goat specimen. Photograph courtesy of Vladimir Naikin.*

casses. It is tempting to interpret this observation in cultural terms and to conclude that specialized butchers were involved (see also Cope 2004). The occurrence of skeletal elements and butchery marks appears to represent a mixture of both primary butchery (slaughter and carcass division) and secondary butchery (food processing and consumption) (Hellwing and Gophna 1984; Hesse and Wapnish 1985; Horwitz 2001). This suggests that the city-dump was collected from both individual households, and commercial waste.

Preliminary analyses of size and shape of sheep and goat remains tentatively show morphological differences in body size. Some long bones are robust and large while others appear to be more slender and delicate. We could also witness some differences in the wear patterns of some sheep and goat teeth of parallel ages. Such variation could tentatively suggest that animals consumed in Jerusalem were brought from different parts of the country, as geographically separated herds are expected to develop distinct morphological differences due to human selection and environmental pressures (O'Connor 2003).

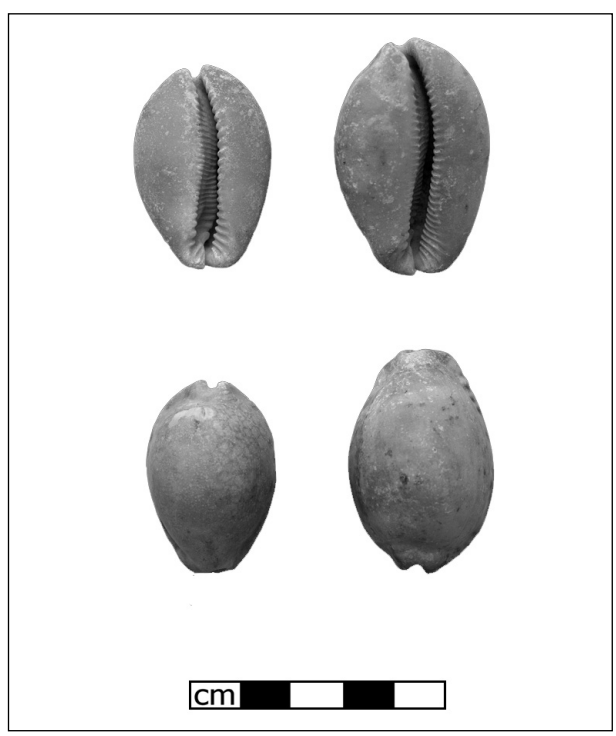

Figure 5. *Cypraea grayana shells. Photograph courtesy of Vladimir Naikin.*

Shells

The mollusc shells found (n=136) represent contacts of people from Jerusalem with other parts of the country and remote areas. About 22% are local shells of freshwater or land snails, that were either discarded at the dump inadvertently (the former) or represent a natural accumulation (the latter). The land snails most probably were attracted to the nitrophilic vegetation that would have developed around the dump deposits. The rest are shells that were collected on the Mediterranean Sea beaches (n=94) and Red Sea (n=6) and probably had an ornamental or functional use (fig. 5). The only bead found is made of the Red Sea *Nerita*. Other shells that could have served as beads were not worked, or were broken. *Pinctada* and the remains of an unidentified mother-of-pearl shell could have served as inlays, or represent broken specimens of decorated valves known from this period (Michaelides 1995). The largest component of shells found is of *Glycymeris* (n=58) from the Mediterranean Sea; many of them were naturally abraded and/or broken and fragmented. Such shells were commonly used for construction during the Late Bronze and Iron Age (Bar-Yosef Mayer 2005). However, their function in Roman-era Jerusalem is unknown. Yet, another large component is *Doanx trunculus* from the Mediterranean Sea (n=24). Although this is an edible species, we can not conclude that it served as food and we do not know its use. Between *Glycemeris*, *Cerastoderma* (n=3) and *Donax*, all common Mediterranean bivalves, 63 (out of 86, 73%) are small fragments. While there is no evidence for their use as ornaments, their presence in the dump prevents us from reconstructing their use. One possibility is that shells were collected for lime plaster production (see below) and only detailed analysis of the plaster in the future may resolve this issue.

Table 2. *Quantitative contents of pottery vessels from an Early Roman private house in the 'Upper city' (House E, Stratum 3) Jerusalem city-dump (lower part).*

	'Upper City' House E, Stratum 3		**City Dump (lower part, Location A)**	
Date	**End 1st century BCE – beginning of 1st century CE**		**1st century CE to 70 CE**	
Vessel type	**N**	**%**	**N**	**%**
Cooking pot (incl. Cooking jugs)	9	9.47	113.0	31.44
Jar	14	14.73	54.875	15.27
Amphora	– *	–	–	–
Oil Lamp	12	12.63	52.0	14.47
Juglet	12	12.63	36.5	10.16
Bottle	8	8.42	34.5	9.60
Unguentarium	7	7.36	–	–
Bowl/ dish	7	7.36	21.75	6.05
Ladle	–	–	14.0	3.89
Jug	5	5.26	12.75	3.54
Flask	10	10.52	12.5	3.47
Miniature bottle	5	5.26	6.0	1.67
Deep bowl /goblet	3	3.15	1.0	0.27
Terra sigillata ware	1	1.05	0.375	0.10
Lid	1	1.05	–	
Total	**95**	**100.00**	**359.25**	**100.00**

* As only complete vessels were counted in House E, the few amphorae rim fragments were left by Geva and Hershkowitz (2006) outside their table.

Artefacts

Pottery: The largest components among the artefacts in the dump are pottery shards. In order to evaluate the relative presence of the vessels found, we have collected and counted indicative fragments for each vessel type. In most pottery vessels (cooking pot, jar, jug, bowl, juglet) the rim was the most indicative fragment. For some vessels we used necks (flask, bottle) or nozzles (oil lamp). In order to estimate the minimum number of complete vessels we employed Mazar and Panitz-Cohen's (2001, 12–13) method. It estimates the size of the rim's circumference by eighths (1/8). For example, 1 complete jug rim, 3 jug fragments of 3/8 of the circumference, 23 of 2/8, and 39 of 1/8 add up to 12.75 jugs.

Location A produced rim fragments that represent a minimum number of 360 complete vessels (table 2). Cooking pots are the most abundant vessel type, followed by jars and oil lamps. The high representation of cooking pots, discarded most likely by both residents and pilgrims, echoes the phenomenon of private houses in the 'Upper City' where abandoned cisterns that served as refuse pits contained large numbers of cooking pots (Avigad 1983).

Currently, only a single assemblage of pottery vessels from a private house in the 'Upper City' has been published with quantitative data on household objects (Geva and Hershkovitz 2006; House E, Stratum 3; table 2). It dates slightly earlier (end 1st century BCE – beginning of 1st century CE) than our dump. No marked differences are observed between House E and the City-dump in jars, oil lamps, bottles, and bowls frequencies. However, a major difference is observed in the presence of the cooking pots (including casseroles and cooking jugs, which are made from the same ware, in the same tech-

nique, and only differ in shape) that are represented in the dump by over threefold (table 2). This discrepancy cannot result from a change in everyday domestic dietary habits, and is most likely related to the gradual and massive increase in the use of cooking pots by pilgrims who gathered in the city in ever growing masses during the main Jewish festivals. This observation is supported by the concentrations of abandoned pots found in various locations near the city wall (Shiloh 1984, 5, fig. 6:1).

Another significant change is the decrease in use of foreign amphorae (Finkielsztejn 2006). It appears that this decrease started somewhat earlier; from 9 complete vessels in Stratum 4 of House E (early part of 1st century BCE, not discussed here) to mere fragments in Stratum 3, and no fragments at all in the examined dump. This repeats the observation made by Ariel (1990) in his study of the Rhodian impressed handles, between the City of David and the Western part of the city. The cessation of the import of foreign wine in amphorae is just another manifestation of the increase in religious piety among the Jewish people of Jerusalem.

Stone vessels: Only two fragments of stone vessels' rims (both are made of soft local chalk) were found in the dump. This figure is very small, relative to their quantities in private houses in the 'Upper City' (Avigad 1983, 127–129, fig. 125, 131, 141; Reich 2003a). This low number most probably results from the fact that stone vessels are far less susceptible to breakage.

Coins: 126 coins were retrieved in the sifting from both locations. Of these 50 coins were cleaned and could be identified. Apart from 4–5 coins minted under Alexander Jannaeus (103–76 BCE), all other coins date to the 1st century CE, and include mainly coins minted under the Roman procurators Valerius Gratus (15–26 CE), Pontius Pilate (26–36 CE), Festus (59–62 CE) and the Jewish king Agrippa I (37–43 CE). The latest coins are from 'Year Two' (67 CE) and 'Year three' (68 CE) of the Jewish Revolt against Rome. These findings clearly date the garbage to the 1st century CE.

Glass: Only a score of tiny bits of glass splinters were retrieved. This small amount is understandable given the high value of glass vessels, which made them rare and caused their owners to take the utmost care in their keeping. Because of the fragile nature of this material it continued to disintegrate after being discarded as broken pieces on the city dump with each movement of the debris on the slope. Finally, the susceptibility of glass to weathering causes it to disintegrate into thin iridescent flakes. The possibility also exists that broken glass fragments were recycled, perhaps by the contemporary glass workshop indicated by waste discovered in the "Upper City" (Avigad 1983; Israeli and Katsnelson 2006).

Varia: Two complete carved circular dome shaped bone discs were found. Both are plain, without decoration or design, drilled in the centre and appear to represent finished products (see stages of bone buttons carving in Wapnish 1991; 1997; see also Ayalon 2005). These were probably used as some kind of buttons, a typical household object (cf. Avigad 1983, fig. 236). In addition, tiny bronze fragments, which most probably are the remains of some unidentified fittings, were retrieved. The small amounts of these fragments indicate that discarded metal objects were not taken to the city dump but recycled.

Constructional Debris

Stones and rubble: The debris does not contain any constructional stone. Neither can any constructional stone be seen protruding from the long section on site, or in the large amounts of falling debris. Almost no constructional stones can be seen in photos of previous excavations. In a city in which the walls of the houses were constructed exclusively of locally quarried limestone, any disused block was reused in other newly built houses, and did not find its way to the city-dump. On the other hand, field stones, or broken constructional blocks, or rubble dug out while laying new foundations, or from collapsed walls or dismantled walls and the like were cleared to the dump.

Plaster fragments: The private houses of Jerusalem were constructed of stones (particularly of limestone *nari* type). The excavations in the 'Upper City' demonstrated clearly that a greater number of the walls were plastered with a white lime plaster (e.g. Avigad 1983, figs. 83, 87–89, 100–101). Fragments of these types of plasters were easily recognized in the garbage, particularly when a flat side could be traced on the fragment. Occasionally, fragments of flat plaster bear traces of paint (red, green). These are fragments of decoration in the fresco/secco techniques which were popular in the large houses or mansions of Jerusalem, such as the private houses excavated in the 'Upper City' (Avigad 1983, 149–150, figs. 166–174; Rosenberg 2003).

Tesserae: Paving specific rooms of private houses

with mosaic floors was common in Jerusalem of the 1st century CE. This type of paving, usually decorated with geometric and floral motifs, was used in dining rooms (*triclinia*) and bathrooms (Avigad 1983, 144–146, figs. 100, 160–165). The presence of these stones in the city-dump supports the notion that most other shapeless stones and rubble originates also from ruined or renovated houses.

Fragments of cooking installations: The typical cooking installations within the private dwellings, such as stoves (Rabbinic Hebrew: *kira, kirayim*) and ovens (*tannur*), were constructed of earth and mud. A repeated process of daily heating fired the mud into a very brittle *terra cotta*. Such installations were found in various private houses of the 'Upper City' where only the lower parts of these circular installations survived (appearing as circles on the plans; Avigad 1983, figs. 64, 120, 121; Reich 2003b). Large numbers of these (c. 230!) were discovered in contemporary Masada (Reich 2003c). In private dwellings of contemporary Jerusalem, some of these installations were discovered *in situ* (Avigad 1983, figs. 118, 137). These installations survived for a relatively short time span and were replaced with new installation. The fragments of the old installations had no apparent reuse and were removed to the dump.

Plant Remains

Preliminary analysis revealed that charred plant remains survive in the excavated area. This fact alone is most interesting as one assumes that the environmental conditions in the dump would damage seriously the delicate charred material. Unlike tell sites, where each strata provides some sort of protection from the weather, the dump soil continued to be exposed to the weather for the last c. 2,000 years. Factors like water runoff, dry-and-wet and freeze-and-thaw annual cycles, and trampling, obstruct normal preservation of plant materials in such conditions. Still, the level of preservation is low; the total number of plant remains is small (541 specimens) and most finds could not be identified to species level due to missing morphological features.

Nevertheless, the floral remains retrieved represent the "normal" diet for its time, geographical location, and period. The food plants demonstrate the three basic categories of the culinary tradition known from biblical and classical times – the Mediterranean triad of "grain, wine, oil" (*Deuteronomy* 11:14). However, it seems that the small number and low level of preservation indicates the origin of the plant material as leftovers that were discarded into the oven and then found their way into the dump. It seems that unlike contemporaneous European dumps, rich in waterlogged plant remains, the preservation conditions in Mediterranean city dumps is significantly lower and likely to be a poor source for archaeological plant assemblages.

Remarkably, what is missing in this plant assemblage are the prestige plant-food items, a phenomenon mentioned already regarding the pottery. Some of those prestige food items, like nuts and fruit stones, tend to preserve quite well. Therefore, their absence in the city-dump is noticed despite the generally small assemblage.

Conclusions

The date of the debris dumped on the eastern slope of the City of David is well established. It is based particularly on the evidence of the coins, which point to the 1st century CE up to the sack of Jerusalem by the Romans in 70 CE. All other artefact types (pottery and stone vessels) corroborate this dating. This means that at least from Herod's days onwards the amounts of urban garbage grew considerably with the growth of the city boundaries and population, augmented with the increase of pilgrims, particularly at peak moments.

We retrieved data from two locations within the cross-section of the dump. Because of the dynamic nature of the slope, no apparent chronological or typological differences can be observed between the upper and lower locations except for the size of the components and the preservation of bones. The majority of material found in the dump were components from the city that could not be recycled (pottery, stone, ovens, wall plaster etc.), while recyclable materials, such as metals and glass fragments are almost entirely absent.

The abundance of pottery fragments is compelling and may represent the outcome of particular religious regulations that were active in those days pertaining to the various materials from which vessels were made. If a pottery vessel became impure, for whatever reason, it had to be broken and discarded, or at least perforated. Objects made of metal, leather, wood, textile, bone etc. could be purified in a *miqweh* (ritual bath). Vessels made of stone, by definition, could never become impure (Mishnah *Kelim* 10: 1; *Ohalot* 5: 5; 6, 1; Magen 2002:138–147).

Another factor contributing to the presence of large numbers of pottery vessels, particularly cooking pots, is the fact that these vessels were probably

particularly in use by pilgrims. They must have bought them in the city for the days they resided on the city's outskirts. Obviously, pilgrims did not carry with them heavy and more expensive stone vessels and most probably discarded the cooking pots in or around before leaving of the city.

Preliminary analyses of the husbandry remains indicate that the assemblage is dominated by livestock species, predominantly sheep, goat and cattle. High ratios of juveniles may suggest that animals in Jerusalem were slaughtered in adherence to religious precepts that demanded the sacrifice of young lambs and calves only. Intriguingly, the standardised distribution of meat-bearing parts of sheep and goat carcasses, and the presence of butchery marks in the same anatomical locations, might indicate that specialised butchers were involved. The clear absence of pork set Jerusalem apart from all other contemporary Roman urban centres (see King 1999 and references therein). Furthermore, pigs and other non-kosher animals do occur at contemporaneous Roman sites in Israel (e.g. Horwitz et al. 1990; Redding 1994; Horwitz 1998; 2000). High frequency of pig remains was also found in the site of Binyanei Ha'umah, which is located on the outskirts of Roman Jerusalem and served as one of the locations of the tenth Roman Legion during the sojourn in Jerusalem (Horwitz n.d.). Given the absence of pig remains in the city-dump, coupled with the fish remains that turned out to be of kosher species only, we conclude that a predominantly Jewish population created the city-dump debris.

The large number of pottery shards found provided for the first time a quantitative breakdown of the vessel types that were used by Jerusalemites during the Late Second Temple Period. Several recent excavation reports and studies were already devoted to this subject, whether of pottery (e.g. Geva 2003; Geva and Rosenthal-Heginbottom 2003) or stone vessels (Cahill 1992; Magen 2002), but all dwell on the morphological typology and its dating. The first report with quantitative data published recently (Geva and Hershkowitz 2006) has provided interesting insights. The particular differences between the contents of domestic households and the city dump can be explained by the particular role that the external population – the pilgrims – played.

It is interesting to note the absence of one particular type of finds from this archaeological assemblage. In a city dump, located a few steps from the central temple and the wealthy quarter adjacent to it, we found mainly remnants of mundane activities. Luxury and wealth items, prestigious tableware, plant and animal foods that reflect socio-economic status of upper classes, and such, are almost entirely absent in the city dump assemblage. One may assume, naturally, the opposite. In such a location we might anticipate finding waste reflecting the diet of the better-off and goods from nearby houses, not to mention from the nearby Temple Mount that is less than 100 m away uphill.

To conclude, the study of the city's garbage provides for the first time quantitative data of the repertoire of vessels used and the role that animals played in the diet of the inhabitants of Jerusalem during one of its peak historical periods. We now have a clear picture of what people were eating and what was the most common table ware used. Thus, it is the city's garbage, and not its more spectacular finds that introduce us to the more mundane and no less important facts and events of the daily life and economy that surrounded it.

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