**Review: The Great Lead Water Pipe Disaster**
By Werner Troesken

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Troesken, Werner. *The Great Lead Water Pipe Disaster*. Cambridge, MA: MIT Press, 2006. 318pp. ISBN 0262201674. US$29.95, paper. Alkaline paper.

Lead poisoning usually conjures images of infants eating paint chips, miners pulling metal out of the earth, or old automobiles running on leaded gasoline. In *The Great Lead Water Pipe Disaster*, Werner Troesken details another source of lead poisoning: lead pipes in city water systems. He highlights the adverse health effects of lead pipes as well as the diverse circumstances that led to their use, showing how water chemistry, law, ideology, and economics played a role in the impacts lead pipes had in cities across the United States and abroad.

Looking back as far as the 1840s, Troesken provides colorful examples of the consequences of lead pipe usage in municipal water supplies. He shows how they helped cause deaths, contributed to miscarriages, and produced eclampsia. In one fascinating and frightening section, Troesken illustrates that lead levels in many city water systems were on par with lead abortifacient pills women consumed to induce abortion. Looking at old data with new statistical techniques, he estimates that in places like Boston, Cape Town, and Glasgow the lead level was up to 150 times higher than the current limit set by the United States' Environmental Protection Agency. The combination of statistics and historical evidence makes the harmful and global effects of lead water pipes hard to disregard.

Not content to simply describe the negative health effects of lead water pipes, Troesken also shows why municipalities continued to use them. Symptoms of lead poisoning from water pipes often mimicked infectious diseases, befuddling doctors. Despite wreaking havoc on infants and pregnant women, the average adult showed signs of lead exposure slowly, making the source of lead poisoning difficult to detect. Economics and chemistry were also factors. Troesken ironically notes that lead was cheapest and most prevalently used in places where water was more corrosive, creating a higher lead content. Lead combined with slow science, finances, and nature to produce numerous deaths and illnesses. Social factors also contributed to the lead water pipe disaster. Troesken says cities were reluctant to replace lead pipes because of cost, but also to keep public utilities out of private hands and maintain power. Additionally, laws placed the onus of lead poisoning on individuals and not water suppliers. Mix in the difficulty scientists had tracing lead poisoning to city water systems and there was little political or economic pressure to rectify the problem. Troesken's stories about the efforts of doctors, like Erasmus Fenner in the 1850s and Norman Porritt at the turn of the twentieth century, shows that there was an awareness of lead pipes' dangers, but those dangers remained concealed or ignored until science and law evolved and made evidence too difficult to ignore.

Troesken is at his best when weaving together historical examples and statistics to describe the health problems and factors associated with lead water pipes. Charts or data often follow personal anecdotes of lead's harmful health effects in each chapter. Geographers and scientists will relish the tables and graphs scattered through the narrative and packed in the book's three appendices. Yet by mixing in stories of seemingly prescient doctors and individuals with grotesque health problems, *The Great Lead Water Pipe Disaster* should also appeal to urban and environmental historians as well as a broader audience interested in human health or urban infrastructure. Sometimes the details, technical terms, and chronology are hard to keep straight, but that is less a drawback than a credit to the depth of Troesken's research. He adds a new dimension to urban history, one that shows the complexity between the human, built, and natural landscapes.

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