

The Guts of the Matter: A Global Environmental History of Sanitation, Intestinal Disease, and Public Health

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The disposal of human waste is the oldest and one of the most fundamental environmental issues with which human beings have had to grapple. Viral, protozoal, and bacterial pathogens and parasitic worm infections that survive in the human intestinal system have broad public health impacts. Together, they constitute one of the largest global disease burdens, and diarrheal diseases alone are one of the principal causes of childhood death. My project at the Rachel Carson Center is to write a book that will investigate the history of global sanitation practices, their impacts upon the epidemiology of parasitic worm infections and viral, protozoal, and bacterial diarrheal infections, and the history of public health interventions to reduce the burden of these diseases.

The Guts of the Matter develops a comparative global historical framework to address basic questions: Why did different attitudes toward human waste use and disposal develop? What are the health implications of different historical sanitation practices? How do the historical experiences with sanitation engineering and chronic and epidemic diarrheal disease in Great Britain, continental Europe, and North America illuminate experiences elsewhere? What are the nature and extent of sanitation investments made in the wider world? When and where were sewage treatment plants built and for whose benefit? Which public health advances were transferred from the Global North to the Global South during the twentieth century? What trade-offs between the provision of clean water and sewerage systems were made? How have the largely unimproved sanitation systems built in the colonial era influenced the contemporary transmission of pathogens in the Global South? What has been the impact of efforts to improve access to clean water at point of use, without addressing the issue of human waste disposal?

The Guts of the Matter is a broad, first-generation exploration of the global environmental history of sanitation and intestinal diseases. It synthesizes findings in the scientific literatures on parasitic worms and the viral, protozoal, and bacterial pathogens that cause intestinal disease, their changing routes of transmission, and the effectiveness of biomedical interventions. It explores cultural attitudes toward human waste; changing patterns in the use of night soil for agriculture; waste disposal practices in rural and urban areas; the epidemiological consequences of the vast sewage farms that were maintained for the waste of urban populations before the construction of sewerage systems; the evolution of wastewater treatment technologies; the impacts of biomedical interventions including chemical therapy to clear helminthic and protozoal parasites, immunizations to prevent rotovirus, and oral rehydration therapy; the impacts of food and water safety legislation; the global initiative to promote hand-washing with soap; and governmental and non-governmental organizations' initiatives to reduce open defecation.