Trash and Toilets in Mesopotamia: Sanitation and Early Urbanism

By Augusta McMahon

Sanitation is something we in the West take for granted. We shouldn’t.

The recent celebration of World Toilet Day in November 2015 shone a spotlight on the variety of modern sanitation systems. Some 35% of the world’s population has no access to clean, safe toilet facilities; 14% simply defecates in the open. In addition, garbage is an increasingly intractable problem; trash volume expands with the growth of consumer culture, landfills generate greenhouse gases, while open dumps are sources of disease and water pollution. Around 60% of the world’s trash ends up in landfills.

Given Mesopotamia’s history of inventions (the first irrigation canals, cities and writing), its toilets are unsurprisingly among the earliest known. But how common was access to toilet facilities in Mesopotamia? What did Mesopotamians do with their trash? Were sewers and garbage removal provided by city governments? Current evidence suggests that waste management challenges—among the greatest problems for modern mega-cities—existed at smaller scale in the world’s first cities but were addressed mainly at the household level.
Area WF excavation at Nippur, Iraq, 12 meters depth of 3rd-1st millennium BC occupation, largely comprised of accumulated domestic trash. Photo courtesy of Augusta McMahon.

**Trash**

Trash was everywhere in Mesopotamian settlements, accumulating gradually in streets and houses or piled in courtyards or abandoned building plots. Mesopotamian site stratigraphy is largely garbage, and a snapshot of any settlement would be characterised by “sheet trash”. This is widely acknowledged, so does Mesopotamian trash deserve further scrutiny?
At issue is the difference between village and city trash. Village middens are useful sources of fertiliser and fuel, but trash has no value for most city residents. Urban life and urban economies lead to greater volume of trash per capita than in villages. City trash thus needs space, and within cities, space was limited. Streets and courtyards were inadequate, meaning that some trash and waste had to be moved significant distances to city-edge middens. And middens may attract vermin and scavengers; not surprisingly, evil spirits are associated with urban middens in Mesopotamian texts.

Ur, Abu Salabikh and Tell Brak, among other sites, have trash dumps of significant size. Tell Majnuna, a 3-hectare, 7-meter-high sub-mound at the edge of Brak, is composed entirely of rubbish. This sub-mound, ca. 180,000 cubic meters, was a strong feature in the city’s landscape, yet it accumulated gradually during ca. 300 years in the mid-4th millennium BCE. Its variable stratigraphy suggests a process of occasional large-scale dumping of institutional and industrial trash, mixed with frequent small-scale discard of domestic trash. The Ur rubbish dump shows comparable alternation between large and small dumping episodes from varying sources.
In each case, the large dumping episodes were probably created by temporary work parties commissioned by city authorities to address a specific public problem. However, the domestic trash may have arrived through several different routes: regular, frequent discard by individuals from each household or regular discard by specialist trash gatherers. But ‘trash gatherer’ is not among the official Mesopotamian professions known from texts of the 3rd millennium BCE onward. ‘Porter’ or carrier is a profession, but their possible role in trash removal is unspecified; ‘sweepers’ were apparently restricted to temple or palace courtyards; generic ‘workers’ might have included trash collection among their tasks. The existence of large middens suggests that there was an agreed discard location in these cities, but we cannot say that garbage collection was among municipal services offered. Much domestic disposal may have been managed at the household level.

Toilets
Sanitation is a two-way system, involving access to clean water and removal of waste. Wells are occasionally found, such as at 3rd millennium BCE Tell Hamoukar or 2nd millennium BCE Tell Asmar. And there are a few extensive drainage systems known, for example, Habuba Kabira’s interlocking horizontal clay pipes and Tell Asmar’s Northern Palace brick drains that removed rainwater from courtyards and wastewater from bathrooms and toilets. But these examples of water provisioning and wastewater removal are limited to individual buildings and did not provide for settlements or even neighborhoods. Acquisition of clean water and waste removal, even more than trash disposal, were apparently the responsibility of individual households.
Ibalpiel well in P301, Tell Asmar, Diyala, Iraq. Oriental Institute, University of Chicago, Diyala Archaeological Database, Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License.

Plan of Tell Asmar, Northern Palace, with drainage system highlighted in blue. Oriental Institute, University of Chicago, Diyala Archaeological Database, Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License.
Mesopotamia’s earliest built toilets incorporated cylindrical drainage pits with columns of interlocking perforated ceramic rings and external sherd packing. These toilets are known from at least the early 3rd millennium BCE and are well-represented at Ur, Abu Salabikh, Nippur and the Diyala sites. Rooms above the drains may have combined the function of toilets and bathrooms and were dirt-floored, plastered, covered with bitumen, or paved with baked bricks; the drain opening may be a simple hole or a built seat.

Tell Asmar, Northern Palace drainage system, arched brick drain below street in F15. Oriental Institute, University of Chicago, Diyala Archaeological Database, Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License.
Mesopotamian toilet technology was uncomplicated, but adoption of toilets was relatively low. Where there has been significant exposure of Mesopotamian neighbourhoods, such as 2nd millennium BCE Nippur or Ur, fewer than half of the houses had toilets. Modern studies by the US Agency for International Development suggest that 75% of a settlement needs clean sanitation to achieve a positive impact on human health; no known Mesopotamian neighbourhood reached that intensity of coverage. Further, toilet drainage must remove waste to a distance and preferably hide it below ground. Some Mesopotamian toilet pits were only a few meters deep; another variety of toilets had sloped pipe drains that ran through walls and emptied outside.

If waste from a house simply flows into an adjacent street, this may improve aesthetics within the house but will do little for the health of its inhabitants or neighbors. Standing wastewater enables
fecal-oral disease transmission, a major factor in infant mortality in particular. Modern—and largely archaeologically invisible—alternatives to fixed toilets include bucket latrines (which need frequent emptying) and open-air defecation; it is probable that these options were also embraced in the past. Some scavengers (pigs, some vulture species) consume human feces, but they are not reliable waste removal systems.

Brick toilet, Tell Asmar, Akkadian Period. Oriental Institute, University of Chicago, Diyala Archaeological Database, Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License.
Ancient Urban Waste Management Implications

Archaeologists often focus on pottery typologies or past diets, without due emphasis on the ultimate deposition of these materials: discard or defecation. Without including waste management practices, gaps exist in our reconstructions of past urban lived experiences: time spent carrying trash and waste to dumps was not spent on agriculture or craft production, while avoidance of pollution may have affected city traffic routes and activity areas. The many piecemeal, individual household solutions to hiding and removing waste were inefficient but necessary. Cities are so successful as settlement forms in past and present that we often assume they provided generally positive living conditions in the past. But we should acknowledge that individuals embracing ancient cities' economic efficiencies, safety, and socio-political networks also
consciously settled for and adapted to sub-optimal living conditions, particularly with regard to the most basic of body functions. The same may be said about today, where a growing percentage of the world's population resides in cities. The sanitation concerns that first emerged in antiquity are ever more pressing.

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