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Flies, manure, and window screens: medical entomology and environmental reform in early-twentieth-century US cities

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Abstract

This paper traces responses to house flies in US cities as health departments attempted to control pollution and disease in the early twentieth century. It speaks to other historical geographies about the state, citizens, and the urban environment by showing how medical entomology prescribed contradictory changes to civic and domestic space, and how urban people and nature resisted these changes. With the advent of medical entomology, health reformers came to see house flies as agents that wove the entire city together as an interconnected ecology, carrying diseases from neighborhood to neighborhood and across the threshold of the home. But different reformers argued for quite distinct exercises of power in the urban landscape and ecological processes. Some physicians and entomologists argued that the state must modernize networks of fly-breeding organic matter, most notably horse manure and human waste. Such interventions were intended to be preventive and holistic, and aimed to protect all city dwellers. Other reformers, however, doubted the capacity of the state to tame material flows of waste, and instead sought changes to domestic space that would require householders – especially women – to shore up the boundaries of the house against flies. When city governments adopted these distinct interventions they encountered quite distinct sorts of resistance because of the house fly's tight links with urban nature and domestic practices.

Keywords: Insects; Entomology; Public health; Infectious disease; Domestic space; Urban environment

Introduction

When typhoid hit Chicago in 1902 with the city's biggest outbreak in ten years, most commentators blamed weather and filthy water. According to authorities, heavy summer rains had washed infected human waste out into Lake Michigan, endangering the entire citizenry. The Board of Health promised new protections for the city's water supply – a seemingly progressive measure for this famously corrupt town.[1]

Yet Alice Hamilton, physician and resident of Hull House, argued that the scrutiny and action focused on the overall water supply masked an ongoing injustice at a smaller scale. Only medical entomology, she said, could explain 'the peculiar localization of the epidemic' in poor, immigrant neighborhoods like the nineteenth ward.[2] Hamilton was attracted to this new etiological theory for its scientific cachet – and because it served Hull House's aim to bring health services to Chicago's poorest communities. In the wards where typhoid cases were concentrated, landlords bribed health inspectors to ignore defective privies. Without a public check on these private properties, house flies thrived in human waste. Hamilton concluded that flies carried germs from that waste to the homes of unsuspecting neighbors.[3] Polluted water could certainly threaten the entire city. But upgrading safeguards for drinking water would do little to help renters whose fates were left to the random flights of germ-ridden insects.

Hull House's revelations of unequal health protection shocked the city and helped spread worry to a nation swarming with flies.[4] In the first two decades of the twentieth century, scientists and reformers called on emerging ideas about house flies to urge new interventions in the urban environment. This paper examines how

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[1] Not a hot day in the summer, *Chicago Daily Tribune* (31 August 1902) B1; Water worse than ever, *Chicago Daily Tribune* (20 December 1902) 16; A. Hamilton, M. Gernon and G. Howe, *An Inquiry into the Causes of the Recent Epidemic of Typhoid Fever in Chicago*, Chicago, 1903, 4.

[2] Hamilton, Gernon and Howe, *An Inquiry* (note 1), 5.

[3] Asks Hull House to bring proof, *Chicago Daily Tribune* (15 April 1903) 16; A. Hamilton, The common house fly as a carrier of typhoid, *Journal of the American Medical Association* 42 (1904) 1034; A. Hamilton, The fly as a carrier of typhoid, *Journal of the American Medical Association* 40 (1903) 576–583; H. Platt, *Shock Cities: The Environmental Transformation and Reform of Manchester and Chicago*, Chicago, 2005, 333–361.

[4] Asks Hull House to bring proof, *Chicago Daily Tribune* (note 3); Hamilton, The common house fly as a carrier of typhoid (note 3).

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they attempted to reorder urban space, nature, and domestic life in light of the 'agency' of flies.[5] The contrast between Hamilton's explanation of the 1902 epidemic and that of the Board of Health highlights what flies meant for spatial imaginaries of urban health. The movement of flies between filthy and clean sites called for responses that were often smaller in scale and more diffuse than the water supply reforms the Board of Health initially proposed.

Entomologists and public health agencies grappled with the ways house flies wove networks of disease as they bred, fed, and flew throughout the city. How could authorities contain such ubiquitous insects that connected the city's organic filth with intimate domestic spaces? I argue that reformers prescribed contradictory actions based on divergent visions of how to control the urban environment. On the one hand, some saw these highly mobile vermin as a preventable outgrowth of slow and leaky ecological flows, requiring the state to forcibly modernize urban ecologies. On the other hand, some believed that urban filth was beyond control; instead, the state should discipline citizens to eliminate fly-borne disease at the scale of individual domestic spaces. By examining anti-fly campaigns I intend to show how commitments to sanitation and social control shaped efforts to remake urban landscapes – and the resistance posed by people and flies.

City health departments across the US launched fly-control campaigns in the first decades of the twentieth century. Entomological studies and projects from several cities inform this paper, but I draw mostly upon sources from Chicago, Washington, and New York, which launched divergent anti-fly campaigns. The first section of this paper situates fly control in the context of literature about urban environmental reform. The second reviews the emergence of medical entomology in tandem with the new public health and germ theory. The third explores how medical entomology constructed the urban fly as an agent of interconnection. Finally, I examine two interventions – screening campaigns and manure ordinances – that illustrate distinct approaches to remaking the urban landscape, and the ways that nature and citizens resisted.

Citizens, nature, and urban environmental reform

This paper's focus on the remaking of urban nature follows in part from political ecologists' and environmental historians' interest in nature's 'agency' and the rationalization of urban space. Matthew Gandy has argued that Progressive-Era reformers re-ordered urban nature based on modernist fantasies, but Linda Nash's observation that ideas mix with the material world describes well the case of the house fly. To examine the fly's role in material and imaginative geographies of early-twentieth-century cities is to replace what Bruce Braun has called a 'static stock of things' found in many studies of urban nature with beings that are engaged with the changing flows of urban life, and with shifting, competing human practices. Many environmental reformers understood flies as prolifically and dangerously interconnected with an array of other things and spaces: horses, germs, fecal matter, food, garbage, stables, kitchens, and streets, to name a few.[6] While these non-humans have resisted control, historical geographers such as Miles Ogborn have noted that attempts to exert control over urban landscapes extend discourses of modernity, at the same time reconstituting the relation of individuals and families to the state and public life.[7] Here I show that early-twentieth-century sanitary reformers imposed hygienic order with police power while at the same time striving to selectively preserve complex urban ecologies, particularly the flow of manure through the city.

But some reformers doubted whether cities could achieve broad hygienic order, and instead sought to control health through authority over citizens in domestic space. Therefore this paper also draws upon the literature of governmentality and histories of health and urban reform.[8] Medical entomology placed new demands upon city dwellers to adopt conduct that would contain roving flies. As Naomi Rogers has shown, many fly-control campaigns aimed sharply at conduct in domestic space, especially women's conduct. Progressive-Era health and housekeeping movements altered the home's status as a private realm. Sallie Marston and Susan Craddock have both shown how health and home economics movements opened the home to the gaze of experts and the state. Nancy Tomes further shows that consumer products promising protection from 'house diseases' made health a private duty for mothers. The case of fly control also illustrates the ways the state attempted to alter conduct through domestic technologies. Window screens maintained what Thomas Osborne has referred to as the 'sanitary integrity' of the home; by installing them the state established (somewhat) permanent means of bounding modern homes off from urban nature. Illusions of the socially and environmentally independent dwelling abetted denial of the ecological connections between public and private space, as Maria Kaika reveals in her research on the domestication of water.[9] The case of house flies shows how medical entomology rendered urban nature a threatening 'other,' and also cast the duty and tools to manage that other into the domestic sphere.

As in the case of many sanitary nuisances, demands to fortify the borders of the home against flies fell with extra force upon racialized human 'others' whose spaces and practices authorities deemed too close to urban nature. Hull House's typhoid report, for instance, asserted that flies connected the homes of immigrants with the rest of the community. Many geographers and historians, such as Susan Craddock, Nayan Shah, Sylvia Washington, and Mary

[5] Many contemporary treatments referred to flies as agents. Hamilton, Gernon, and Howe, *An Inquiry* (note 1), 9; L.O. Howard, *The House Fly: Disease Carrier*, New York, 1911, 114.

[6] T. Mitchell, *Rule of Experts: Egypt, Techno-politics, Modernity*, Berkeley, 2002; L. Nash, The agency of nature or the nature of agency? *Environmental History* 10 (2005) 67–69; M. Gandy, *Concrete and Clay: Reworking Nature in New York City*, Cambridge, MA, 2002; J. Tarr, *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective*, Akron, 1996; B. Braun, Writing a more-than-human urban geography, *Progress in Human Geography* 29 (2005) 635–650.

[7] M. Ogborn, *Spaces of Modernity*, New York, 1998.

[8] M. Foucault, *The Birth of the Clinic: an Archaeology of Medical Perception*, New York, 1973; A. Agrawal, *Environmentality: Technologies of Government and the Making of Subjects*, Durham, 2006; T. Osborne, Security and vitality: drains, liberalism and power in the nineteenth century, in: A. Barry, N. Rose, T. Osborne (Eds), *Foucault and Political Reason: Liberalism, Neo-Liberalism, and Rationalities of Government*, London, 1996; C. Otter, Cleansing and clarifying: technology and perception in nineteenth-century London, *Journal of British Studies* 43 (2004) 40–65; C. Otter, The vital city: public analysis, dairies and slaughterhouses in nineteenth-century Britain, *Cultural Geographies* 13 (2006) 517–537.

[9] N. Rogers, Germs with legs: flies, disease, and the new public health, *Bulletin of the History of Medicine* 63 (1989) 599–617; S. Marston, The social construction of scale, *Progress in Human Geography* 24 (2000) 219–242; N. Tomes, *The Gospel of Germs: Men, Women, and the Microbe in American Life*, Cambridge, MA, 1998; S. Craddock, Engendered/endangered: women, tuberculosis, and the project of citizenship, *Journal of Historical Geography* 27 (2001) 338–354; Osborne, Security and vitality (note 8), 114; M. Kaika, Interrogating the geographies of the familiar: domesticating nature and constructing the autonomy of the modern home, *International Journal of Urban and Regional Research* 28 (2004) 265–286.