A brief history of toilets

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6-10	
11-15	

On sunny days, the Roman citizens of Ostia could be found on a long stone bench near the Forum. Friends and neighbors exchanged news and gossip while simultaneously attending to more urgent business. These public latrines could sit up to 20 Romans at a time, draining waste in water conduits below. Today, most cultures consider trips to the restroom to be a more private occasion. But even when going alone, our shared sewage infrastructure is one of the most pivotal inventions in the history of humanity.

While many ancient religious texts contain instructions for keeping waste away from drinking water and campsites, waste management took a more familiar shape as early as 3000 BCE. Ancient Mesopotamian settlements often had clay structures made for squatting or sitting in the most private room of the house. These were connected to pipes which used running water to move waste into street canals and cesspits. Water infrastructure like this flourished in the Bronze Age, and in some parts of the Indus Valley, nearly every house had a toilet connected to a citywide sewage system. Ancient Cretan palaces even offered a manual flushing option.

Researchers can't say for certain what inspired these early sewage systems, but we do know that waste management is essential for public health. Untreated sewage is a breeding ground for dangerous microorganisms, including those that cause cholera, dysentery, and typhoid. It would be several millennia before scientists fully understood the relationship between sewage and sickness. But the noxious odors of sewage have recorded associations with disease as early as 100 BCE. And by 100 AD, more complex sanitation solutions were emerging.

The Roman Empire had continuously flowing aqueducts dedicated to carrying waste outside city walls. Chinese dynasties of the same period also had private and public toilets, except their waste was immediately recycled. Most household toilets fed into pig sties, and specialized excrement collectors gathered waste from public latrines to sell as fertilizer. In China, this tradition of waste management continued for centuries, but in Europe, the fall of the Roman Empire brought public sanitation into the Dark Ages. Pit latrines called "gongs" became commonplace, and chamber pots were frequently dumped into the street. Castles ejected waste from tall windows into communal cesspits. At night, so-called gong farmers would load up the waste before traveling beyond city limits to dump their cargo. Europe's unsanitary approach persisted for centuries, but toilets themselves underwent some major changes.

By the late Middle Ages, most wealthy families had commode stools—wooden boxes with seats and lids. And in the royal court of England, the commodes were controlled by the Groom of the Stool. In addition to monitoring the king's intestinal health, the Groom's intimate relationship with the monarch made him a surprisingly influential figure. The next major leap in toilet technology came in 1596, when Sir John Harrington designed the first modern flush toilet for Queen Elizabeth. Its use of levers to release water and a valve to drain the bowl still inform modern designs. But Harrington's invention stank of sewage. Thankfully, in 1775, Scottish inventor Alexander Cumming added a bend in the drainpipe to retain water and limit odors. This so-called S-trap was later improved into the modern U-bend by Thomas Crapper—though the term "crap" predates the inventor by several centuries.

By the turn of the 19th century, many cities had developed modern sewage infrastructure and wastewater treatment plants, and today, toilets have a wide range of features, from the luxurious to the sustainable. But roughly 2 billion people still don't have their own toilets at home. And another 2.2 billion don't have facilities that properly manage their waste, putting these communities at risk of numerous diseases. To solve this problem, we'll need to invent new sanitation technologies and address the behavioral, financial, and political issues that produce inequity throughout the sanitation pipeline.

1. What was the main purpose of the stone bench in Ostia during Roman times?
A. For judicial proceedings
B. As a public restroom
C. For religious rituals
D. For theatrical performances

2. Why can't we be certain about the inspiration behind early sewage systems?
A. There are no historical records left
B. The instructions were contradictory
C. Researchers lack consensus
D. The text doesn't provide specific details on this matter

3. What contributed to Europe reverting to less sanitary waste management after the fall of the Roman Empire?
A. Innovations in recycling waste
B. Lack of water infrastructure
C. Introduction of toilets with flush technology
D. Cultural approaches to sanitation changed

4. What major difference distinguished waste management in China from the Roman Empire?
A. Use of gongs for disposing of waste
B. Recycling waste for agricultural purposes
C. Ejecting waste from windows
D. Collection and disposal by gong farmers

5. What role did the Groom of the Stool play in the royal court of England?
A. He was responsible for waste collection
B. He designed the first flush toilet
C. He monitored the king's intestinal health
D. He managed the city's sewage infrastructure

6. What was a significant improvement made by Alexander Cumming to toilet technology?
A. He created the first flush toilet
B. He introduced the sewage pipe bend
C. He added a manual flushing option
D. He developed the U-bend trap

7. What issue related to modern toilets does the text highlight as a significant challenge?
A. Designing luxurious features
B. Managing wastewater treatment
C. Providing access to private toilets
D. Inventing new sanitation technologies

8. What was a common factor in the waste management practices of ancient Mesopotamia, Indus Valley, and Cretan civilizations?
A. They all used clay structures for waste management
B. Every household had a citywide sewage system
C. Manual flushing options were widespread
D. Water infrastructure was integral to their systems

9. How did Sir John Harrington's toilet technology differ from previous versions?
A. It used running water to move waste
B. It incorporated a bend to retain water and limit odors
C. It employed levers to release water and a valve to drain the bowl
D. It was directly connected to street canals

10. According to the text, what was a common practice in medieval Europe for disposing of waste?
A. Recycling waste as fertilizer
B. Using aqueducts for carrying waste
C. Dumping chamber pots into the streets
D. Flushing toilets connected to sewage systems

11. What is signified by the term 'Dark Ages' in the context of European public sanitation?
A. A period of flourishing infrastructure
B. An era of sophisticated waste disposal technology
C. A time of neglected and less effective waste management
D. The introduction of modern sewage systems

12. What does the text suggest about the modern U-bend in toilets?
A. It is a Chinese invention
B. It was a feature of ancient Roman latrines
C. It is an improvement upon previous designs by Thomas Crapper
D. It was first introduced in the royal court of England

13. Which development in sewage systems is associated with preventing disease according to the text?
A. Waste removal from living areas
B. Manual flushing in Cretan palaces
C. The use of gongs in cities
D. Communal cesspits beneath castles

14. How were the 'gong farmers' related to waste management of their time?
A. They were responsible for cleaning the public latrines
B. They maintained the flow in aqueducts
C. They transported and disposed of waste at night
D. They developed the first wastewater treatment plants

15. What aspect of sanitation is NOT addressed by the text?
A. Inequality throughout the sanitation pipeline
B. Historical practices of waste management
C. The relation of odors to disease
D. The impact of modern toilets on the film industry