

## Living in Dust and Smog: Identity, Inequality, Health, and Pollutant Exposure During England's Industrial Revolution



THE "SILENT HIGHWAY"-MAN.  
"Your MONEY or your LIFE!"

Sara A. McGuire  
Doctoral Candidate and Graduate Teaching  
Associate, Department of Anthropology, The  
Ohio State University  
Honors Intern, Federal Bureau of Investigation

Identity and inequality are determinants of individuals' life experiences, from the opportunities available throughout their life to the type and quality of the environments in which they live and work. My research evaluates how individuals are disproportionately affected by the pollutants present in their environment. In particular, I am interested in how trace elements from urban environments can enter into the body and be retained within the skeleton. In this regard, I am undertaking a case study of individuals from the Industrial Revolution in England. The Industrial Revolution was a turning point in world history, and one of its consequences was human exposure to industrial pollutants. This exposure varied significantly among individuals, based on age, sex, socioeconomic status (SES), industry, and region. I will be testing long bone samples from urban and rural individuals who lived during this period to determine if specific trace element pollutants are present, and in what quantities, via multi-collector inductively coupled plasma mass spectrometry (MC-ICP-MS). I am focusing on those pollutants that transfer into and store within bone and were prevalent in industrial waste from this period: arsenic, barium, chromium, lead (including lead isotopes), and mercury. This project increases our current understanding of important anthropological questions of how individuals are constrained and influenced by their environments, where environment is a social construct related to the inequality of identity. This research also contributes to the interdisciplinary study of human history by using analytical chemistry and anthropology to explore the biological evidence for historic events. Finally, this project is also a proof-of-concept study that evaluates whether we can detect evidence of pollution and urban environments, and not merely the influence of soil from the burial environment, in historical and archaeological skeletal material.

# MCI

## *Topics in Museum Conservation*

**July 8, 2019**  
**10:45 am**  
**Monday**

*MCI Theater*

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301-238-1240



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