THE FIRE PROBLEM: SOCIAL RESPONSIBILITY FOR FIRE IN THE BRITISH EMPIRE, 1817–1919

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Abstract

This dissertation, *The Fire Problem*, traces the changing distributions of social responsibility for fire in Calcutta and London across the long-nineteenth century. While these two cities were the capitals of the British Empire, with similar adoptions of municipal fire brigades, the public trust systems that undergirded these institutions varied greatly, revealing how municipal fire protection required more than municipal authority and technological innovation to be effective and acceptable to urban citizens. This dissertation examines how these cities endeavored to limit the fire danger that went hand in hand with imperial economic growth and in the process created systems by which the social responsibility for fire was divided between urban citizens and newly-instituted municipal fire brigades. Specifically, I ask how did the British Empire approach the destructive force of fire as a social problem in the rapidly modernizing urban environments of the nineteenth century? Other historians have argued that growing municipal authority or technological innovation in the name of efficiency account for the changes in nineteenth-century fire protection, but this dissertation argues instead that expanded municipal control, adopting new technologies, and the creation of municipal firefighting institutions were all a response to breakdowns in trust. Solving the fire problem could not be entirely top-down, nor completely bottom-up, but required a trusting relationship between urban citizens and municipal governments that was rare in the nineteenth-century British Empire.

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Boston British History Working Group, the Triangle Global British History Seminar, and multiple Institute of Historical Research seminars at University College London. In addition, I have presented elements of this dissertation at several different conferences where questions and critiques from colleagues greatly improved the way I have approached my material. These conferences include the Victorian's Institute Conference in Charlotte, NC, two presentations at the Britain and the World Conference in London and Austin, TX, a presentation at the Urban History Conference at Royal Holloway University, and at the New England Conference on British Studies in Montreal. These professionalization opportunities have made me feel like a real historian and given me the confidence to keep going on this academic journey.

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N.B. on Terminology

Throughout the dissertation I use the terms "fireman" or "firemen" to refer to those engaged in firefighting in London and Calcutta. This is a sexist and exclusionary term that has fallen out of use in most English-speaking countries. I use them here only to remain consistent with the terminology used by my subjects, not to further perpetuate the dangerous and wrong-headed idea that only men should be firefighters. Even in the period under study here there were women engaged in firefighting, the language had just not caught up to be able to describe them in a non-gendered way.

Similarly, I refer to Kolkata as "Calcutta" for much the same reasons. The English spelling of the city was officially changed in 2001 to better reflect the Bengali pronunciation of the original settlement, but as my subjects in the long-nineteenth century still called it "Calcutta" that is the name I use for the city.

In terms of other Hindi or Bengali place names, titles, castes, or professions I have tried to standardize their spelling across the dissertation, but as many of these spellings were not standardized across the English sources I use there may be inconsistencies between direct quotations and when I use the term otherwise. As a rule, I have opted for whichever spelling was most common in my Calcutta sources and taken it as the standard.

I have also used a number of acronyms throughout the dissertation that I have tried to reintroduce for each chapter in which they are relevant. For a quick rundown of these terms, please see the list below:

RSPLF=Royal Society for the Protection of Life from Fire
LFEE=London Fire Engine Establishment
MFB=Metropolitan Fire Brigade
CFB=Calcutta Fire Brigade
LFB=London Fire Brigade
MBW=Metropolitan Board of Works
LCC=London County Council
M&S=Merryweather and Sons
SMC=Shand, Mason and Co.

Introduction

For fire and people do in this agree,
They both good servants, both ill masters be.
—Fulke Greville, Lord Brooke, *Inquisition on Fame and Honour*[1]

The number of fires occurring annually in the British imperial capitals of Calcutta and London steadily increased over the course of the nineteenth and the early-twentieth centuries as urbanization, industrialization, and imperialism turned these cities into increasingly complex urban centers. By the early-twentieth century, Calcutta suffered at least one fire a day on average, while Londoners faced more than ten.[2] This dissertation examines how Calcutta and London both endeavored to limit the dangers fires made endemic by imperial economic growth and how, in the process, imperial leaders and subjects created systems by which the social responsibility for fire was divided between urban citizens—both metropolitan and colonial—and newly-instituted municipal fire brigades.[3] Prior to the nineteenth century this responsibility was held solely by urban community members, but as Britain's imperial project progressed, municipal governments shifted the responsibility for protecting against the threat of fire. This responsibility shifted from individual urban citizens, private insurance companies, and charitable organizations, to the populace as a

[1] Robert Southey, *Select Works of the British Poets from Chaucer to Johnson: With Biographical Sketches* (London: sn, 1831), 527.
[2] London increased from about 450 damaging fires in 1833 to over 3,000 in 1910 and Calcutta went from single-digit numbers of fires in the early-nineteenth century to over 400 in 1919. "LFEE Committee Minute Book 1832-33," 1833, CLC/B/017/MS15728/001, London Metropolitan Archive; "Report of the Fire Brigade Committee of the London County Council Submitting the Report of the Chief Officer of the Fire Brigade for the Year 1910" (London County Council, January 31, 1911), LCC/PUB/01/143/1406, London Metropolitan Archive; Bernard Westbrook, "Report and Statistical Tables of the Calcutta Fire Brigade and Ambulance Department for the Financial Year Ended 31st March 1919" (Bengal Secretariat Book Depot, 1919), IOR/V/24/1677, British Library, India Office Records.
[3] In describing Calcutta's Indian residents as "citizens," I am referring primarily to their living in the city, but also to Banerjee's argument that there was a form of imperial citizenship claimed by Indians in the British Empire. Sukanya Banerjee, *Becoming Imperial Citizens: Indians in the Late-Victorian Empire*, Next Wave (Durham, N.C.: Duke University Press, 2010).

whole, represented by new municipal fire brigades established to protect the people—not just property—and the laypeople whose responsibility it was to report fires and maintain fire safety measures. By tracing this shift, this dissertation contends that urban fire protection was not only a matter of extending municipal authority or technological innovation, as other historians have suggested, but also required a mutual trust and shared responsibility that bound British imperial cities together and formed the foundation for the expansion of future municipal services.

Between the early-nineteenth and early-twentieth centuries, both Calcutta and London undertook projects to address questions around the social responsibility for fire. They first codified in law and culture where the social responsibility—paying for fire protection, aiding extinguishing fires, reporting fires in progress, etc.— for controlling fire lay. Then they institutionalized this responsibility in new municipal fire brigades, and finally redefined the responsibilities altogether as part of the essential compact between municipal governments and their citizens. This dissertation is a social history of the British Empire through fire. It frames the implementation of the municipal fire service in both London and Calcutta in order to explain why these brigades developed when they did and why they looked so different in each city. The primary concern of this project is how urban society dealt with the natural threat of fire as it became exacerbated through imperialism and modernization. I explore these issues by looking at how Britain articulated its fire problem and then the many different ways its solutions were implemented and felt, in legislation, in professionalization, in technology, and in social relationships. Each of these processes built onto the existing questions around social responsibility for fire, and emphasized these questions' importance for creating the modern city.

The questions surrounding the social responsibility for fire in urban centers focused on three main aspects of fire: prevention, protection, and provisions. The first question, before fires could be effectively prevented it had to be established who or what was responsible for starting fires. The answers to these questions were often filtered through pre-existing gender and racial schemas, but still provided a starting point for British imperial cities to begin tackling the fire problem. The next series of questions dealt with fire protection: namely, what form should it take, who would pay for it, and who could be trusted to extinguish fires? These questions became most important in the transition from community to municipal firefighting institutions and oversaw the shifting responsibility for extinguishing fires from all citizens to firemen in particular. Once these brigades were established and became critical urban institutions the primary social responsibility questions shifted once more. The brigades themselves and urban citizens asked how should fire brigades be outfitted, who should report fires, how could citizens report fires, and how should fire protection be distributed? All of these questions spoke to the division of responsibility—for preventing fires, and protecting and provisioning against them—between municipal fire brigades and the citizens they served.

Historians of fire have provided important environmental and economic perspectives on fires' impact while urban historians have classed fires in the disaster category, but few historians have connected the problem of fighting fire in increasingly dense urban centers with larger questions of social responsibility in these places. Both historians and anthropologists have examined the role of fire in human society in the *longue durée* both as a material object and as a cultural phenomenon, and while these scholars often emphasized the role of keeping fires lit in the hearth, they have not addressed the

responsibility for extinguishing them.[4] Other historians have focused on the prevention of fires and the social responsibility associated with that endeavor, tracing improvements in architecture, education, and fire insurance as that reduced fire dangers across the British Empire and beyond.[5] Complimenting these studies is the growing body of literature on the construction of accidents as an immutable urban reality, highlighting the interconnections between the urban environment and urban social relations as the city's built environment often defined its susceptibility to accidents.[6] Urban history more broadly has often treated fire as an incidental or accidental feature of the urban environment rather than a fundamental aspect of the modern city. Still, these studies reveal important evolutions in

[4] Gaston Bachelard, *The Psychoanalysis of Fire*, trans. Alan C. M. Ross (Boston, MA: Beacon Press, 1964); Johan Goudsblom, *Fire and Civilization.* (London: Penguin, 1992); Margaret Hindle Hazen and Robert M. Hazen, *Keepers of the Flame: The Role of Fire in American Culture, 1775-1925*, Princeton Legacy Library (Princeton, New Jersey: Princeton University Press, 1992); Stephen J. Pyne, *World Fire: The Culture of Fire on Earth* (New York: Holt, 1995); Stephen J. Pyne, *Vestal Fire: An Environmental History, Told through Fire, of Europe and Europe's Encounter with the World*, Cycle of Fire (Seattle ; London: University of Washington Press, 1997); Stephen J. Pyne, *Fire: A Brief History* (London: British Museum Press, 2001).

[5] E. L. Jones, "The Reduction of Fire Damage in Southern England, 1650-1850," *Post-Medieval Archaeology* 2, no. 1 (January 1, 1968): 140–49; L. E. Frost and E. L. Jones, "The Fire Gap and the Greater Durability of Nineteenth Century Cities," *Planning Perspectives* 4, no. 3 (September 1, 1989): 333–47; Sara Wermiel, "The Development of Fireproof Construction in Great Britain and the United States in the Nineteenth Century," *Construction History* 9 (1993): 3–26; Sara Wermiel, *The Fireproof Building : Technology and Public Safety in the Nineteenth-Century American City* (Baltimore, MD: Johns Hopkins University Press, 2000); Robin Pearson, *Insuring the Industrial Revolution: Fire Insurance in Great Britain, 1700-1850*, Modern Economic and Social History Series (Aldershot: Ashgate, 2004); Swati Chattopadhyay, *Representing Calcutta: Modernity, Nationalism, and the Colonial Uncanny* (Psychology Press, 2005); Greg Bankoff, Uwe Lübken, and Jordan Sand, eds., *Flammable Cities : Urban Conflagration and the Making of the Modern World* (Madison, WI: University of Wisconsin Press, 2012); Vicky Holmes, "Absent Fire Guards and Burnt Children: Coroners and the Development of Clause 15 of the Children Act 1908," *Law, Crime and History* 2, no. 1 (2012): 21–58.

[6] Bill Luckin, "Accidents, Disasters and Cities," *Urban History* 20, no. 2 (October 1993): 177–90; John Withington, *London's Disasters: From Boudicca to the Banking Crisis* (The History Press, 2011); Paul Fyfe, *By Accident or Design: Writing the Victorian Metropolis*, First edition. (Oxford, United Kingdom ; New York, NY: Oxford University Press, 2015); Craig Spence, *Accidents and Violent Death in Early Modern London, 1650-1750* (Woodbridge, Suffolk: Boydell Press, 2016).

municipal governance,[7] urban populations,[8] and municipal planning.[9] While these urban histories took up the questions of municipal governance and some of the responsibilities for accident or fire prevention, they have not yet addressed questions of social responsibility for extinguishing fires.

Historians of the fire services in a variety of contexts have dealt most closely with questions of social responsibility, and the work can be divided into roughly three categories—microhistories of particular fire brigades,[10] comparative studies that evaluate fire service voluntarism,[11] and work that places the fire brigades in their broader urban context.[12]

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[7] S. W. Goode, *Municipal Calcutta: Its Institutions in Their Origin and Growth* (Edinburgh: Corporation of Calcutta, 1916); David Owen, *The Government of Victorian London, 1855-1889 : The Metropolitan Board of Works, the Vestries, and the City Corporation*, ed. Roy M. MacLeod (Cambridge, Mass.: Belknap Press of Harvard University Press, 1982); Gloria Clifton, *Professionalism, Patronage, and Public Service in Victorian London : The Staff of the Metropolitan Board of Works, 1856-1889* (London ; Atlantic Highlands, NJ: Athlone Press, 1992); P. J. Marshall, "The White Town of Calcutta under the Rule of the East India Company," *Modern Asian Studies* 34, no. 2 (2000): 307–31.
[8] Pradip Sinha, *Calcutta in Urban History* (Calcutta: Firma KLM Private Ltd, 1978); Rozina Visram, *Ayahs, Lascars and Princes: Indians in Britain 1700-1947* (London: Pluto, 1986); Atis Dasgupta and Subhas Ranjan Chakraborti, "The Growth of Calcutta: A Profile of Social Dislocations in the Early Colonial Period," *Social Scientist* 20, no. 3/4 (1992): 35–48, https://doi.org/10.2307/3517687; Judith R. Walkowitz, "The Indian Woman, the Flower Girl, and the Jew: Photojournalism in Edwardian London," *Victorian Studies* 42, no. 1 (1998): 3–46; Krishna Dutta, *Calcutta: A Cultural and Literary History* (Oxford: Signal, 2003); Himadri Banerjee, Nilanjana Gupta, and Sipra Mukherjee, *Calcutta Mosaic: Essays and Interviews on the Minority Communities of Calcutta* (Anthem Press, 2009).
[9] Rhoads Murphey, "The City in the Swamp: Aspects of the Site and Early Growth of Calcutta," *The Geographical Journal* 130, no. 2 (1964): 241–56; Soumitra Sreemani, "Problems of Shelter in the Late 18th Century Calcutta," *Proceedings of the Indian History Congress* 50 (1989): 571–73; Samita Gupta, "Theory and Practice of Town Planning in Calcutta, 1817 to 1912: An Appraisal," *The Indian Economic & Social History Review* 30, no. 1 (March 1, 1993): 29–55; Susan D. Pennybacker, *A Vision for London, 1889-1914 : Labour, Everyday Life and the LCC Experiment* (London ; Routledge, 1995); Partho Datta, *Planning the City: Urbanization and Reform in Calcutta, C. 1800-c. 1940* (Tulika Books, 2012).
[10] Geoffrey Vaughan Blackstone, *A History of the British Fire Service.* (London: Routledge and K. Paul, 1957); Sally Holloway, *London's noble fire brigades, 1833-1904.* (London: Cassell, 1973); K. D. Brown, "The Belfast Fire Brigade, 1880-1914," *Irish Economic and Social History* 16 (1989): 65–72; Sally Holloway, *Courage High!: A History of Firefighting in London* (London: HMSO, 1992); Tom Geraghty and Trevor Whitehead, *The Dublin Fire Brigade: A History of the Brigade, the Fires and the Emergencies.* (Dublin: Dublin City Council, 2004).
[11] Hubert Lussier, *Les sapeurs-pompiers au XIXe siècle: associations volontaires en milieu populaire.*, Bibliothèque des ruralistes (Paris: ARFEditions/L'Harmattan, 1988); Benjamin L. Carp, "Fire of Liberty: Firefighters, Urban Voluntary Culture, and the Revolutionary Movement," *The William and Mary Quarterly* 58, no. 4 (2001): 781–818, https://doi.org/10.2307/2674500; Mark Tebeau, *Eating Smoke: Fire in Urban America, 1800-1950* (Baltimore, MD: Johns Hopkins University Press, 2003); Nigel A Raab, *Democracy Burning?: Municipal Fire Departments and the Limits of Civil Society in Late Imperial Russia, 1850-1914* (Montréal: McGill-Queen's University Press, 2011).
[12] Amy S. Greenberg, "The Origins of the American Municipal Fire Department: Nineteenth-Century Change from an International Perspective," in *Municipal Services and Employees in the Modern City: New Historic Approaches* (London: Routledge, 2003), 47–65; Harry Welsh, "The Development of Public Services in Eighteenth- and Nineteenth-Century Belfast: The Fire Service—A Case Study," *Ulster Journal of Archaeology* 65 (2006): 67–89;

The historians that situate fire brigades in their larger context have provided the model for this dissertation. For instance, Amy Greenberg's work on volunteer fire brigades in the US offered an example of how to place fire brigade members in their social context, finding that they were institutions where individual citizens could perform their civic duty, but her study specifically did not deal with how the social responsibility for fire shifted after municipalization. The volunteer firefighting model, instead, in many ways perpetuated early-modern models of fire protection even as they were carried along on the shifting tides of American masculinity, as Greenberg emphasized.[13] Shane Ewen's study of the British fire service across the nineteenth and twentieth centuries showed how to effectively undertake comparative urban history and highlighted the variegated approaches to fire protection in British cities despite an overall trend for fire brigades to go hand in hand with increased municipal governance. Yet, Ewen's emphasis on municipal authority, as evidenced by empowered municipal fire brigades, did not consider the public trust required to maintain that authority nor did his study sufficiently contend with the way imperial cities influenced domestic fire services.[14] Finally, Anna Rose Alexander's deep dive into the role fire played in Porfirian Mexico City encompassed not only the fire brigade, but also technological innovation, public health improvements, and social change that accompanied the city's responses to fire.[15] I draw a great deal from Alexander's work, but I add several dimensions

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Shane Ewen, "Managing Police Constables and Firefighters: Uniformed Public Services in English Cities, C. 1870–1930," *International Review of Social History* 51, no. 1 (2006): 41–67; David Garrioch, "Fires and Firefighting in 18th and 19th-Century Paris," *French History and Civilization: Papers from the George Rudé Seminar* 7 (2017): 1–13; Carry van Lieshout, "'The Most Valuable Means of Extinguishing the Destroying Fires': Fire-Fighting and the London Water Companies in the Long Eighteenth Century," *The London Journal* 42, no. 1 (January 2, 2017): 53–69.

[13] Amy S. Greenberg, *Cause for Alarm: The Volunteer Fire Department in the Nineteenth-Century City* (Princeton, N.J.: Princeton University Press, 1998).

[14] Shane Ewen, *Fighting Fires: Creating the British Fire Service, 1800-1978* (Basingstoke: Palgrave Macmillan, 2010).

[15] Anna Rose Alexander, *City on Fire: Technology, Social Change, and the Hazards of Progress in Mexico City, 1860-1910*, History of the Urban Environment (Pittsburgh, Pa.: University of Pittsburgh Press, 2016)..

in the context of the British Empire, my comparative framework, and an emphasis on problems of trust..

This dissertation examines these processes in Calcutta and London for several reasons. First, there has been no systematic history written of the Calcutta fire brigade or firefighting in Calcutta in general, and it has only received terse asides in other secondary sources either on contemporary firefighting in India or on the development of other municipal services like the police.[16] This absence needed to be addressed given Calcutta's importance to the British Empire and because histories of British fire protection have ignored India's role in influencing both legislative and economic decisions.[17] Second, comparing Calcutta and London allows us to examine a trans-imperial project—fire protection—in local context. Urban historians have turned to trans-imperial and transnational comparisons in recent decades to decenter the Western urbanization model as "normative."[18] Furthermore, the very ways in which local officials defined the fire problem in each of these cities were deeply informed by the social conditions on the ground. Whereas London's overseers blamed fires primarily based on perceptions of class, Calcutta's Commissioners overwhelmingly pointed to race and its associated cultural elements for why and how fires started in their city.

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16 Sakti Prasad Bag, *Fire Services in India: History, Detection, Protection, Management, Environment, Training, and Loss Prevention* (New Delhi, India: Mittal Publications, 1995); P. Thankappan Nair, *Origin of the Kolkata Police* (Kolkata: Punthi Pustak, 2007); Goode, *Municipal Calcutta*.

17 For example, Merryweather & Sons fire engine manufacturers sold and advertised equally between Great Britain and the Empire, as seen in the list cited here: "Advertisement: 'The Greenwich' Patent Double Cylinder Steam Fire Engine," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom*, May 1, 1896, LOU.LON 376 [1896], British Library.

18 Shane Ewen, *What Is Urban History?*, What Is History (Cambridge, UK ; Malden, MA: Polity, 2016); Shane Ewen, "The Internationalization of Fire Protection: In Pursuit of Municipal Networks in Edwardian Birmingham," *Urban History* 32, no. 2 (December 2005): 288–307; edited by Martin Daunton, *The Cambridge Urban History of Britain. Volume 3, 1840-1950*, Cambridge Histories Online (Cambridge: Cambridge University Press, [2008], 2008); G Bremner, *Architecture and Urbanism in the British Empire*, First edition. (Oxford ; New York, NY: Oxford University Press, 2016).

Third, the political and geographical similarities of the two cities invites the comparison. Both Calcutta and London were seats of British Imperial power, even across the transition from East India Company to Raj rule, which often afforded them both legislative priority and greater authority to effect changes. Both cities were situated along major rivers, the Hooghly and Thames respectively, that figured prominently in both the maritime trade flowing through each city and their fire protection as floating fire engines were essential to fight ship and dockland fires. Finally, including both Calcutta and London in this analysis furthers the concept that fire was not just an isolated urban problem, but rather a widespread imperial one that nonetheless had to be addressed at the local level. The fire dangers of both cities increased over the period in this study, but only because these cities were nodes for the aggregation of imperial trade goods, wealth, power, and the populations needed to service all of those projects.[19] Together, these similarities and differences made Calcutta and London ideal case studies for this dissertation.

To trace the social responsibility for fire in Calcutta and London, I examined a broad range of primary sources, including committee minutes, governmental reports, legislation, newspaper stories, novels, and trade journals. The committee minutes of the fire insurance company committee in charge of the London Fire Engine Establishment, the oversight committee for the Royal Society for the Protection of Life from Fire, and the Bengal Legislative Committee provided insight into these institutions' internal conversations. These become especially important when the internal conversations do not match the external declarations in their public reports, much like the disparities identified between legislators

[19] The so-called "London-Calcutta Connection" as Carl Nightingale describes it accrued both benefits and detriments to each city. One of the most notable examples being the transmission of cholera from Calcutta to London, which became one of the costs for the cities' shared imperial project. Carl Husemoller Nightingale, *Segregation: A Global History of Divided Cities* (Chicago, IL: University of Chicago Press, 2015).

debates' and the final legislations.[20] Reports from the London and Calcutta Fire Brigades documented statistics on fires, and the brigades' statistical arguments revealed how they wanted the public to perceive them.[21] Meanwhile, newspaper stories, poems, and novels showed a range of public perceptions of the fire brigades and the social responsibility for extinguishing fires. While the public tended to idolize the fire service, when disastrous fires did occur the press outlined where the fire brigades were lacking, especially in fires involving the loss of life. Trade journals, like *The Fireman* or *The Assurance Magazine*, provided an alternative perspective where informed experts could comment on how the social responsibility for fire was undertaken, sometimes offering a supportive corollary and other times a damning critique. Each of these primary sources contributed to this geography of social responsibility for fire as it forged new landscapes across the nineteenth century.

Using these primary sources, this dissertation follows how questions around the social responsibilities for fire—like who would pay for fire protection, who would extinguish fires, how would protection be distributed, or how would the call be made—in Calcutta and London were codified in the early-nineteenth century, institutionalized in the mid-nineteenth century, and then redefined in the early-twentieth century. These three stages were each marked by their own distributions of the social responsibilities for fire. This period was one of intensive modernization, urbanization, and industrialization, which each contributed to worsening the fire problem in Calcutta and London, forcing more urban citizens to directly

[20] For example, some members of the RSPLF Comittee were willing to give over all of their apparatuses to the Metropolitan Fire Brigade for free, but were outvoted and ended up charging the municipal government almost £2,000 for the equipment. "Minutes of General Meetings and Committees (1862-1872)" (Society for the Protection of Life from Fire, 1872), CLC/014/MS34980/002, London Metropolitan Archive.
[21] For example, the Metropolitan Fire Brigade touted the falling percentage of "serious fires" as evidence of their efficacy even as the total number of fires in London continued to rise. "Fire Brigade Annual Reports (1879-1888)" (Metropolitan Board of Works, 1888), MBW/2323, London Metropolitan Archive.

confront this problem. The following chapters trace these changing distributions from the early-nineteenth to the early-twentieth century and emphasize the critical role that trust played in creating more fire-safe—or at least fire-protected—cities in the British Empire.[22]

The first transition of social responsibility for fire happened in the early-nineteenth century. Chapter 1 examines how imperial Britons began to reject religious or supernatural explanations for fires and instead shifted the blame for fires to three potential culprits: willfulness, carelessness, or accident. The first two causes were clearly the result of individuals, whether an incendiary or a clumsy servant, while the third resulted from "disordered environments" that could, with some moral sleuthing, be traced back to individuals.[23] In this way, imperial Britons could attribute the fire problem to the actions, or inactions, of individuals and in turn begin to place the responsibility for preventing fires from occurring onto individual urban citizens. Yet, these responsibilities were not expected equally and the onus fell disproportionately on Indian citizens in Calcutta and on the working classes in London, even as they were the ones most often taking responsibility for extinguishing fires through community action. How each city's leaders defined the fire problem—whether as individual citizens carelessly starting fires or living in blatantly flammable houses—would shape how they went about solving the problem and how the social responsibilities for fire would be distributed within the city.

Legislation was the most important tool that municipal governments and city leaders had to affect social responsibility. Chapter 2 explores how the municipal governments in

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[22] Frost and Jones famously attributed greater fire safety in Victorian cities to the "fire gap," or the space between buildings that prevented transmission, but they did not dwell much on the governmental and social pressure needed to achieve that "gap." Frost and Jones, "The Fire Gap and the Greater Durability of Nineteenth Century Cities."

[23] Spence, *Accidents and Violent Death*, 245.

Calcutta and London sought to enforce carefulness and social responsibility for preventing fires through building codes and other Acts, while also institutionalizing the social responsibility for extinguishing fires as the sole purview of the newly formed municipal fire brigades in the mid-nineteenth century. These brigades were funded by municipal funds and taxes from particular industries, and the laws that created them developed from how each city defined their fire problem. London's building codes focused on preventing fires from spreading by use of party walls and on ensuring safe escapes for citizens from burning buildings, while Calcutta's codes were primarily concerned with outlawing and removing thatched roofs and bustees [slums or shanty towns] from the city as a fire precaution.[24] Both sets of laws establishing the Calcutta and London municipal fire brigades made it explicit that the new brigades were meant to prioritize saving lives as well as property from fire, which was a departure from earlier, insurance-based fire protection that viewed life-saving as an afterthought. To facilitate life-saving, legislators gave the new municipal brigades broad powers for entering private property without the owners' consent and had the potential to put the brigades on a collision course with a disgruntled public.

The fire brigade acts placed the social responsibility for extinguishing fires solely onto these new, broadly-empowered, municipal fire brigades and onto the firemen that made up their ranks. Chapter 3 analyzes the strategies employed by the Calcutta and London fire brigades to encourage their citizens' trust in their firemen through discipline, morality, and militarism. Both Calcutta and London fire brigades sought to hire former sailors as their

[24] Similarly, Calcutta's legislation setting up a municipal fire brigade in 1872 prioritized making jute warehouses more fire-safe, while using the licensing fees on jute warehouses to fund the new fire brigade. London, in contrast, built its 1865 municipal fire brigade on the foundations of the fire insurance company-run London Fire Engine Establishment and as such relied on funding from the fire insurance companies as they had a vested interest in the city's fire protection.

ideal firemen-candidates, but only London was able to entice sailors into their ranks. As such, London's fire brigades used discipline and moral instruction to replace old public stereotypes of sailors as drunken troublemakers with an image of firemen as upstanding, sober, and professional members of Metropolitan society. Calcutta, instead, followed other imperial capitals like Paris and Istanbul in making their fire brigade more closely resemble the military—both in terms of discipline and in rank structure. Even as Calcutta embraced the military connection for its fire brigade, following the Indian Army's example, firemen in Britain began to explicitly distance themselves from the military by emphasizing that life-saving was of even greater value than the life-taking of the Army or Navy. Thus, London and Calcutta firemen primarily gained trust from citizens through claims of professionalism or by borrowing military identity.

Once these brigades had filled their ranks with trustworthy members, the question became how the fire brigades could show that they continued to take their responsibility to extinguish fires seriously, and be worthy of the public's trust. One of the primary ways the brigades achieved both trust and facilitate extinguishing fires was through the adoption of new technologies. Chapter 4 catalogues the adoption of four different technologies—steam fire engines, the telegraph, pompier (hook) ladders, and petrol-motor fire engines—by the London and Calcutta fire brigades as well as the social conditions and pressures that made those adoptions possible. While much of the fire brigade literature took it for granted that fire brigades adopted new technologies simply to be more "efficient" at extinguishing fires or saving lives, in reality other social forces had to be brought to bear to justify the costs of adoption. The chapter goes on to examine the roles played by distrust, despair, and discipline in affecting the decisions about new technologies for the fire brigades. Ultimately, most new

technologies were adopted to improve the trust relationships between citizens and firemen and to further institutionalize the fire brigades' social responsibility for extinguishing fires and rescuing citizens.

In the early-twentieth century, however, the urban environment had gained electricity, petrol-motor vehicles, and further population growth, which all brought up new questions for the social responsibility for fire. Chapter 5 details how it became part of urban citizens' responsibility to not only prevent fires, but to actively report them to the fire brigade in a timely manner. The fire brigades had relied on citizen reporting since the early-nineteenth century, but it was only with municipalization that reporting fires became an expectation of urban citizens—and even then was not always carried through. This chapter traces how fire calls were received up to the early-twentieth century and then details the move for fire brigades to begin mapping their stations and fire alarms as well as the instances of fires in their cities. These maps in turn encouraged the fire brigades to imagine themselves as a safety network covering their cities, not just individual brigades fighting individual fires. While these maps were created to educate urban citizens in order for them to report fires more promptly, they served a second purpose of visually illustrating the arguments the London and Calcutta fire brigades made about themselves and their relationship to the citizens they served. These maps built on earlier examples of social cartography, especially epidemic disease and fire insurance risk maps, in order to illustrate both the extent of the fire problem in each city and the brigades' coverage for dealing with it. In the end, these maps became visual representations of the fire brigades' social responsibility for extinguishing fires and saving lives as well as a call to responsibility for urban citizens to not just prevent fires, but to actively report them when they did break out.

Through these chapters, this dissertation undertakes the story of how the questions of social responsibility for fire was divided between the fire brigades and urban citizens in Calcutta and London in the long-nineteenth century. In relating this narrative, it reveals the importance of public trust in creating a sustainable fire protection system, which in London came from urban citizens and in Calcutta had to be enforced from the municipal government. Moreover, it puts forward the thesis that urban fire protection was not just the purview of fire brigades, but required the attentive action of all urban citizens first to prevent fires and then to report them—even if at times either side failed to fulfil their full social responsibility. Fire and fire protection have been integral pieces of the urban history of Calcutta and London, as threat to and defenders of the imperial project, respectively. This dissertation reinserts fire into the conversation and calls on future historians to consider the social responsibility for fire when exploring the relationship between urban citizens and municipal governance.

Chapter 1 Willfulness, Carelessness, and Accident Narratives: Defining the Fire Problem in the Nineteenth Century

As urbanization increased and industrialization began to take off in the eighteenth-century British Empire, imperial Britons started to identify fire as a problem to be solved. The fire problem, first and foremost, was the destruction of property, like the trade goods that fueled the empire, and as a corollary was the loss of life to fire. Taken together, the loss of property and life to fire undermined the imperial project by disrupting the economy and undermining public trust in imperial governance. As such, the social responsibility for dealing with fires increasingly fell to urban governments and institutions, who sought the origins of fires in order to stop them. While Londoners and others may have considered the great fires of the seventeenth century a "divine judgement," the near daily exposure to small fires in urban centers across the eighteenth century began to suggest a more mundane cause: people.[1]

With the shift toward human actors causing fires starting in the eighteenth century, in the nineteenth century two overarching categories of fire causes became standard: carelessness and willfulness. Charles F. T. Young, a British engineer and author, laid out these categories in his 1866 treatise *Fires, Fire Engines, and Fire Brigades*. In this technical treatise, Young wrote that "After everything has been done that scientific and practical knowledge shows to be the means of diminishing the liability and extent of fires, there are

[1] Marie Luisa Allemeyer, "Profane Hazard or Divine Judgement? Coping with Urban Fire in the 17th Century," *Historical Social Research / Historische Sozialforschung* 32, no. 3 (121) (2007): 145–68; Stephen Porter, *The Great Fire of London* (Thrupp, Stroud, Gloucestershire: Sutton, 1996); Samuel Pepys, *The Great Fire of London*, Penguin Little Black Classics 47 (Cambridge: Penguin Books, 2015).

still those unconquerable difficulties of carelessness and willfulness to contend against." In other words, human error or human intent—via incendiarism, arson, or pyromania—would continue to make urban fire a problem, even with the most sophisticated fire prevention systems in place. Further, Young underscored the dangers of disordered environments by arguing that persistent carelessness "becomes wilfulness [sic], and should therefore be severely punished," making his case for municipal and national-legal fire safety regimes.[2] These "willfulness" and "carelessness" categories formed the basis for how Britons ascertained fires' causes and reinforced the human factor in uncontrolled fires. Further, these fire problem constructions underscored the need for widespread social responsibility around fire.

To these categories was added another layer: the accident narrative. These narratives gradually replaced divine explanations, retaining moral judgment without blaming the otherworld. Accidents differed from carelessness in that they were the result of aggregated "disordered environments" rather than a single fumbling act. For example, knocking over a candle or spirit lamp would be considered "carelessness" while the spontaneous ignition of a pile of oily rags left in the son would be an "accident." Essentially, urban citizens took the apparent chaos of the urban environment and converted it into a rational and moral narrative that explained why urban disasters happened to which people. These accounts were particularly prevalent in London, but spread throughout the empire. Accident narratives "helped to construct a social knowledge" of the urban environment and contributed to "the construction of social norms" for how Londoners and urban citizens generally should behave to survive urban spaces. Seventeenth- and eighteenth-century accidents narratives

[2] Charles Frederic T. Young, *Fires, Fire Engines, and Fire Brigades: With a History of Manual and Steam Fire Engines, Etc* (London: Lockwood & Company, 1866), 2.

followed a standard form where they (1) set the situation then (2) revealed the "crisis" of the accident and finally (3) gave a "resolution" that explained why the crisis happened and where the blame should be placed.[3] This final point became even more marked in the nineteenth century as Britons solidified human action as the origin of all fires.[4]

These three categories—willfulness, carelessness, and accident—formed the basis for how urban citizens and municipal governments began to define the fire problem in the nineteenth century. This chapter examines how urban citizens employed these categories in order to understand the fire problem and to encourage the growth of social responsibility around fire. First, the chapter explores the various explanations given by Calcutta's magistrates for the origins of the 1817 Laprimaudaye Fire in Calcutta, which showed how deftly magistrates could take up or discard different human actors for causing fires. Then the subsequent two sections will each highlight the willfulness and carelessness categories for explaining fires' origins and the ways that those explanations could be weaponized against different groups, particularly working-class people. The final section takes up the discussion of accident narratives and shows how they often combined a human actor with a disordered environment in order to explain why a fire broke out. These disordered environments themselves could become a point of intervention and as the example of thatched roofs in

[3] Spence, *Accidents and Violent Death*, 214–15, 232–33; While Spence makes a compelling case for these accident narratives in early modern London, Paul Fyfe discusses their centrality in the Victorian period as well. Fyfe, *By Accident or Design*.

[4] This development coincided with industrial and aesthetic movements of the eighteenth and early nineteenth centuries that sought to control all nature for the betterment or pleasure of humans. These movements created the idea that nature *could* be controlled, which in turn meant that any fire could be stopped--ideally, before it even began. These impulses came together in the practice of forestry whereby humans sought to control natural processes and kept fire at bay without knowing that for some trees, like pines, fire was an essential part of their life cycle. James C. Scott, *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*, Yale Agrarian Studies (New Haven, Conn. ; London: Yale University Press, 1998); Stephen J. Pyne, *World Fire: The Culture of Fire on Earth* (New York: Holt, 1995); Stephen J. Pyne, *Vestal Fire: An Environmental History, Told through Fire, of Europe and Europe's Encounter with the World*, Cycle of Fire (Seattle ; London: University of Washington Press, 1997); Stephen J. Pyne, *Fire: A Brief History* (London: British Museum Press, 2001).

Calcutta showed, an effective but unfair one. Ultimately, British imperial citizens came to define the fire problem in the early-nineteenth century as inherently tied to human actors and/or disordered environments, both of which appeared to be solvable with a tighter implementation of social control. While later chapters will explore how that control was effected, this chapter shows how the problem could be defined in such a way as to encourage a solution that would increase the power of social responsibility for fire in urban centers.

1.1 The Laprimaudaye Fire and Explaining Fires' Origins

Large fires were uncommon in Calcutta during the eighteenth and early-nineteenth centuries. The monsoon climate, fire-resistant construction materials, and relatively easy access to the Hooghly River created conditions that did not lend themselves toward conflagration.[5] Since fires were rare, Calcutta did not have systematic fire protection in place in the early-nineteenth century. This made it even more surprising when in August 1817—after the rainy season had started—the Sunn [a hemp-like fiber similar to jute] and cotton warehouse belonging to Stephen Laprimaudaye, a European merchant, caught fire and threatened many of the homes and warehouses in its district.

In the course of their investigation, the magistrates considered three possible causes for the fire—willfulness, carelessness, and accident—each of which had a human origin, and represented how fires' origins were being conceived in the early-nineteenth century. Once

[5] Indeed, this fact challenges certain Western understandings of modernity. Building on Frost and Jones, Cornel Zwierlein argued, "if modern cities are cities free of the danger of big conflagrations, perhaps the traditional Indian cities were in a certain way since a long time 'modern' even if they seemed to a European visitor in many other respects completely unmodern." Cornel Zwierlein, "Insurances as Part of 'Human Security', Their Timescapes, and Spatiality/Versicherungen Als Element von Human Security, Ihre Zeitregime Und Ihr Raumbezug," *Historical Social Research / Historische Sozialforschung* 35, no. 4 (134) (2010): 267; Frost and Jones, "The Fire Gap and the Greater Durability of Nineteenth Century Cities."

the fire had been extinguished, the Calcutta magistrates carried out their investigation into its origins and reported to the East India Company headquarters in London. The magistrates conducted their investigation like an inquest and sought to determine the natural or human source of the conflagration, to which they brought to bear many early modern assumptions about urban fires. Historian Craig Spence's study of fire accidents in early modern London found that "many urban fires were specifically reported as having their origins in disorderly circumstances," such as haphazardly cleaned rooms or improperly stored goods.[6] English imperialists carried this emphasis on the "disorderly circumstances" from which fire arose to Calcutta. Thus, when the flames from Laprimaudaye's warehouse threatened "a number of Godowns filled with the Honourable Company's Cotton and Wines to a very considerable amount," it was there that Fort William's soldiers and the impressed Indians were first deployed to impose order on the area.[7] The warehouse's possible "disorderly circumstances"—like wrongly-stored sunn or cotton—eventually featured heavily in the magistrates' summation of the fire.

The Laprimaudaye fire, then, provides a perfect case study for how different causes could be read onto a single fire and how without a witness to ignition all explanations were necessarily constructed after-the-fact. It also reveals the ways in which early-nineteenth century municipal authorities were thinking about the fire problem. The Calcutta magistrates entertained three possible causes for the Laprimaudaye fire: incendiarism [willfulness], spontaneous ignition [carelessness], and accident [which made blame less clear]. The magistrates considered each potential cause and interviewed the victim and other witnesses

[6] Spence, *Accidents and Violent Death*, 245.
[7] "Papers Regarding a Fire Which Occurred on the Premises of Mr Laprimaudaye at Calcutta and Destroyed a Great Deal of Public and Private Property - Establishment of a Regular Fire Brigade at Calcutta," 1817, 20, IOR/F/4/610/15060, British Library, India Office Records, emphasis in original.

to either corroborate or disprove the proposed explanation. Eventually, the magistrates settled on it being an accident and chose not to prosecute any one person for its ignition. Before the accident narrative solidified, however, the magistrates had to contend with the other possibilities.

The first possible cause of the fire was incendiarism. The primary victim of the fire, Laprimaudaye, appeared to "to entertain little doubt of the Premises having been wilfully [sic] set on Fire" and told the magistrates as much. He based his explanation on "having at the very commencement observed that the bales of Sunn were burning in three distinct places and a quantity of fire lying in a position where it could scarcely have come, had it not been placed designedly."[8] Incendiaries often used multiple ignition points to ensure that the structure or object completely burned. British officials in the eighteenth century believed that incendiarism was commonly used among the straw huts of Indian Calcutta, so it was a possible conclusion for Laprimaudaye.[9]

The magistrates, however, were not convinced that the warehouse fire was an incendiary's handiwork. The other witnesses the magistrates interviewed did "not corroborate these facts altogether," throwing significant doubt on Laprimaudaye's interpretation. Furthermore, the magistrates reported "the agitated state of mind which Mr. Laprimaudaye is said to have been in at this period and which he himself admits lead us to believe that he has formed an erroneous opinion."[10] Given that his warehouse was engulfed in flames it seems reasonable that Laprimaudaye would have been a little "agitated," but that lack of calmness undermined his credibility as a firsthand witness in the eyes of the

[8] "Papers Regarding a Fire...," 13–14, emphasis in original.
[9] Goode, *Municipal Calcutta*, 279.
[10] "Papers Regarding a Fire...," 14.

magistrates. Thus, neither the evidence nor the witness testimony suggested an incendiary at work. The magistrates had to look elsewhere for a narrative for the fire.

Having dismissed willfulness as the fire's cause, the magistrates began to entertain different scenarios focused on human carelessness. The second cause they considered was spontaneous ignition, which may have resulted from "the Sunn…having been screwed together in a Damp state."[11] If Laprimaudaye had pressed, "screwed," the sunn together before it had completely dried, then during the storage process it could off-gas and coupled with the ambient heat of an Indian summer might create the conditions for self-ignition. Such scientific explanations were gaining favor as divine or supernatural causes (such as spontaneous combustion) lost credibility. Several of the conditions for spontaneous ignition might have applied to the Laprimaudaye fire: namely, "Action of the sun," "Wool, cotton, &c., mixed or covered with oil," "Torrefaction [drying or roasting] of vegetable substances," or simply "Considerable friction."[12] Any of these processes could have caused damp-screwed sunn to spontaneously ignite, but they required that initial carelessness of improper screwing to be certain.

The magistrates, therefore, questioned Laprimaudaye on his drying and storage processes. They noted that his "long exposure in such concerns [sunn warehousing] of course gives considerable weight to his opinions," and meant that they were more likely to accept his explanations. Laprimaudaye denied that he had improperly screwed his sunn. To back up his protestations, he reported that he had "even made experiments to see if Sunn or Cotton so screwed would ignite but ha[d] never found it to be the case," which was

[11] "Papers Regarding a Fire...," 14.
[12] Bertholdi, quoted in: Francis Benjamin Thompson, *Fire: Its Causes Considered and Explained on the Basis of Chymical and Electrical Science* (London: Simpkin, Marshall and Company, 1857), 6–7.

anecdotal but served to further his claims to expertise.[13] These "experiments" solidified Laprimaudaye as a gentleman-scholar in the magistrates' eyes, fitting with their own self-image, and allowed them to dismiss his carelessness as the fire's cause.

Someone had to have been careless, however, and if it were not the European then suspicion fell on Laprimaudaye's Indian employees. The magistrates considered both Laprimaudaye's warehouse workers and his Durwan [doorkeeper] as the fire's potential, unintentional, careless initiators. The magistrates, however, did not charge these Indian workers directly, partly due to Laprimaudaye's demanding their innocence and partly due to lack of evidence. Instead, they chose "to attribute the calamity to one of those *accidents* to which Premises of such description are ever liable."[14] By claiming the fire was an "accident," the magistrates could end their investigation into its origins without ascribing blame to particular individuals all while maintaining the certainty that the circumstances, which led to it, were sparked by human action. In early-modern London, "[a]ccidents were seen…as having unique and unchartable origins that, while not of supernatural design, resulted from a set of 'chance' circumstances," and this same framework had come to Calcutta.[15] Having dismissed providence, the magistrates laid out the "circumstances" by which such an accident could occur. They noted that in the warehouse "lights [were] kept burning for many hours," that "the workmen had been employed to a very late hour," and their assumptions were "considerably strengthened by the circumstance of several Hookhas [sic] and Chillums having been since found in the ruins of the Durwan's house and among the rubbish in the

[13] "Papers Regarding a Fire...," 15.
[14] "Papers Regarding a Fire...," 15–16, [emphasis added].
[15] Spence, *Accidents and Violent Death*, 208.

Godown."[16] Whether they caused the fire or not, these circumstances added up to a disordered environment in which accidents became possible.

Yet, because Britons believed that accidents arose from disordered environments, the warehouse owner came once again under scrutiny. The magistrates noted, "Mr. Laprimaudaye seems to have taken the usual precautions" when it came to having lights in his warehouse. Laprimaudaye's demonstrated expertise in the production and storage of his trade goods suggested to the magistrates that he would be aware of the dangers inherent in his trade. Furthermore, the magistrates were "assured by Mr. Laprimaudaye that no Hookhas [sic] were ever allowed within the Premises," while the material evidence showed they were at least adjacent to the warehouse which cast Lapimaudaye in a more naïve light.[17] As the fire did not appear to start in the Durwan's house, however, it is unlikely that a hookah was the initial cause of the fire. Thus, the magistrates refrained from officially laying blame for the fire on an individual and instead wrote its origin off as an "accident," an "unfortunate occasion," that could have been mitigated only by more systematic fire protection institutions that could contend with the human failings that led to urban fires.[18]

Through their investigation, the magistrates created an accident narrative of the Laprimaudaye fire. They set up the situation as a disordered environment in which various acts of carelessness or willfulness could start a fire. The crisis of the accident is more obscure, but could have been an incendiary's spark—least likely in the magistrates' view—or more likely the flame from a lamp or hookah encountering the drying sunn. The resolution of the accident came after four days of firefighting, the complete destruction of

[16] "Papers Regarding a Fire...," 16–17.
[17] "Papers Regarding a Fire...," 16–17.
[18] "Papers Regarding a Fire...," 53.

Laprimaudaye's warehouse, and the magistrates' investigation concluding that the fire was an accident. The moral of this accident narrative was that warehouse owners and their workers should be more careful and that, for the magistrates, a better warning system for when such fires occurred would be essential for the city going forward, and as such they requested funds and support from London for creating a more perfect fire protection system in Calcutta.[19]

Through constructing this accident narrative, the Calcutta magistrates solidified the idea that human action, whether willful, careless, or accidental, was the ultimate cause of urban fires. They did not even consider divine or supernatural explanations for the fire, marking a departure from early modern accounts that had privileged providential causes.[20] By centering human agency for urban fires, the question of liability would only grow more complicated—especially once fire insurance became ubiquitous. Yet, accident narratives allowed Britons to ascribe the liability to "chance" rather than individuals. While accident narratives could obscure blame, the root circumstance of disorderly environments continued to gain traction. In Calcutta, this gave credence to the idea that Europeans had a responsibility for ordering their urban environment and forcing Indians to adhere to those conditions. Whatever the final proclamation, each of the possible origins of the Laprimaudaye Fire started with a human being.

1.2 Willful Fire-setting and Incendiarism

[19] "Papers Regarding a Fire...," 87–88.

[20] This supports Spence's argument that by the end of the eighteenth century, Britons in general and Londoners in particular had abandoned divine explanations in favor of accident narratives in their attempts to read order onto chaotic urban environments. Spence, *Accidents and Violent Death in Early Modern London, 1650-1750*.

Despite Stephen Laprimaudaye's assertions that he was the victim of arson, the magistrates had quickly moved on to other explanations. While it may have seemed callous on the magistrates' part, with such a large fire arson was almost impossible to prove and it was not the most likely explanation. Had the circumstances been otherwise, however, arson could have been plausible. This section discusses the prevalence of willful fire-setting—categorized as both arson and incendiarism—in the early-nineteenth century British world. It traces the role incendiarism played in political unrest, particularly in rural areas, and then examines how in urban centers such willful fire-setting most often became explained through fraud or other monetary motives, which in turn undermined fire's political potential. Still, in its obviousness, willful fire-setting provided governments with their first opportunity for intervention in the fire problem: the way to stop incendiarism was to get rid of incendiaries.

Starting in the eighteenth century, Britons made direct attempts to prevent incendiarism. Between 1754 and 1830, both threatening arson and the act itself were capital crimes, and from 1830 it was still punishable by transportation for life.[21] These heavy punishments simply forced incendiaries to be more cautious setting their fires. The fact that fire is "a highly political phenomenon" and a "weapon of the weak" made it difficult to deter the working classes from using fire toward their ends.[22] Rural incendiarism became directly attached to revolutionary politics during *Le Grande Peur* of the French Revolution. In 1810s–30s England, that translated into a connection to Paineite radicalism that was difficult to

[21] Douglas Hay et al., *Albion's Fatal Tree: Crime and Society in Eighteenth-Century England* (London: Verso, 1975), 283; E. P Thompson, *Whigs and Hunters: The Origin of the Black Act*, 1st American ed.. (New York: Pantheon Books, 1975).
[22] Bankoff, Lübken, and Sand, *Flammable Cities*, 13; James C. Scott, *Weapons of the Weak: Everyday Forms of Peasant Resistance* (New Haven ; London: Yale University Press, 1986).

disaggregate.[23] In turn, English rural incendiarism also called up memories of the Levellers and the Luddites and insofar as any political tendencies can be ascribed to them, it was likely in the defense of rural England's "moral economy."[24]

The staggering scale of rural incendiarism helped further its study. In East Anglia alone, John Archer has shown that during the Swing Riots (1830–32) "about 300 fires had occurred," and from "October 1843 to December 1844 incendiarism throughout England reached an unprecedented scale" with over 600 willful fires in one fifteen-month period.[25] In comparison, the London Fire Brigade reported only ten cases of incendiarism for 1843 and seven for 1844, out of 749 and 762 total fires, respectively.[26] In part, this difference in scale could be explained by the potential for collateral damage. As E.P. Thompson put it, "[a]rson is so terrible and indiscriminate a crime, to the urban mind" because of its potential to spread beyond the bounds of the one building or property intended to burn. Yet, he went on to explain: "[r]ural arson was rarely indiscriminate, almost never took human life, and very rarely took the lives of stock." This meant that in rural spaces incendiarism could be a very pointed and effective means of articulating displeasure with particular persons.[27] Despite this

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[23] Georges Lefebvre, *The Great Fear of 1789: rural panic in revolutionary France*, trans. Joan Eveline Mabel White (London: NLB, 1973); Eric J. Hobsbawm and George F. E. Rudé, *Captain Swing*, [1st American ed.]. (New York: Pantheon Books, 1968); Carl J. Griffin, *The Rural War: Captain Swing and the Politics of Protest* (Manchester: Manchester University Press, 2012).

[24] E. P. Thompson, *Making of the English Working Class.* (New York, NY: Vintage Books, 1966); E. P. Thompson, "The Moral Economy of the English Crowd in the Eighteenth Century," *Past & Present*, no. 50 (1971): 76–136; John E. Archer, "The Nineteenth-Century Allotment: Half an Acre and a Row," *The Economic History Review* 50, no. 1 (1997): 21–36; Timothy Shakesheff, *Rural Conflict, Crime, and Protest: Herefordshire, 1800 to 1860* (Woodbridge: Boydell, 2003); John E Archer, *By a Flash and a Scare: Arson, Animal Maiming, and Poaching in East Anglia 1815-1870* (London: Breviary Stuff, 2010).

[25] Archer, *By a Flash and a Scare*, 107.

[26] 1.3% and .9% of all fires those years, while percentages of "unknown" fires were 19% and 20% for those years, which meant a potentially larger amount of incendiary fires. "LFEE Committee Minute Book 1842-46," 1846, 108–13, 161–66, CLC/B/017/MS15728/004, London Metropolitan Archive.

[27] Hay et al., *Albion's Fatal Tree*, 277–78.

highly targeted nature, the fear induced by incendiarism encouraged many people to discuss it and attempt to identify why people would carry out such attacks.

In Calcutta, magistrates considered incendiarism a tactic employed primarily in disputes between Indian citizens, much like it occurred primarily between people of similar class status in England.[28] In the 1853 Calcutta Police annual report, the magistrate noted that "ill-disposed persons, may occasionally, from motives of revenge, set fire to an enemy's house" and went on to identify those "persons" as "natives."[29] Arson's potential for social and economic revenge were also on display in Calcutta's 1842 police report, which described Ramdhun Ghose's success in setting fire to his former employer's, Gungaram Ghose's, cow shed by throwing a burning coal onto the roof while he was intoxicated. The employer opted not to press charges, but the shed's roof still burned away.[30] Yet, there was still a great deal of fear among Calcutta's European population that the incendiarism might be turned their way, as Laprimaudaye had suspected in 1817. These fears were realized when an attempt was made to set fire to Fort William's Arsenal in 1839. The perpetrator[s] was not caught, and the fire was quickly contained, but the potential for destruction and to harm British political power in the region could not be ignored. The Company significantly increased the watch on the Arsenal and in 1841 adopted some fire prevention precautions from the lessons learned

[28] Nineteenth century incendiarism in both Russia and England primarily occurred between members of the same class, while in the Caribbean and France it took on more inter-class components in moments of social and political upheaval. Cathy A. Frierson, *All Russia Is Burning!: A Cultural History of Fire and Arson in Late Imperial Russia.* (Seattle: University of Washington Press, 2002); John M. Merriman, "The Norman Fires of 1830: Incendiaries and Fear in Rural France," *French Historical Studies* 9, no. 3 (April 1, 1976): 451–66, https://doi.org/10.2307/286231; Bonham C. Richardson, *Igniting the Caribbean's Past: Fire in British West Indian History* (Chapel Hill, N.C.: University of North Carolina Press, 2004); Archer, *By a Flash and a Scare.*

[29] "Report on the State of the Police of the Town of Calcutta, for 1852-1853" (Bengal Military Orphan Press, 1854), 29, IOR/V/24/3209, British Library, India Office Records.

[30] "Report on the State of the Police of the Town of Calcutta During the Year 1842, by the Chief Magistrate" (Bengal Military Orphan Press, 1843), 18, IOR/V/24/3208, British Library, India Office Records.

after the Tower of London burned in 1840.[31] Whether politically or personally motivated, Calcutta's police magistrates assumed that any willful fire-setting in their city was perpetrated by Indians, and the magistrates feared that such fires might be a symptom or a signal for something even more dangerous like rebellion.

While Calcutta's magistrates feared the political potential of Indian incendiarism, in rural England it became possible for an act of personal vengeance could become a "communal" or "social" act of protest through the reaction of the community. When the local community felt an incendiary fire was warranted, they would either refuse to help extinguish the fire or actively prevent its extinction. In this way, the local village or parish community could provide their imprimatur on the act and reinforce incendiarism's social control power.[32] Some of the tactics employed by community members ranged from pelting firefighters with stones and mud to cutting hoses. Cutting hoses was an especially nasty aftershock of incendiary fires since they were made of leather, not easily replaced, and almost impossible to repair effectively in the field. Given that these hoses were expensive, it was unlikely that a rural parish would have extras, and since water had to be pumped long distances to reach rural fires even losing one length of hose could make a fire inextinguishable. At fires like these, incendiaries received the explicit community support that their otherwise individual activities could not elicit. Yet, the infrequency with which informers collected rewards for turning in incendiaries furthers the view that these people could be rural folk-heroes.[33]

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[31] "Despatches to India and Bengal (Original Drafts June-Sep 1840)," 1840, 710–14, IOR/E/4/763, British Library, India Office Records; "Despatches to India and Bengal (Original Drafts Sep-Dec 1841)," 1841, 720–21, IOR/E/4/768, British Library, India Office Records.

[32] Frierson, *All Russia Is Burning!*

[33] Either that or the informers feared being burned out themselves. For more on the communal versus individual understandings of incendiarism, see: Archer, *By a Flash and a Scare*.

Yet, for many Britons, the incendiary was closer to the devil incarnate than any kind of hero. In fact, clergy members like Reverend L.F. Page ascribed the motives for incendiarism to a generalized sinfulness. In his four sermons on *Incendiarism*, Page asked, "Can we want any other proof to convince us that there is something fearfully wrong in the nation, which can produce inhabitants so diabolically disposed, and which the Almighty permits to be visited with so new and unheard of calamity?"[34] Reverend Page, saw the fires as "a visitation from God" and "so many calls to repentance" for the British. He saw incendiaries as agents of the devil. Page warned his parishioners that "your greatest enemies are those in your own class, who are Sabbath-breakers, drunkards, fornicators, thieves, gamblers, poachers," which were each sins that might lead one on a path to incendiarism.[35] His solution for stopping incendiarism was for more people to attend church on the Sabbath, to live by the church's code, and to respect the countryside's social order. While this solution may have lowered the "sinfulness" of England's rural areas, it did not speak to the economic or political issues that incendiarism seemed to represent.

It was difficult for Britons not to think about incendiarism in political terms. As Edward Gibbon Wakefield explained in 1831, "whether or no [sic] discussion produce fires, fires will inevitably produce discussion."[36] What Wakefield meant was that while political inclinations or discussions may or may not have encouraged incendiarism, incendiary fires definitely made Britons discuss the political implications. Wakefield himself was quick to

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[34] Rev. L. F. Page, *Incendiarism; Its Cause, Call, Wickedness, Folly, and Remedy: Four Sermons* (Bury St. Edmunds: G. Thompson, 1844), 5.
[35] Page, 70.
[36] Edward Gibbon Wakefield, *Swing Unmasked, Or, The Causes of Rural Incendiarism*, Making of the Modern World. Part 1, Goldsmiths'-Kress Collection, 1450-1850 (London: E Wilson, 1831), 7. Wakefield would later be famous for his colonial work in New Zealand and Australia and his theories on how to approach white settler colonization in those parts of the empire. At this point in the early 1830s, he was a debtor and conservative propagandist, which comes out strongly in his two pamphlets cited in this section.

discourage applying any kind of structured political message onto these incendiary actions. In his pamphlet, *Householders in Danger from the Populace*, he wrote that "common thieves" would "pluck sensual enjoyment in the midst of blood and fire" and that, even worse, "plunder and rape would be succeeded by fire as a means of concealing those crimes."[37] In other words, Wakefield emphasized that incendiaries were criminals and should be afforded no more political motivation than "common thieves" that robbed for the fun of it.

Wakefield continued to explore the motives of incendiaries in his next pamphlet, *Swing Unmasked*. In the pamphlet, he related several "creations of ignorance, hypocrisy, or fright" that others had offered in answer to the question "Who is *Swing*?" These explanations included a "rascally farmer," a "disguised papist or Methodist," or a "well-dressed agent…of the revolutionary spirit" any of whom could be the real culprit behind incendiarism. Each of these characters hit upon English fears of fraud, sectarianism, and revolution. Wakefield dismissed all of these explanations and instead directed attention to the English "peasantry"—abased by landowners and spurred on by the July Revolution in Paris—whom he argued burnt farmers' stacks as "the easiest and safest mode of revenge ever devised."[38] In other words, Wakefield suggested that incendiarism was primarily an act of social vengeance of laborers and peasants against the farmers who employed them, or not as the case may be.

Yet, the expansion of fire insurance into the English countryside provided another alternative. Wakefield noted in 1831, "the property of most farmers is insured; so that the injury occasioned by most rural fires, falls immediately on the Insurance companies" who

[37] Edward Gibbon Wakefield, *Householders in Danger from the Populace*, Making of the Modern World. Part 1, Goldsmiths'-Kress Collection, 1450-1850 (London: E Wilson, 1831), 5–7.
[38] Wakefield, *Swing Unmasked*, 8, 34; emphasis in original.

had started insuring agricultural produce by the end of the eighteenth century.[39] With the volume of fires during the 1830s and 1840s in rural Britain, it is likely that some farmers started fires themselves for the insurance money. Indeed, the investigative apparatuses available to county fire offices were even less robust than metropolitan companies, so the likelihood of getting away with insurance fraud increased immensely. Alternatively, if an incendiary knew that a farmer had insured a particular crop, they could burn the stack or hayrick and make their point without immiserating the victim.

Either way, the county fire insurance companies, like the Norwich Union Fire Office or the Suffolk Fire Office, had to respond directly to incendiarism. To combat both fraud and excessive loss these offices raised their premiums and altered their policies to reward farmers that treated their employees well, by offering reduced rates for better pay to laborers, all in the hope of forestalling fires.[40] Commentators like Wakefield and the county fire offices were concerned that there was an economic rather than a political motive behind the incendiary attacks.

Ultimately, these commenters were participating in shifting the conversation from communal/political motives for incendiarism to personal ones. Fraud and personal revenge replaced the radical politics and social vengeance. These trends were solidified starting in the 1840s when incendiarism was psychologized under the concepts of "incendiary monomania" or "pyromania."[41] Etienne Esquirol, a French doctor, wrote in 1845 that "mental

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[39] Wakefield, 29.

[40] Archer, *By a Flash and a Scare*, 60–61; For more on the development of fire insurance in Britain see: Robin Pearson, *Insuring the Industrial Revolution: Fire Insurance in Great Britain, 1700-1850*, Modern Economic and Social History Series (Aldershot: Ashgate, 2004).

[41] Bachelard suggested, "Almost always a case of incendiarism in the country is the sign of the diseased mind of some shepherd," and by his time of writing that was very much the common assumption. Bachelard, *Pyschoanalysis of Fire*, 13.

alienation…leads some insane persons to the commission of incendiary acts," but that there was also "a variety of monomania without delirium, characterized by an instinctive desire to burn."[42] By placing the blame on the compulsion rather than the individual, commentators could belittle any political aspects of the fires. The idea that incendiaries were insane also existed earlier. Wakefield suggested "the incendiary may sometimes be a person of morbid imagination, not a peasant probably, but a weaver or pedlar, perhaps, who fancies himself inspired, and is three parts mad."[43] Again, Wakefield firmly believed that the incendiaries were working class people, and whatever their inspiration it was necessarily suspect. By attributing incendiary fires to mental illness, authorities and the media could severely undermine any political intention the incendiaries may have had.

Over the nineteenth century, fire protection specialists examined all of the various motives for incendiarism, and by the last quarter of the century political motivations were almost non-existent. In 1884, Manchester's Fire Brigade Superintendent, Alfred Tozer, classified sixteen possible reasons for people to resort to "incendiarism and arson" in order of likelihood, including "to commit fraud upon fire offices," "spite," "monomania and insanity," or "insurrection and civil commotion." In this list, almost half had to do with money, ranging from insurance fraud to robbery to hiding embezzlement. A quarter resulted from a compromised mental or emotional state, whether that was "temper" or "insanity" the end was fire. Tozer connected only one of sixteen points to political motives and he placed it tenth on his list under the name "insurrection and civil commotion," and was the only entry

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[42] Etienne Esquirol, *Mental Maladies; a Treatise on Insanity*, trans. E. K. Hunt (Philadelphia: Lea and Blanchard, 1845), 359, http://hdl.handle.net/2027/hvd.32044010249027; A similar treatment of incendiarism was happening concurrently on the other side of the Atlantic with articles like this one in American journals: Amariah Brigham, "Incendiary Monomania-Pyromania," *American Journal of Insanity* V, no. III (January 1849): 237–45.

[43] Wakefield, *Swing Unmasked*, 37.

on the list not centered on personal issues or concerns.[44] These motives overwhelmingly constructed incendiarism as a selfish act.

Fraud of various kinds figured prominently in British novels across the eighteenth and nineteenth centuries. From Defoe's *Moll Flanders* to Dickens' *Bleak House*, these novels depicted threats to a socioeconomic order built on trust and credit.[45] Moreover, Paul Fyfe has noted "as a genre, the Victorian industrial novel worked with and strained against the domain of insurance, which rivaled it as a conspicuous form of writing about loss."[46] By writing about and describing loss, insurers and novelists alike helped Britons contend with the imperiled realities of industrialization. Much like the accident narratives of the early modern period, stories of loss helped to make sense of a seemingly chaotic metropolis. These losses could be both material and moral, in that fraud could besmirch the entire system.

Victorian novelists sought to show both the material and moral dangers of fraud. In both of adventure novelist R.M. Ballantyne's fire brigade novels—*Fighting the Flames* and *Life in the Red Brigade*—he showed how arson and insurance fraud went hand-in-hand with moral depravity. In the 1867-published *Fighting the Flames*, Ballantyne's antagonist was an accomplished arsonist and insurance fraudster.[47] One of the main plotlines revolved around

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[44] "The Origin of Fires (Contd.)," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* VII, no. 5 (November 1, 1883): 135.

[45] Daniel Defoe, *The Fortunes and Misfortunes of the Famous Moll Flanders, &c.*, Oxford's World Classics (Oxford: Oxford University Press, 2009); Charles Dickens, *Bleak House*, New Ed edition, Wordsworth Classics (Ware, Hertsfordshire: Wordsworth Editions Ltd, 1993).

[46] Paul Fyfe, "Accidents of a Novel Trade: Industrial Catastrophe, Fire Insurance, and Mary Barton," *Nineteenth-Century Literature* 65, no. 3 (2010): 316–17, https://doi.org/10.1525/ncl.2010.65.3.315.

[47] Ballantyne described Gorman, the antagonist, as "quite a martyr, as it were, to fire. Unaccountably worried , pursued, and damaged by it,--no, not damaged, by the way; because Gorman was a prudent man, and always insured to the full amount. His enemies sometimes said *above* it; but neither they nor we have any means of proving or disproving that." R. M. Ballantyne, *Fighting the Flames: A tale of the London Fire Brigade ... With illustrations.* (London: J. Nisbet & Co, 1868), 220.

this villain bullying a shopkeeper into committing both life and fire insurance fraud. The shopkeeper feared the unintended consequences of their criminal act, entreating the antagonist "to think of the risk we run of burning the people who live above, as well as my two clerks who sleep in the room below us: that would be murder."[48] In this line, the shopkeeper is both illuminating the dangers inherent in urban arson and showing that the side effects of their actions may be morally worse than the initial fraud. In the novel, the fraud goes through and several people are injured, but the efforts of the fire brigade prevented any deaths. In the aftermath, the arsonist's guilt drove him to his own death, providing the tidy moralized resolution so common to Victorian literature.

The antagonist in Ballantyne's next fire brigade novel, *Life in the Red Brigade* published 1873, was in some ways even more depraved. Named Phil Sparks, the arsonist did not set a fire to get the insurance money. Rather, he set fire to a widow's curtains out of base revenge and, more frightening for a metropolitan audience, to earn the shilling that he would get for being the first to report the fire at the nearest fire brigade station. Insurance company fire brigades employed paid informers in order to be the first to a fire. Being first to a fire not only gave an advantage in putting the fire out, but under 6 Anne c. 58 1707, the first three engines that arrived were given 30s., 20s., and 10s., respectively.[49] While Phil Sparks similarly set a fire for personal gain, the payout was nowhere near what the shopkeeper would have earned in *Fighting the Flames*. This latter action, though, was the more depraved and immoral in that it reinforced the randomness of metropolitan crime and gave Londoners something else to fear.

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[48] Ballantyne, 334.
[49] Ballantyne, *Life in the Red Brigade*; Geoffrey Vaughan Blackstone, *A History of the British Fire Service.* (London: Routledge and K. Paul, 1957), 61.

Moreover, each "unknown" case encouraged speculation and could fan incendiary fears. In one *Fireman* article from December 1884, a journal contributor discussed the "moral hazard" inherent in fire insurance, arguing that attaining fire insurance appeared to allow the insured to relinquish responsibility for their own fire protection. The article noted that the fire insurance companies "have frequently been charged with indifference" on losses incurred by incendiarism and that only once "greater care has been exercised in issuing policies when the character of the owner or the risk has not been quite satisfactory" would those losses diminish. The article's author admitted, "the extent to which incendiarism flourishes in this country…is very difficult of approximation," though he reported that "most firemen are of [the] opinion that a great proportion of those [fires] classed as of 'unknown' origin are occasioned in this way." Finally, the author observed that "according to statisticians one-third of all our fires are the work of incendiaries" further stoking incendiarism fears well into the late-nineteenth century.[50] This also meant that fires with "unknown" causes could be arson, and without proper investigation Britons had to live in "continual terror and alarm."[51]

Ultimately, Britons entertained a variety of motives for willfully set fires, but eventually settled on selfish, economic, or mental motives—effectively erasing the political motivations originally ascribed to the fires. By ascribing these motives to incendiarism, Britons kept the acts' criminality central and further denigrated the destruction of property. The British media and government made it less appealing as a strategy of political action as it

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[50] "The Moral Hazard," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* VIII, no. 6 (December 1, 1884): 102–3.
[51] Thomas Hood, "Lay of the Labourer," in *The Works of Thomas Hood. Comic and Serious, In Prose and Verse*, vol. 7, 10 vols. (London: Edward Moxon & Co., 1863), 66–87.

could easily be reinterpreted with these more selfish motives.[52] Even with apolitical motives, however, fire service professionals had to consider any unknown fire cause as potential arson, and understanding what the motives may be could help eliminate it as a potential cause.

1.3 Careless Servants and Unknown Causes Starting Fires

When examiners could be rule out willfulness as the cause of a fire, then the most likely explanation was that someone had been careless. These suspicions of carelessness often fell hardest on those who were most engaged in dealing with fire on a daily basis: servants. In many Victorian households servants were charged with keeping the fires in the grates going, lighting and extinguishing lamps, drying linens, cleaning chimney flues, and clearing away the inflammable materials that might otherwise catch fire. These servants had to be trusted to do such jobs, which is part of why Laprimaudaye came so vociferously to the defense of his *Durwan* [doorkeeper/servant], as an extension of the trust that servant held.[53] While Laprimaudaye may have had trust in his servants, elsewhere servants' carelessness became a trope, in both fiction and non-fiction reportage, when explaining fires' origins. Beyond just servants' carelessness, this section examines the intense variety of fire causes identified by fire brigades and the dangers inherent in the "unknown" fire cause. As

[52] Additionally, from the 1880s onward, bombs and guns became the chosen tools of terrorists, and incendiarism alone fell even further from the political sphere. Tim Pat Coogan, *The IRA: A History*, 1st U.S. ed.. (Niwot, Colo.: Roberts Rinehart Publishers, 1993); Michael Burleigh, *Blood and Rage: A Cultural History of Terrorism*, 1st U.S. ed.. (New York: Harper, 2009); For more on the history of terrorism and anarchist bombings see: Matthew Carr, *The Infernal Machine: A History of Terrorism* (New York: New Press, 2007); John M Merriman, *The Dynamite Club: How a Bombing in Fin-de-Siècle Paris Ignited the Age of Modern Terror* (Boston: Houghton Mifflin Harcourt, 2009); Martin A Miller, *The Foundations of Modern Terrorism: State, Society and the Dynamics of Political Violence* (Cambridge, UK ; New York: Cambridge University Press, 2013).

[53] "Papers Regarding a Fire...," 16–17.

many were certain, like Laprimaudaye, that an unknown cause meant the fire had been willfully set, it was even more likely that the fire was the result of someone's carelessness.

When it came to popular media servants were often identified as fires' careless instigators. For example, the fire that begins R.M. Ballantyne's novel *Fighting the Flames*, was started by a young maid "of an anxious temperament, extremely nervous" who dropped a still lit match "into the waste-paper basket, which was instantly alight." This maid who had earlier given "indication of her so-called carelessness" tried to extinguish the waste basket fire by smothering it in the grate, to some success, but an errant ember was left smoldering among some papers and soon erupted into a full-blown fire.[54] The bumbling or careless servant was an essential trope in British literature, but when it came to fire the consequences could be disastrous.[55]

As the nineteenth century progressed, moreover, the introduction of new fire technologies into Victorian households further increased the potential for a moment of carelessness to result in conflagration. Gas was fitted into British homes in the 1830s and 40s for lighting and cooking, but without the contemporary scent additives to make a gas leak more apparent it could be incredibly dangerous. Gas explosions and fires became common enough that the London Fire Engine Establishment kept track of how many buildings that took fire had gas installed.[56] The Metropolitan Fire Brigade noted that gas needed "to be kept under the strictest control" or it could have dire consequences.[57]

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[54] Ballantyne, *Fighting the Flames*, 10–15.
[55] Amanda Drake, "'The Grin of the Skull beneath the Skin:' Reassessing the Power of Comic Characters in Gothic Literature" (Lincoln, Nebraska, University of Nebraska-Lincoln, 2011), https://digitalcommons.unl.edu/englishdiss/57.
[56] "LFEE Committee Minute Book 1842-46."
[57] "Fire Brigade Committee Minutes Vol. II" (Metropolitan Board of Works, 1867), 410, MBW/910, London Metropolitan Archive.

To gas could be added Lucifer matches, paraffin, naphtha, and kerosene, which all increased the fire danger within Victorian homes. In fact, *The Fireman*, a fire service trade journal, often included jokes about the unsafe nature of these different household staples. These jokes often feature servants or women as the butt of the joke. For example, one joke from 1878 went:

> A Servant-Girl blew down the chimney of her paraffin lamp every night for five years, and never had an accident. The explosion which burnt the shirt off her back and the hair off her head occurred on the occasion of the fifth blow in the sixth year.[58]

This joke relied both on the assumption that its audience already bought into the "careless servant" trope and on the inherent danger of paraffin lamps. London firemen would have been particularly aware of the latter as about one in nine of all fires in London that endangered lives between 1870 and 1880 were caused by paraffin, naphtha, or spirit lamps.[59] Another *Fireman* joke of 1879 took a more poetic angle, declaiming: "Mary had a little lamp/Filled full of paraffin;/She took it once to light a fire,/And has not since *ben-zine*."[60] Here, the added pun on "benzene," which was another flammable oil used for lighting and cleaning, elevated this to the level of joke despite its morose topic. While these jokes gave firemen a sense of superiority over careless servant girls and massaged their masculinity, they also served to identify where the fire service most often located the origins of fires—with carelessness.

The broad variety of potential fire causes, however, was on full display in the London Fire Brigades' records. In his *Records of the late London Fire Engine Establishment*,

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[58] "Sparks," *The Fireman* II, no. 19 (December 7, 1878): 114.
[59] "Fire Brigade Annual Reports (1866-1878)" (Metropolitan Board of Works, 1878), MBW/2322, London Metropolitan Archive; "FB Annual Reports," 1888.
[60] "Sparks," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* II, no. 24 (May 15, 1879): 194.

Captain Eyre Massey Shaw listed about 530 separate causes for fires that had been logged over the London Fire Engine Establishment's 30-year tenure. Some of these causes were very similar and could be combined into larger categories. For example, under the broader category of "Flue" could go all of the variations on "Flue, adjoining," "Flue, overheated," "Flue, foul," or "Flue, copper, defect in." Shaw's LFEE records lists 29 separate flue-related fire causes not to mention the variations on candle, furnace, or Lucifer match fires.[61] The reason for the specificity was that it mattered for insurance purposes. Whether it was one's own flue or the flue of the adjoining house that overheated and caused the fire shifted the liability and the level of responsibility for the insurance company to pay. This specificity continued even after the fire brigade municipalized in 1866, and the fire brigade's 1888 annual report listed 12 distinct flue-related fire causes accounting for 188 of the total fires that year.[62] There was some consolidation of reported fire causes, however, as Shaw noted 111 different fire causes in 1864 and only 106 for his 1888 report, despite their being a third more fires reported in the latter year.[63] This decline occurred partly from the standardizing that accompanied municipalization and from greater experience of the reporters themselves, the firemen.

While more specific fire cause reporting aided the fire insurance companies, it also served to construct urban accident narratives in order to explain them and highlight urban dangers. In fact, the fire causes the fire brigade could discover exposed a variety of Victorian

[61] Eyre Massey Shaw, *Records of the late London Fire Engine Establishment.* (London: James Truscott & Son, 1870), 12.
[62] "FB Annual Reports," 1888, 1888.19.
[63] Eyre Massey Shaw, "Superintendent's Report to the General Committee of the London Fire Establishment for the Year 1864" (B. Paradise, 1865), 25, British Library; "FB Annual Reports," 1888, 19–20.

fire dangers.[64] The largest categories of known causes were those that resulted from "candle[s]," "gas," "spark falling from fire," or "Lucifers [matches]," each of which found variation and greater specificity across the fire brigade's statistics. For instance, candle fires could be cross-listed as curtain fires or "reading in bed," which with flammable bedding could be deadly. These detailed instances pointed in the direction of accident narratives. It was not that someone knocked a lit candle over and it started a fire. Instead, someone had left a lit candle too close to the curtains and they caught fire, or someone had the candle too close to the bedsheets with the same result. The accident narrative, then, would run this way: the situation could be a bedroom, the crisis a candle coming in contact with the quilt, and the resolution would blame the reader for not being more careful—a moral failing and an obvious case of carelessness.[65]

Carelessness and its relative, disordered environments, accounted for many other fire accident narratives. For example, Londoners had new gas lighting and heating in their homes, but if it leaked, it could result in fires and/or explosions. The fire brigade often had to list variations on "Gas, seeking for escape of, with lighted candle" as another fire cause in London. Older technology could also cause fires. Fires in fireplaces could throw out sparks that could fall on furniture, clothing, or "drying" or "airing linen" and result in a major conflagration. Inventors designed fire grates to minimize these events, but they were expensive, blocked some of the fires' heat, and made it harder to use the fire for cooking or

[64] Fyfe stated, "If fires made for strong impressions, then so did descriptions of fires that emphasized 'magnitude,' 'destruction,' and 'notorious' events that 'excited particular interest.' The prose descriptions, Brown implies, will give fire insurers insights into the statistical regularities that such events render so difficult to measure." This suggests that these fires required more description than a simple "cause" in a long list. Fyfe, "Accidents of a Novel Trade," 327.

[65] Shaw, *Records of the late London Fire Engine Establishment.*; "FB Annual Reports," 1878; "FB Annual Reports," 1888.

other tasks. Yet, without fire grates children, the elderly, and the intoxicated were all in greater danger of "falling into the fire," which comprised a large number of the lives endangered by fire.[66] These accident narratives highlighted Londoners' disordered home environments. Not maintaining ones' gas pipes regularly, not having or not properly using a fire grate, or placing your linens to dry too close to the fire without monitoring, all made encouraged moral judgements of the victims. Indeed, London fire accident narratives—whether socially-constructed in a particular neighborhood or imposed by journalists or the fire brigade—often blamed the victim for their ill fortune.

One category of fire causes and accident narratives that both exemplified and questioned this victim-blaming trend was that of "Lucifers." These "strike-anywhere" matches were invented and widely distributed in the early 1830s. They provided the fastest and easiest method of fire-setting to date, and proved wildly popular among rural and urban citizens alike. Unfortunately, their ease of use came with major concerns. First, while these matches could create almost instantaneous flames, their white phosphorous heads threw a lot of sparks when struck, which could start fires unintentionally. Then, as still today, even more common were people disposing of matches without fully extinguishing them and accidentally throwing them onto flammable materials, like papers in a wastebasket or a pile of dried leaves outside. In Victorian London, another dangerous and lamentable outcome was when children found lucifer matches. "Children playing with Lucifers" was an almost annual category in the fire brigades' reports. In the 1870 annual report, Shaw recounted that "in a Private House, a child aged 4 years, playing with lucifers in bed, set fire to the bed. He was severely burned and died a few hours later."[67] Here the accident narrative's blame is

[66] Holmes, "Absent Fire Guards."
[67] "FB Annual Reports," 1878, 1870.29.

unclear. The situation, a private house, and the crisis, a child playing with matches in bed, are both clear. The "resolution" of the child's death still leaves the question of whether to blame the child for his carelessness, his caretaker for not imposing upon the child the social prohibition of not playing with matches, or the disordered environment in which the child could get the matches in the first place.[68]

Animals, too, could get their paws, claws, or beaks on lucifer matches. Mice and rats would chew on the wax coating on the match heads, causing sparks with their teeth. If they were inside a wall or near a leaking gas line, this could have disastrous results. Jackdaws who were trying to build nests or steal the shiny matchboxes could start fires in yards or on drying linens. Cats, also, would knock matches and matchboxes off mantels, lighting the matches as they fell or struck the ground. Children would also sometimes attach lit paper or matches to the tails of animals who would then run about bringing fire in their wake. While such animal acts could have undermined humanity's centrality to fire causes, to nineteenth-century Londoners each of these examples was ultimately the result of human carelessness. Someone had not stored their dangerous matches away safely or securely, contributing to both carelessness and disordered environment accident narratives. In turn, these narratives compelled the fire brigade to care more about "fire safety" and eventually adopt didactic techniques for teaching it to the urban community later in the century.[69] Whether in the clutches of children, animals, or adults, Lucifer matches continued to be a concern for fire brigades across the period.

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[68] According to Gaston Bachelard, fear of fire is not instinctual for humans and has to be taught through social prohibitions. The first imposition of these prohibitions come from parents and other authority figures hoping to relieve the children from having to actually experience being burned or worse. Bachelard, *Pyschoanalysis of Fire*, 10; Joanna Bourke, *Fear: A Cultural History* (Counterpoint Press, 2005).

[69] For more on this see Chapter 4.

Still, some of the most compelling accident narratives came from more unique circumstances. In the process, they revealed the limits of Britons' fire safety knowledge. Two such fires occurred in 1864. The first, listed as "Gunpowder, emptying flask, on fire" suggests either that the flask emptier did not know what was in it or that they were extremely careless with where they were emptying the flask. Either way, the resulting fire taught a lesson: look before you empty. The other fire was "workmen trying if camphor would burn," and the answer was yes. This could have been boredom or experimentation, but it reinforced for the fire brigade (if not the workmen) the general carelessness with which Londoners approached their fire safety.[70] These kinds of accident narratives remained a barometer for metropolitan fire dangers, and marked changes in both safety knowledge and fire dangerous material. For example, Shaw noted several cases in his 1888 report of fires caused by an "electrician at work" or a "spark from electric wire," which had been completely absent from the reports two decades before. Tracking fire causes therefore provides evidence of the industrial and technological changes in the metropolis as well as Britons' relative ability to prevent them.

Despite increasing expertise among firemen and fire insurance agents across the nineteenth century, over a quarter of London fires remained without a discernable cause. These fires were listed under the "unknown" category in the London fire brigade's statistics. An unknown cause made constructing an accident narrative more difficult and brought back Londoners' sense of the city as a place of chaos and danger around every corner. Further, unknown fire causes could spur conspiracy theories or simply anxiety about fires generally.

[70] Shaw, "1864 Annual Report," 25.

With the growing certainty that human action was at the center of most fires, however, such anxieties only multiplied.

One tactic employed by Victorian Londoners was to try to fight the unknown with further statistics. This tactic regularly appeared in *The Assurance Magazine* as it compiled and commented upon the LFEE's annual reports. One author in the journal, Samuel Brown, combined the annual reports for 1833-1849 into statistical tables in order to detail the trends over time that having a dedicated fire brigade might make. He noted in particular that having the firemen investigate fire causes appeared to decrease the percentage of "unknown" fires over time. According to his statistics:

> It will appear, however, that every year more minute information is obtained, and it is remarkable within what narrow limits the principal causes keep to the average in a long series of years. Every year, too, the proportion remaining undiscovered is diminished. From 1833 to 1837 about 20 per cent, were unknown; but, on the average of 1833 to 1842, less than 12 per cent remained undiscovered, and from 1843 to 1849 little more than 7 percent.[71]

Brown's trend was partly a function of how he divided up the years under consideration, but the "more minute information" that the LFEE firemen collected also improved with expertise. Yet, as Bachelard noted, "this need for minute explanation is quite symptomatic in non-scientific minds, which claim to neglect nothing and to take into account all the aspects of the concrete experience."[72] In other words, because these statistics were all that Brown had available he could view them as complete, disregarding their shortcomings. It was also in his best interest, as

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[71] Brown's trend did not continue over the whole life of the LFEE and comparing over the 56 years from 1833-88 shows that unknown causes remained consistent over time at about 29% of all London fires. Moreover, I cannot discover the mathematical principal by which he came up with this trend, unless he was using total number of calls rather than number of actual fires. Either way, the trend he identified not only did not continue, but largely did not exist. Samuel Brown, "On the Fires in London during the 17 Years from 1833 to 1849 Inclusive, Showing the Numbers Which Occurred in Different Trades, and the Principal Causes by Which They Were Occasioned," *The Assurance Magazine* 1, no. 2 (1851): 52.

[72] Bachelard, *Pyschoanalysis of Fire*, 63.

an insurance company representative, to suggest that they were making progress on rooting out fraud or other dangers.

Since Brown's trend of decreasing "unknown" fires did not continue, later *Assurance Magazine* authors opted to focus on other aspects of the LFEE's statistics. Charles Fothergill, writing 6 years after Brown's piece, examined instead the causes of fires in various London trades. He found that the trades with the most destructive fires also had "unknown" causes for over fifty percent of their fires—likely a function of these fires destroying the evidence of their origins.[73] These particularly dangerous trades defied actuarial logic even more than regular fire insurance policies, especially since over half of the causes of their fires were impossible to ascertain. To that end, Fothergill noted that the fire insurance companies' "premiums on special and extremely hazardous property [we]re proved correct by the agreement of competing Companies," rather than by any type of objective or mathematical principal.[74] Only the collusion of the major London fire insurance companies allowed them to set close to cost-effective premiums on hazardous trades and properties, which they could only pay out from the money they made insuring houses and less dangerous trades.[75] In fact, the LFEE committee room provided a space for the major London fire insurance companies to have the kinds of informal contact that could allow these collusive practices to be successful. Not only did the LFEE provide statistics and "more minute information," but

[73] Charles George Fothergill, "On the Causes of Fires in London during the Twenty-Four Years from 1833 to 1856 Inclusive; with Some Remarks on the Deduction of Correct Rates of Premium for Fire Insurances," *The Assurance Magazine, and Journal of the Institute of Actuaries* 7, no. 2 (1857): 102.
[74] Fothergill, 108.
[75] Pearson noted this tendency toward collusion and discussion among the London fire insurance companies as their way of counteracting the relative impossibility of placing their premiums on an actuarial basis. As we have seen, though, this did not prevent them from collecting or employing statistics to justify their arguments. Pearson, *Insuring the Industrial Revolution*, 24.

a space to pool expertise. Yet, that expertise mattered little in the face of consistent unknown fire causes.

Not only did unknown fire causes remain consistent, they persisted in a substantial way across the nineteenth century and further illustrate the prevalence of carelessness. 1870 saw 441 fires with unknown causes out of 1946 total fires, roughly 23 percent of the total reported fires.[76] In the London Fire Brigade's annual reports between 1833 and 1888, the 56-year average for unknown fire causes was 29 percent. 1870, then, was slightly below average, but 1871 had the lowest percentage in the whole period with 17 percent unknown fires, while a decade beforehand in 1861 was the largest peak at 45 percent unknowns.[77] While the absolute number of unknown fires generally rose over this period, so too did the total number of reported fires, making the percentage of unknown fires more useful for analysis. By examining Charts 1.1 and 1.2, we see that the percentage of fires with unknown causes stayed below 20 percent only for 1842 and 1871–74—the latter corresponding with a lower number of total fires—before peaking again at 33 percent in 1886, which had lower total fires in the years on either side.[78] These charts reveal that there remained a consistently large number of fires, over a quarter of all fires, whose cause the firemen could not discover.

We know that firemen could not discover these causes precisely because they sought "more minute" statistics on fire causes during this period. Most often, "unknown" was the largest single cause ascribed to fires in a given year by the London firemen. For example, 240

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[76] "FB Annual Reports," 1878, 1870: 19.

[77] The high percentage in 1861 was likely due to the death of Superintendent Braidwood that year, which threw the LFEE into disarray and upset many of their standard patterns and practices. Shaw, *Records of the late London Fire Engine Establishment.*; "FB Annual Reports," 1878; "FB Annual Reports," 1888; *Illustrated history of the Great Fire [in Tooley Street], and a Biography, with lithographic illustrations, sketches of the fire, portrait, and funeral procession of Mr. Braidwood.* (London: Henry Lea, 1861).

[78] [See Appendix for charts, assembled by the author.] "FB Annual Reports," 1878; "FB Annual Reports," 1888.

candle fires and 181 instances of "spark falling from fire" followed the 441 fires in 1871's "unknown" category, showing that even together the next two largest cause categories could not equal those left "unknown."[79] This fact irked the firemen, who saw it as undermining their claims to expertise. Yet, the nature of the event made perfect knowledge impossible.

Just because perfect knowledge was unachievable, however, did not prevent the fire brigade and the fire insurance companies from putting forward different plans to make the collection of fire statistics more accurate. They did so by proposing new and more active roles in investigating fires.[80] In the debates around creating a municipal fire brigade for London, some insurance company representatives advocated for a specific fire investigation department within the new brigade. As Lewis Becker, a fire risk surveyor and assessor, put it in 1865, "the number of 'unknown' causes returned…is very large, nearly all of which are to be accounted for, if a scientific and practical person were empowered to inquire into them," with benefits to both the companies and the brigade. Such a "scientific and practical person" would also be able to disseminate the statistics they compiled in a more systematic way. In Becker's opinion, the fire insurance companies did not circulate their statistics widely enough. Charles Young echoed both points in his treatise on fire brigades, adding his regret that coroners only opened inquests into fires when a death occurred. Young believed that fire inquests should have happened regardless of injuries or lives endangered.[81] Captain

[79] "FB Annual Reports," 1878, 1870: 19.

[80] While Frost and Jones believed that the fire insurance companies had a positive impact on lowering fire losses in the nineteenth century, more recent work by Pearson and Wermiel have seriously called that finding into question. L. E. Frost and E. L. Jones, "The Fire Gap and the Greater Durability of Nineteenth Century Cities," *Planning Perspectives* 4, no. 3 (September 1, 1989): 333–47; Wermiel, *The Fireproof Building*; Pearson, *Insuring the Industrial Revolution*; Sara E. Wermiel, "Did the Fire Insurance Industry Help Reduce Urban Fires in the United States in the Nineteenth Century?," in *Flammable Cities: Urban Conflagration and the Making of the Modern World* (Madison, WI: University of Wisconsin Press, 2012), 235–53.

[81] Becker was also called to testify before a Parliamentary Select Committee on Fire Protection in 1867. Lewis M. Becker, "The Cause and Prevention of Fires," *The Builder*, July 29, 1865, Hathi Trust; Young, *Fires, Fire*

Shaw shared this belief and advocated for coroners' inquests into fires before the 1867 Select Committee on Fire Protection, but these inquests were not revived until 1888.[82] These writers put their faith in the scientific process to create more perfect knowledge of a fire's cause. They were less certain that firemen were the right experts for this job—Shaw argued for coroners to investigate with firemen as expert witnesses instead—as this would add to the already large number of responsibilities the firemen had. Either way, the desire to discover fires' origins remained strong and consistent in both the fire brigade and the fire insurance companies across the nineteenth century.

Being unable to discover a fire's origin contributed to various problems. First, it was difficult to legislate or otherwise defend against those fires. If improper construction were to blame, then new building codes could help prevent future fires. Often times, carelessness was at the heart of the accident. In fact, by the 1880s the fire service press started considering "carelessness" itself as a possible point of intervention. *The Fireman* journal noted in 1883, "the chief cause of fire…is carelessness of one kind or another," which the editors saw as preventable. They went on to say that if "fires are ever to be lessened materially, it must be by combating the carelessness and ignorance of individuals," articulating an early call for fire safety education.[83] The editors recognized that "malice" or "unavoidable misfortune" (a true accident or act of god) could cause fires, but as those were by definition outside a victim's control, they chose instead to focus on carelessness and ignorance. The editors supported their claims with a serialized list of the most common

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Engines, and Fire Brigades, 13; "Report from the Select Committee on Fire Protection," Parliamentary Paper (London: House of Commons, July 25, 1867), House of Commons Parliamentary Papers Online.

[82] "SC on Fire Protection," 249; "Fire Inquests Revived," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XII, no. 136 (September 1, 1888): 41–42.

[83] By this I mean fire safety education in a formal sense. "The Origin of Fires," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* VII, no. 4 (October 1, 1883): 65–66.

types of carelessness that led to fires, divided out by trade. For example, under "photographers" the editors listed "ignorance of chemistry" as a leading cause of fires in that trade.[84] The best way to counteract carelessness was through fire safety education. A decade later, *The Fireman* still considered carelessness a major concern for their readership. The editors noted that "human carelessness is a failing steadily tending to increase, and that it may be necessary to devise some means of putting a check on this, not out of regard to insurance companies, but out of regard to the interests of the community as a whole."[85] Thus, carelessness around fire could also come under the purview of governmental institutions.

Fire protection professionals, whether part of governmental institutions or in private enterprises, were deeply concerned about the potential for carelessness to cause fires and about the high degree of fire causes left "unknown." Whether caused by a careless servant or by the hand of fate, fires had disastrous capacities for destruction in urban settings and had to be curtailed. While educating urban citizens on fire safety to be more careful was one tactic that really took off in the twentieth century, in the nineteenth century it fell to legislators, fire insurance companies, and firemen to try to force carefulness onto the urban population.[86] These groups sought—through the accident narratives created in the brigades' annual reports, newspaper stories, and metropolitan rumors—to provide an informal fire safety education and solidify the social prohibitions necessary to protect urban citizens from themselves.[87]

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[84] "The Origin of Fires (Contd.)."
[85] "Causes of Fires," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XVIII, no. 208 (September 1, 1894): 55.
[86] Specific laws like those requiring fire guards were but one track of enforced carefulness. Holmes, "Absent Fire Guards."
[87] Spence, *Accidents and Violent Death*, 232–33.

1.4 Accident Narratives, Ascribing Blame, and Defining the Fire Problem

With the fire in Laprimaudaye's Calcutta warehouse, the magistrates ultimately decided to attribute the fire to an "accident." The magistrates rejected Laprimaudaye's claims of willful arson, and Laprimaudaye denied that the fire could have been caused by his warehouse workers' carelessness. Instead, the magistrates "attribute[d] the calamity to one of those *accidents* to which *Premises of such description* are ever liable."[88] In so doing, Calcutta's magistrates sidestepped ascribing blame to a particular individual—like an arsonist or Laprimaudaye's Durwan—and rather located the fire's origin in the disordered environment in which it began. This made blame much more amorphous, but actually fit with the way Calcutta defined the fire problem. The Calcutta magistrates, by refocusing on the aggregation of chance circumstances that led to the fire, built on early modern urban accident narratives and began to forward the nineteenth century version of these accidents.[89] Nineteenth century writers were enamored of the accident narrative for its "explanatory power" in the face of the growing complexities of urban life.[90] While accidents like railway collisions, carriage crashes, or workplace disasters often foregrounded individual victims as the accidents' perpetrators—not to mention drownings and suicides—with fires it was most often a combination of the environmental circumstances and the individuals that contributed to the fire breaking out. The accident narratives created for nineteenth-century fires,

[88] "Papers Regarding a Fire...," 15–16, [emphasis added].
[89] The early modern accident narrative sought to combine "providentialist discourse" with "journalistic reporting" by which the moral failings of the accidents' victims—generally lower class individuals—would become clear. Spence, *Accidents and Violent Death*, 228.
[90] Fyfe, *By Accident or Design*, 16.

therefore, described the disordered environment created by urban citizens that created conditions to set off a fire.

The balance of blaming individuals or their environments more was often on a case by case basis and generally depended on whether the fire's cause was "unknown." With an "unknown" fire the fire brigades and fire insurance companies had only the environment to go off of in constructing their reports as a lack of witnesses made ascribing individual blame impossible. Still, the location of the fire could still provide enough information for fire protection professionals to make informed assumptions. For example, the Calcutta magistrates knew that cotton and other fiber warehouses were in particular danger of catching fire, so it was easier for them to note the "premises" as a particular liability in terms of accidents.[91] For other fires, the fact that it occurred in a working-class neighborhood could be enough to turn an "unknown" cause into an explainable accident because it was assumed that those neighborhoods were disordered environments that begat fires and other accidents. Whether a fire's cause was carelessness or "unknown" the accident narratives created to explain the fire would almost always, eventually, lay the blame on whatever lower class urban citizens the narrative demanded.

While both London's and Calcutta's elites identified the fire problem as inherent to the working classes—whether willful incendiaries or careless servants—in Calcutta the fire problem also became attached to particular Indian buildings. The first building type associated with fire issues was the thatch-roofed straw huts built by poor Indians in order to live in Calcutta. Thatch roofs had been outlawed in London since the late-medieval period with mixed enforcement, but they remained in use in Britain's Indian capital well into the

[91] "Papers Regarding a Fire...," 16.

nineteenth century.[92] These highly flammable buildings were primarily built in the growing *bustees* [slums or shanty towns] of the city's "Black Town," but they were also a common sight on the manicured grounds of the European elites' manors in the Southern "White Town."[93] The huts were built and used by servants who could not commute from the other side of the city and, since they were most often built at the occupants' expense, they were a very cheap way for landowners to get around building a dedicated servants' quarters on their grounds. It was these buildings' proximity to elite homes, however, that would bring them into the government's sights as a problem to be solved.

Calcutta's first major building code or fire protection legislation centered on these huts. Calcutta's 1836 Fever Hospital Committee recognized that the straw huts built throughout the city were not only a public health risk because they appeared to foster disease, but because of the sweeping fires that consumed hundreds of these huts during the dry season.[94] While the periodic fires did offer one solution to the pestilential nature of these huts—a benefit recognized by the Fever Hospital Committee—their continual destruction invited Calcutta's city leaders to push for a more ordered approach to slum construction.[95] In terms of fire safety, the problem was that these huts were built throughout the city, wherever casual labor was needed, and that posed a significant threat to the property of wealthy Calcutta citizens both British and Indian. The solution settled upon by Calcutta's legislative council was the passage of a new conservancy act (Act No. XII of 1837), which required "every house and outhouse built in Calcutta…all be covered with an outer roof of incombustible materials," and laid out a fine structure for any individuals that refused to

[92] Blackstone, *British Fire Service*, 1–50.
[93] Marshall, "White Town of Calcutta," 318.
[94] Goode, *Municipal Calcutta*, 1837.
[95] Datta, *Planning the City*, 107; Nightingale, *Segregation*, 95.

adhere to the law.[96] This law marked Calcutta's first significant moves toward fire protection and intentional city planning. Unfortunately, the law did not have the impact its writers had hoped.

The law prohibiting thatched roofs in Calcutta went against decades of practice in Calcutta of housing casual laborers and servants in these cheaply-constructed homes. While most of these huts were constructed in *bustees*, which was meant to keep them separated from the wealthier parts of town, the push of urbanization and limited available building land contributed to new structures being built closer and closer to thatched districts. Calcutta's chief magistrate noted in an 1837 report on fires in the city that "It is the puckha [brick or stone] houses that bring themselves into the neighbourhood of the Straw Huts. The owners of the houses therefore complain against an evil of their own seeking."[97] Even as the 1837 Conservancy Act failed to forestall the construction of new thatched roofs, it could do nothing about citizens building their own houses in dangerous proximity to the thatched huts that had already been built.

After 1837, the persistent fire danger these thatched huts represented became a central component for how the Calcutta police defined the city's fire problem. The 1842 Calcutta Police report bemoaned the fact that it was "not possible to prevent the breaking out of these destructive and ruinous fires, or to stay the progress of the flames when they are fed by such combustible stuff as the thatch and straw of which the huts of the poorer classes of the people are composed."[98] Here the Chief Magistrate directly connected Calcutta's fire problem not only to thatched huts, but the "poorer classes" that lived in those huts. He

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[96] William Theobald, *The Legislative Acts of the Governor General of India in Council, from 1834 to the End of 1867*, vol. I (Calcutta: Thacker, Spink and Company, 1868), 52.
[97] Qtd. in Datta, *Planning the City*, 141.
[98] "1842 Calcutta Police Report," 7.

compounded this assertion with a table laying out the number of buildings destroyed of each of the primary construction types in the city at the time—pucca buildings, tiled roof huts, and straw roof huts—and the vast difference between the number of buildings destroyed served his contention that straw roofs were the crux of the fire problem [see Table 1]. In 1842 alone straw-roofed buildings accounted for over seventy percent of the buildings destroyed by fire in Calcutta. The 1837 Act was clearly not enough of a deterrent.

	Pucca	Tiled	Straw	Total
1839	34	69	876	979
1840	14	211	300	525
1841	4	281	690	975
1842	8	275	754	1036

Table 1 Table from 1842 Calcutta Police Report detailing the number of buildings destroyed by fire based on their construction.

Calcutta's Chief Magistrate laid out the connections between the 1837 Act and continued fire danger in the city even more explicitly a decade later in his 1853 Police Report. After noting that over two thousand houses had been burnt down during 1853, almost double those destroyed in 1842, the Chief Magistrate noted that "Act XII of 1837…has long been almost obsolete, as but very few individuals choose to prosecute under it," making it even harder for the police to enforce.[99] Two subsequent Acts in 1848 and 1852 had required homeowners to notify the city Commissioners before building or rebuilding a house, but did not make the submission of plans compulsory, contributing to the police's blindness without community prosecutions.[100] The Chief Magistrate went on to state that the "general carelessness of natives with fire,…and the very combustible nature of their dwellings, is quite sufficient to account for all the fires that occur."[101] Again the explicit

[99] "1853 Calcutta Police Report," 6.
[100] These were Act No. II of 1848 and Act No. XII of 1852. Goode, *Municipal Calcutta*, 79.
[101] "1853 Calcutta Police Report," 29.

connection was being made between thatched huts and the people that lived in them as the foundation of Calcutta's fire problem.[102] Whereas the Magistrate in 1842 had used the euphemistic "poorer classes" to refer to Calcutta's fire originators, by 1853 the euphemism was dropped in favor of the explicit "natives," which lumped all of Calcutta's non-European citizens together. This report completely elided the role played by British-led industrialization in increasing Calcutta's fire danger, and chose instead to blame the non-enforcement of the 1837 Act and the "natives" that lived in thatched huts as the origin of Calcutta's fire problem.

A year prior to the 1857 Indian Uprising, a new Calcutta Conservancy Act (Act No. XIV of 1856) provided the magistrates and the police with the legislative powers to begin dealing directly with thatched roofs.[103] The 1861 police report showed a significant reduction in the number of buildings destroyed by fire in Calcutta from 1860 to 1861 and attributed it wholeheartedly to the enforcement of the new Conservancy Act. As the Magistrate put it in the report: there was "a large reduction in the number of fires, owing to the Municipal Commissioners having adopted stringent steps to enforce the law regarding the removal of inflammable roofs from the huts in the Native parts of the Town."[104] The 1856 Act had established the Commissioners' authority to demolish any roofs or buildings in contravention with the building codes, and the table appended to the 1861 report showed the results of these tactics.[105] The table included in the 1862 Report [see Table 2] showed an

[102] Moreover, this flattening of the causes of fire coincided with the London fire brigade's increasing particularity in dividing out the various causes of fires in the Metropolis. Shaw, *Records of the late London Fire Engine Establishment*.
[103] Goode, *Municipal Calcutta*, 280.
[104] "Calcutta Office of Police Commissioner: Annual Report on the Police Administration of the Town of Calcutta and Its Suburbs, 1855-1869," 1870, 1861:8, IOR/V/24/3210, British Library, India Office Records.
[105] Goode, *Municipal Calcutta*, 79.

almost complete reversal in the number of thatched buildings destroyed by fire and a diminution in the overall number of fires from the years before. The enormous reduction in the number of huts burned down marked the beginning of new ways of conceptualizing the fire problem in Calcutta.

	1859-60	1860-61	1861-62
Number of Fires	41	25	5
Houses Destroyed			
Pucca	28	7	0
Tiled	263	285	7
Thatched	1060	25	4
Total	1351	317	11

Table 2 Table taken from 1861 Calcutta Police Report.[106]

As seen from the tables provided, Calcutta's magistrates judged the extent of the fire problem on the number of buildings fire destroyed. In London, by contrast, they used the number of fires to judge the scale of the fire problem, with some division into "slight" and "serious" fires connoting the amount of damage each fire achieved, but no statistical numbering of buildings destroyed like those in Calcutta. The 1861 London Fire Engine Establishment report noted that 53 fires "resulted in the total destruction of buildings," but chose not to note the actual number of those buildings lost.[107] Similarly, in the 1861 and 1862 tables, the Chief Magistrate also included the number of fires in Calcutta, but as that number was far less striking than the number of buildings destroyed, it failed to prove as convincing of a statistic. The reduction in buildings destroyed, however, appeared to prove the efficacy of strict enforcement of the 1856 Act, which was then expanded in Act No. VI of 1863 to allow more sweeping measures of slum clearances and roof demolitions and even

[106] "Calcutta Police Reports 1855-1869," 1862:9.
[107] "LFEE Committee Minute Book 1860-63," 1863, 152, CLC/B/017/MS15728/009, London Metropolitan Archive.

extended the rule to the suburban municipalities.[108] With the success of these Acts, however, Calcutta's fire problem as defined by thatched huts began to disappear. For Calcutta's magistrates, the fact that thatched huts burned was not just a result of accidents, it was an inevitability.

Once the magistrates had removed the fire danger posed by thatched huts—first from the city and then in the suburban municipalities—they were left with only the number of fires to count as a significant statistic and that sometimes in the single digits, which belied the destructive potential of fires. In 1872, however, Calcutta's police commissioner came up with a solution. While the CFB maintained counting fires, they added in a column noting the relative value of the property destroyed in rupees by any given fire in order to denote its ferocity.[109] This was a way to mark that fire remained a problem despite the actual number of fires remaining low and the previous matric used, number of buildings destroyed, no longer fully represented the dangers fire posed. This shift toward estimating fires' monetary damages accompanied the intense growth of Calcutta's jute industry, the results of which will be discussed more in the next chapter. While thatched roofs remained a concern for Calcutta's fire protection, in the 1870s they were being overtaken by new buildings-as-problems: jute warehouses.

Particular buildings cemented themselves as key components of the fire problem in both London and Calcutta over the long nineteenth century. Warehouses and docks caused concerns over the potential loss of property and goods that could be destroyed. Theaters and cinemas later in the century became huge problems because of the loss of life that could

[108] Goode, *Municipal Calcutta*, 79.
[109] Stuart Hogg, "Annual Report on the Police Administration of the Town of Calcutta and Its Suburbs, 1870-1875" (Bengal Secretariat Press, 1876), 1872:16, IOR/V/24/3211, British Library, India Office Records.

accompany a fire there. Each of these particular identified dangers brought on changes in both fire service tactics and fire protection legislation. New building codes over the course of the nineteenth century sought to mitigate the inflammability of these buildings, much as the removal of the thatched roofs in Calcutta had done there.

In Calcutta, however, the buildings alone were not the fire problem. As Calcutta's police reports have shown it was the fact that native Indians lived in thatched huts that compounded the fire problem. Then, when thatched huts had been banished to the suburbs, there was a brief period of confusion because it became less obvious to the British municipal governors that Indians were behind the fire problem. The new focus, from 1872, on jute warehouses allowed the British municipal authorities to return to that certainty. While the jute processing and weaving industry was more broadly controlled by White interests, the majority of the jute warehouses and godowns in Calcutta were actually owned by Indians. For example, in 1880 only seven of the seventy-three jute warehouse licenses issued went to non-Indians.[110] Thus, the flammability of these buildings—whether thatched huts or jute godowns—was not just attributed to their construction or their contents, but also to the people that lived and worked in them. While most Londoners could enjoy the benefit of the doubt from their municipal overseers and rely on the communal creation of an accident narrative to minimize their blame, in Calcutta this construction of the fire problem meant that the municipal authorities assumed at the heart of every accident was an Indian citizen's carelessness. And this construction, unfair as it was, would continue to shape fire protection policy in Calcutta well into the twentieth century.

[110] "Report on the Municipal Administration of Calcutta, 1879-1881" (Office of the Commissioners, 1881), 1880:i-ii, IOR/V/24/2868, British Library, India Office Records.

Conclusion

Whatever the actual origin of the Laprimaudaye fire may have been—willful arson, careless fire-setting, or some accident—the meaning of the fire and how it related to the definition of the fire problem were both articulated after the fact. Much like political incendiaries could not prevent their fires from being called personal revenge or unknown fire causes kept spawning stories of both careless servants and spontaneous ignition, a fire's meaning could only be interpreted through existing schemas. In turn, a fire became a communally-constructed event whose meaning showed the shifting understandings of the fire problem.[111] With the Laprimaudaye fire, this communal construction happened over the course of the magistrates' investigation whereby they rejected willfulness and carelessness as the cause of the fire, and instead settled on an "accident" as the explanation.[112] Yet, at the root of each of these explanations, was a human actor to hold accountable.

This chapter has laid out the relationship between human actors and fire as it became defined in the nineteenth century. First, urban citizens divided the root causes of fire into willfulness, carelessness, and accidents. Each of these causes contained a moral explanation for why a fire occurred and a human actor at its center. For willful fire-setting it was the moral failings of the incendiary that led to the fire, whatever the impetus to set it might have been. Similarly, for carelessness it was a lack of moral and social discipline that allowed the fire to start. In both cases, these moral shortcomings were overwhelmingly identified with lower class people. Accident narratives pushed fires' causes from individual action and onto the disordered environments of urban life, which obscured the individuals that contributed to them. This obfuscation, in part, allowed blame to accrue to those already beleaguered by

[111] Spence, *Accidents and Violent Death*, 1.
[112] "Papers Regarding a Fire...," 16.

societal distrust. In Calcutta the blame fell almost exclusively on Indian urban citizens via the buildings they lived and worked in, which constituted Calcutta's "disordered environment." All of these fire causes necessitated a revision in how social responsibility around fire was constructed in urban centers.

Whatever the immediate cause of a fire, the majority of nineteenth-century British imperial citizens had come to accept that human actors had been essential to that fire. These definitions of the fire problem—as caused by individual willfulness/carelessness or communal disorder—shaped in turn the responses to fire perpetrated by municipal governments. The municipal governments of both Calcutta and London endeavored to use legislation, enforced by institutions, and backed by technology to eliminate willful fire-setting, to mitigate carelessness, and to order the urban environment against accidents. As the following chapters will show, how the fire problem was defined affected how it could be combatted and only by understanding this definitional origin can we begin to make sense of how these cities' municipal fire protection was conceived.

Chapter 2 Social Responsibility for the Fire Problem: Legislating Building Codes and Municipal Fire Brigades

The ways in which Calcutta and London defined their fire problem was also reflected in the legislations that they created to combat it. Calcutta's building codes focused on eliminating thatch and slum clearances, while London's emphasized particularities of construction to limit the effects of carelessness and increase Londoners' chances to escape a building on fire. Similarly, the laws passed for each city to create municipal firefighting institutions had to reconcile their defined fire problem with the social and municipal realities of their cities. Once reconciled, each city created a municipal fire brigade, with defined funding streams, and powers concomitant with the mission of municipal governance. For London, this meant absorbing private fire insurance company and parish fire brigades, taxing householders and the fire insurance companies against citizens' carelessness, and building a brigade that emphasized saving property *and* lives from fire. For Calcutta, it meant doubling down on the police-fire brigade model, licensing Indian-owned jute warehouses at exorbitant rates, and constructing a brigade with the power to tear down bustees [slums or shanty towns] but still be liable for overzealousness in the "White Town." While the definition of the fire problem and municipal authority each tended to change slowly over time, the legislations for creating municipal fire brigades also had proximate causes: major conflagrations. This chapter unpacks the interplay between these three factors—defined fire problem, municipal authority, and significant fires—and how they each affected legislating against fire.

Fire legislation, furthermore, revealed the two sides of social responsibility for fire. On the one hand, there was the social responsibility to prevent fires, the expected duty of all

urban citizens. Yet, as we saw in the last chapter, carelessness and accidents were pervasive in urban centers, and municipal governments began to not trust their citizens to be careful enough with fire. This was where building codes and other fire laws came from, to bake carefulness and fire prevention into the very foundations of each city's buildings in order to forestall conflagrations. There was also the social responsibility to extinguish fires. Prior to professional fire brigades this responsibility was clearly held by the members of the community as they pumped manual engines or formed bucket lines to extinguish fires in their neighborhoods. With the introduction of steam fire engines, community members no longer provided such labor, and with the municipalization of the fire service, urban citizens gave up almost all responsibilities for extinguishing fires. The legislations that created these municipal fire brigades, therefore, had to lay out how these communal responsibilities would be transferred to and carried out by a particular firefighting institution.

Each section of this chapter examines unique pieces of legislation and reveals the ways in which the social responsibility for fire was transferred from urban citizens to institutions. Section 2.1 surveys Calcutta's various Conservancy and Municipal Authority Acts (from 1837 on) and London's Building Acts (from 1844 on) that related to building codes, and shows how these Acts were meant to forestall carelessly-caused fires and extended municipal authority into urban citizens' homes. Section 2.2 then unpacks the 1865 Metropolitan Fire Brigade Act as it sought to establish a municipal fire brigade for London, respond to the 1861 Tooley Street Fire, and create a municipal institution with community buy-in if not direct community oversight. Section 2.3 takes up Calcutta's 1872 Jute Warehouse and Fire-Brigade Act as it enshrined in law the source of Calcutta's late-nineteenth century fire problem—jute warehouses—and directly tied the funding for the city's fire protection to that problem by licensing jute warehouses to pay for the brigade.

Taken together, these laws formed the basis of the municipal governments' response to fire as an urban problem, first seeking to limit fires altogether and then providing municipal institutions to extinguish them, with the ultimate result of extending municipal governance over urban citizens.

2.1 Building Codes to Limit Carelessness and Build Social Responsibility

Some of the earliest attempts to legally mandate social responsibility around fire came in urban building codes. These codes created two forms of social responsibility for fire. First, they mandated the building materials and construction principles that would limit the chance of a fire breaking out, and, if it should do so, limit its possibility of spreading to adjacent buildings. In urban centers, this latter point was essential as the fear of another "great fire" or major conflagration motivated many of these laws. Second, building code legislations eventually required multi-story buildings to have fireproof escape routes from the upper stories. In this way, legislators could force building owners to carry out their responsibility to the inhabitants of their buildings. Taken together, these building codes legislated social responsibility for fire into their city's very foundations and sought to limit the impact of carelessness for burning the city.

While in general building codes sought to prevent fires and provide safe exits, the specific ways that cities created these legislations varied based on how they defined their fire problem. This section will discuss how Calcutta and London each constructed social responsibility through building codes. Whereas Calcutta's municipal commissioners focused almost exclusively on the fire dangers presented, supposedly, by Indian buildings and actions, London municipal bodies tended to broaden their focus toward legislating on all urban citizens. These two approaches showed the expectations each government had for

their citizens to be social responsible in preventing fires. In Calcutta, primarily White commissioners felt that they could not trust the Indian population to be responsible with fire and so legislated them accordingly. Meanwhile, in London, the fire problem centered around carelessness, which bore more limited social and racial connotations and therefore required a broader approach.

As seen in the last chapter, Calcutta's first fire safety legislations enforced carefulness by outlawing thatched roof buildings. Bengal Act No. XII of 1837 carried this into law, requiring that "every house and outhouse built in Calcutta…all be covered with an outer roof of incombustible materials."[1] Like the building legislations in London following the Great Fire, legislators saw thatch as the enemy. In the eighteenth century, major fires in Calcutta generally involved straw-roofed or matted huts, making this legislation an attempt to curtail the construction of quickly-made buildings in the swiftly-urbanizing city.[2] By regulating the types of buildings and building materials used, legislators hoped to protect the city from conflagrations. Later Acts in the 1850s and 1860s, also empowered the Superintendent of Police to force any building to be re-roofed in more fire-safe materials and to fine anyone whose house was not built to these specifications or "any person willfully obstructing the Superintendent" as he went about his duty.[3] This meant that the Calcutta Police had multiple avenues for forcing carefulness on the city's Indian population.

Over the next sixty years, Calcutta's building codes continued to focus their fire safety provisions on limiting hut-building.[4] The reasons for this were twofold. First, thatch-roofed huts presented a greater fire danger than other buildings. Second, Indians built these

[1] Theobald, *Legislative Acts of the Governor General*, I:52–53.
[2] Goode, *Municipal Calcutta*, 78.
[3] Theobald, *Legislative Acts of the Governor General*, I:53.
[4] Goode noted that "Act XIV of 1856, Act VI of 1863, Act IV of 1876, Act II of 1888, and Act III of 1899, all contained provisions similar to those of Act XII of 1837." Goode, *Municipal Calcutta*, 78.

huts throughout the city, not just in the "Black Town." These huts existed along the edges of property sites throughout the White Town as well. The British constructed neoclassical homes and administrative buildings in Calcutta as a way to impose European aesthetic forms onto an alien landscape, which had the added benefit of more fire-safe construction.[5] Marble does not burn easily. Swati Chattopadhyay, however, has shown that the "White Town" did not only consist of these "palaces." Both towns in Calcutta included architectural details from each culture. For example, neoclassical columns held up Indian verandahs and Venetian windows illuminated open floor plans.[6] So, placing limits on hut building benefited both towns.

The process of rebuilding Calcutta on a fire-safe scheme worked very slowly, as shown by the fact that the same provisions had to be reenacted multiple times over the century, despite increasing enforcement by the Police.[7] One of the reasons for this was the persistence and prevalence of "bustees" in the city. According to Goode, Act III of 1899 defined a bustee as "an area containing land occupied by or for the purpose of any collection of huts," which clarified the definition in Act II of 1888.[8] This earlier act also defined a "hut" as "any structure erected upon such [bustee] land, whether roofed with tiles or otherwise, and whether constructed with bricks, earth or other materials," making the distinction between "hut" and "house" more a matter of location than materials.[9] City commissioners targeted these bustees as sites of disease and criminal activity, and both Act II of 1888 and Act III of 1899 gave the Commissioners of Calcutta the authority to enforce

[5] Chattopadhyay, *Representing Calcutta*.
[6] Swati Chattopadhyay, "Blurring Boundaries: The Limits of 'White Town' in Colonial Calcutta," *Journal of the Society of Architectural Historians* 59, no. 2 (2000): 154–79, https://doi.org/10.2307/991588.
[7] "1853 Calcutta Police Report."
[8] Goode, *Municipal Calcutta*, 263.
[9] Bengal (India), *The Bengal Code: In Two Volumes : With a Supplement for Assam*, Second, vol. 2 (Calcutta: Superintendent of Government Print., 1890), 884.

a "standard plan" upon the city's bustees such that they would have a water-supply, open passages for ventilation, and acceptable privy accommodations.[10] If the bustees did not conform to these standard plans, the Commissioners could pull down the huts at the owner's expense, much the same as how the 1837 Act allowed them to force hut owners to re-roof in incombustible materials. In the end, these bustees attempted to house the city's rapidly growing population, but their proximity created many health concerns—especially in pestilence-prone Calcutta—and also generated fire concerns when they were more quickly or cheaply constructed.[11]

Yet, fire could provide opportunities for restructuring the city if it could be contained. In an 1878 Calcutta police report, the author noted that a fire had destroyed a bustee, a common enough occurrence, but that in this case the fire meant that the bustee could be rebuilt. He wrote, "Within a month the squalid, crowded bustee was replaced by lines of neat tiled-huts, laid out with proper regard to cleanliness and health."[12] In this one line, the author revealed both his aesthetic and safety tendencies. The "crowded bustee" built without regard to plan contrasted the "lines of neat tiled-huts" and the original "squalid" condition of the bustee opposed the new "cleanliness and health." Buried in the middle of the line, the distinction that the new bustee included "tiled-huts" offers another important contrast. The author implied that the previous huts did not have tiled roofs. Not only contravening Calcutta's building codes, this suggested that more fire-prone roofs aided providential fire that destroyed the bustee and that the addition of tiled roofs brought it

[10] Bengal (India), 2:952.
[11] Carl Nightingale identified that "Modern segregation, at least in the orbit of the British Empire, was typified by the vilification of the 'slum' and the glorification of the exclusive suburb." Calcutta exemplified this process. Nightingale, *Segregation*, 78–79.
[12] Stuart Hogg, "Annual Report on the Police Administration of the Town of Calcutta and Its Suburbs, 1876-1880" (Bengal Secretariat Press, 1880), 17, IOR/V/24/3212, India Office Records.

more in line with both European aesthetic and safety standards. Fire, unlike planned road works, did not require the municipal government to compensate hut owners for their loss, meaning that as long as a fire could be restricted to bustees it could be considered a benefit to the city, and provide the opportunity for creating more socially responsible buildings.[13]

Fires could not, however, be confined to bustees and legislators thus directed some fire safety legislation in Calcutta not at controlling building, but at limiting where fires could be set at all. Bengal Acts II and IV of 1866, the Police Acts for Calcutta and its suburbs both contained a provision against uncontrolled fires in public areas. These legislations placed a fifty-rupee fine on "whoever shall set fire to or burn any straw or other matter, or light any bonfire…or let off or throw any fire-work, or send up any fire-balloon, except at such times…allowed by the Commissioner of Police."[14] Fireworks and fire balloons were both important parts of certain Hindu festivals, but in a city with thatched buildings, could prove disastrous.[15] The police therefore attempted to enforce carefulness on the city's populace in public spaces. Another Act from 1866, Act VI, sought to prevent fires in a more specific setting. After laying out the rules by which jute warehouses should be surveyed and licensed, the Act included the following provision: "Whoever shall introduce or use in any warehouse, store, depot, yard, or place in which Jute is deposited or stored, other than only Jute screwed for shipment, any fire, or lucifer matches, or shall smoke therein, shall be liable to a penalty not exceeding fifty Rupees."[16] Essentially a particularization of the police provision, this

[13] Large fires often provided opportunities for cities to restructure and rebuild themselves along more "rational" lines, but these acts often displaced the city's poorest citizens with potentially disastrous results. For example, Merriman has argued that Haussmanization provided some of the ammunition for fin-de-siecle anarchism in Paris. Merriman, *The Dynamite Club*.
[14] Bengal (India), *The Bengal Code*, 2:56, 74.
[15] Calcutta's Police Commissioner argued in 1871 that fire-balloons and fireworks should be licensed under the police. *Bengal Proceedings: Judicial (1 Oct. 1871-31 Dec. 1871)*, 1871, 235–36.
[16] Theobald, *Legislative Acts of the Governor General*, I:147.

section showed the importance of jute to the city's economy and its inherent flammability.[17] Each of these laws fell heavier on Calcutta's Indian population who made up the vast majority of the warehouse and dock workers as well as the religious adherents invested in setting off fireworks and fire balloons.

These fire safety legislations revealed the legislators' particular concerns and their definition of the fire problem. While in London these concerns first focused on preventing fires spreading and then on providing safe exits from burning buildings, in Calcutta the anxieties remained focused across the century on preventing fires in huts, bustees, and jute warehouses. These all shared a commonality in that primarily Indians owned each of these. Europeans were more likely to own a "house" as defined by Act II of 1888, than they were a hut, and certainly they were unlikely to live in the crowded spaces that could be called "bustees."[18] The British constructed these categories to protect the imagined division between the "White Town" and the "Black Town," contrasting open plots with single buildings in the former to the crowded jumble of the latter. In legislation, and the British imaginary, the line between the two towns could be defended successfully. In reality, Chattopadhyay showed how even single plots within the city could be used across the racial and social spectrum. In a house on Waterloo Street, Chattopadhyay explained that by the late-nineteenth century it had moved from being just a single-family house to the owners "using the site for at least four purposes—shops, offices, godowns [warehouses], and lodging—each of which could be rented independently."[19] Such a mixed-use site could surely stir up fire anxieties, especially if the godown were let to store jute or cotton. Hence,

[17] Dried jute and cotton were both highly flammable and could smolder for days if left unchecked.
[18] Bengal (India), *The Bengal Code*, 2:884.
[19] Chattopadhyay, *Representing Calcutta*, 101.

licensing and surveying warehouses became a cornerstone of Calcutta's building codes, as with the 1872 Jute Warehouse and Fire-Brigade Act discussed later in the chapter.[20]

While Calcutta's municipal commissioners used fire safety legislation to force social responsibility onto the city's Indian population, London's municipal governors sought to build that social responsibility into the whole metropolitan population. Three major building acts in 1844, 1855, and 1894 set the standards for how Londoners could build and rebuild their city. In the process, these Acts intersected with changes in municipal governance and tighter control over metropolitan spaces. In an 1874 Parliament debate on an amendment Act, Colonel James McGarel-Hogg stated,

> The object of the Bill was fourfold—namely, to consolidate the Building Act, with the Amendments required by experience to confer powers for the regulation and management of the streets, to make special provisions against fire, and to provide better protection for the [Metropolitan] Board [of Works] in respect of sewers.[21]

The third object compelled Londoners toward new levels of fire safety. Hogg specified the Act "required that houses should be divided by strong party walls of adequate thickness to prevent the extension of fire" thereby saving many a fire-adjacent building from the flames.[22] These party walls remained central to London fire protection in the nineteenth century.

Following building walls in brick and roofs in tile, erecting sufficient party walls provided the greatest preventative to fire spreading. The 1844 Metropolitan Building Act defined a party wall as "every Wall which shall be used…as a Separation of Two or more

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[20] "The Acts Passed by the Lieutenant-Governor of Bengal in Council, 1862-1876," 1877, 147, IOR/V/8/123, British Library, India Office Records.

[21] McGarel-Hogg was a Calcutta-born conservative MP (1865–68, 1871–87) who also served as chairman for the Metropolitan Board of Works (1870–89) establishing by this 1874 speech both his interest in and his expertise on the Building Acts.

[22] *Parliamentary Debate*, vol. 218, Hansard (London: UK Parliament, 1874), col. 1345.

Buildings with a view to the Occupation thereof by different Families" whether it was "wholly belonging to the same Owner" or belonging partly to both.[23] Built in fire-resistant materials, "sound Bricks or of Stone," party walls restricted low-temperature fires to a single building. They could only slow down a major conflagration. The Act went on to detail the various circumstances in which a party wall had to be built or rebuilt and at whose expense. These walls fell under the purview of city surveyors who could enforce their construction through fines, refusing building licenses, and other punitive measures. Party walls appeared in a number of clauses and schedules in the 1844 Act—clearly a particular concern for legislators.

The 1844 Act solidified Parliament's desire to isolate fire from other buildings. Aside from party walls, clause LIV stipulated that "Businesses dangerous in respect of Fire or Explosion" had to be built at a specified distance from any other building. The materials manufactured in these buildings reads as a laundry list of urban fire dangers. Legislators specified: gunpowder, friction matches, vitriol, turpentine, naphtha, varnish, fireworks, and painted table covers. The MPs considered these materials "dangerous on account of the Liability of the Materials or Substances employed therein to cause sudden Fire or Explosion," and they were right to be concerned.[24] These trades and materials featured heavily in the London Fire Engine Establishment's reports as fire causes, though they were often on par with timber yards whom the crafters of the 1844 Building Act ignored in favor of legislating these newer manufactured goods.[25] Legislators did allow that owners could rebuild these manufactories if they were "pulled down, burnt, or destroyed by Tempest,"

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[23] David Gibbons, ed., *The Metropolitan Buildings Act. 7th & 8th. Vict. Cap. 84. With Notes ..* (Weale, 1844), 5, http://archive.org/details/metropolitanbui00britgoog.
[24] Gibbons, 69.
[25] Shaw, *Records of the late London Fire Engine Establishment.*, 11–12.

and no other buildings had been constructed within fifty feet of their site.[26] These categories reflect those discussed in the previous chapter as fire causes—i.e. willfulness, carelessness, or accident—showing how they existed as part of the official discourse. This clause segregated dangerous manufacturing from other buildings for fear that fires ignited in them might spread. The 1844 Metropolitan Building Act made one other fire safety rule, which required a building to have fireproof stairs and landings.[27] These stairs represented the only fire safety precautions aimed at saving lives. Legislators even buried this rule in the schedules at the end of the Act, thereby clearly prioritizing property over lives. Party walls technically preserved lives by limiting a fire's spread, but in practice builders constructed them to protect property. As the century progressed, lifesaving provisions became more common in fire legislation.

In terms of fire safety, the Metropolitan Building Act of 1855 did not advance much beyond the 1844 Act. It contained similar clauses on party walls, inflammable internal stairs, and how all buildings, if possible, should be built in brick and tile. The 1855 Act did add one fire safety provision that had seemed unnecessary prior. As Londoners began to use steam and hot water as a heating source, the potential for these pipes to cause fires increased, forcing legislators to act. Section XXI of the 1855 Act dealt with "close fires, and pipes for conveying heated vapour or water" stating that they could not be affixed nearer than three to nine inches from "any combustible material" depending on what the pipe carried.[28] The Act also imposed similar conditions for chimneys. The LFEE discovered many fires started

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[26] This clause was specifically concerned with those who "Manufacture" these materials not with those who store them. The 1861 Tooley Street Fire revealed that the improper warehousing of flammable goods could be just as dangerous as their manufacture and create even greater fire dangers due to their concentration. Gibbons, *The Metropolitan Buildings Act. 7th & 8th. Vict. Cap. 84. With Notes* .., 69.

[27] In Schedule C, Part VI, the Act included its "Rule concerning Fire-proof Accesses and Stairs to Buildings of the First and Third Classes." Gibbons, 129.

[28] Reginald Cunningham Glen and W. Cunningham Glen, eds., *The Metropolitan Building Acts, 1855 to 1882 : With Appendices : Containing the Building Clauses of the Metropolis Local Management Acts and of the City of London Sewer Acts, Also Bye-Laws, Regulations, Circulars, and Other Official Documents of the Metropolitan Board of Works : With Notes, Cases, and Index* (London: Shaw & Sons, 1883), 22, http://archive.org/details/b28717041.

when a pipe or chimney overheated and spontaneously ignited the woodwork surrounding it—this was one way an unchecked chimney fire could become a full-fledged fire.[29] Improper smoke pipe installation also partially caused the 1834 Houses of Parliament fire when the steam heating pipes grew so hot that they burnt the floorboards causing fires to arise in multiple locations simultaneously, making it harder to extinguish.[30] These 1855 provisions, therefore, forced social responsibility onto the builders and occupiers of London's buildings as a way of further preventing fires.

The 1855 Metropolitan Building Act also created the Metropolitan Board of Works [MBW]. The Board became the custodian of the Building Acts and, from 1866 to 1889, the overseers of London's Metropolitan Fire Brigade. Parliament appointed the MBW, gave them powers to raise funds for infrastructural projects, and allowed them to employ surveyors and architects to enforce the Building Acts' provisions. Over their tenure, the MBW built and refurbished sewers across the metropolis as well as building the Thames Embankment, on which the fire brigade would sometimes conduct exercises. The MBW was not solely interested in fire safety, but it became an important part of their mission to protect London from itself.[31] In this way, they became one of the first municipal institutions charged with ensuring social responsibility around fire.

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[29] Shaw, *Records of the late London Fire Engine Establishment.*, 11–12.

[30] Writing on "the causes of the [parliament] fire proceeding so rapidly," LFEE Superintendent James Braidwood listed eight different points. The first five points addressed the construction of the Houses of and included in his observations that there was a "total want of party walls" and an "immense quantity of timber used in the interior" of the building. "LFEE Committee Minute Book 1833-37," 1837, 80–83, CLC/B/017/MS15728/002, London Metropolitan Archive; Caroline Shenton, *The Day Parliament Burned Down* (Oxford: Oxford University Press, 2012).

[31] David Owen, *The Government of Victorian London, 1855-1889 : The Metropolitan Board of Works, the Vestries, and the City Corporation*, ed. Roy M. MacLeod (Cambridge, Mass.: Belknap Press of Harvard University Press, 1982); For more on the civil servants who ran the MBW, see: Gloria Clifton, *Professionalism, Patronage, and Public Service in Victorian London : The Staff of the Metropolitan Board of Works, 1856-1889* (London ; Atlantic Highlands, NJ: Athlone Press, 1992).

The 1878 Metropolitan Building Act (Amendment) added another piece to the Metropolitan Board of Works' fire responsibilities. In this legislation, MPs gave the MBW the authority to "make, alter, vary, and amend such regulations as they may think expedient with respect to the requirements for the protection from fire of houses or other places of public resort within the metropolis."[32] This amendment and expansion of the MBW's power over theatres came on the heels of an 1876 pamphlet by Captain Eyre Massey Shaw, the chief officer of the Metropolitan Fire Brigade, on the subject and an 1877 Parliamentary Select Committee discussing the fire dangers particular to London's theatres. The MBW debated with theatre-owners how best to make the buildings fire safe and at "moderate expense" to the owners as stipulated by the Act.[33] London theatres could quickly become deathtraps and Shaw highlighted this point in his 1876 pamphlet, stating:

> The subject of preventing the sudden destruction of theatres by fire is one which must necessarily force itself on the attention of all who inhabit crowded cities, and, especially of those intrusted [sic] with the protection of helpless masses of persons on the occasion of such catastrophes.[34]

Shaw framed his pamphlet not as the protection of property, but the protection of lives from this particularly urban problem. By pointing to "crowded cities" as the site of theatre disasters, Shaw established both the problem's immediacy and its potential to grow with urbanization. Victorian Londoners were certain that theatres would burn, shifting the concern onto how best to prevent immense loss of life.[35] With saving lives in mind,

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[32] Glen and Glen, *The Metropolitan Building Acts, 1855 to 1882*, 113.
[33] Owen, *The Government of Victorian London, 1855-1889*, 117–18.
[34] Eyre Massey Shaw, *Fires in Theatres* (London: E. & F. N. Spon, 1876), 3.
[35] London's theatres used limelights, pyrotechnics, gas lamps, and various highly flammable varnishes and paints in their scenery making the stage a particularly dangerous space. Shaw wrote in his pamphlet, "It may be difficult to remove the dangers altogether in the strictest sense of the words, making every portion of the inside of a theatre heat-proof, uninflammable, and incombustible; but to remove the dangers as far as they concern the audience absolutely, and the several parts of the building partially, is not only not impossible, but moreover, not even difficult." Shaw, 11.

legislators added surveying and enforcing more fire-safe construction in theatres to the MBW's plate.

The final major London Building Act of the century, in 1894, reiterated the fire safety provisions of the earlier Acts, just with greater specificity. It listed all of the building materials considered "fire-resisting" for the purposes of the Act. These included brickwork, granite, iron, and concrete as well as oak and teak wood, but only at certain thicknesses or in conjunction with other incombustible substances. The 1894 Act also forced anyone erecting a building of greater than 80 feet high to acquire Council approval in advance. Requiring pre-approval also allowed the Council to enforce the construction specifications for tall buildings. These included Section 68, which reiterated the provision that all buildings over 125,000 cubic feet had to construct "lobbies corridors passages and landings and also the flights of stairs… [in] fire-resisting material and carried by supports of a fire-resisting material." While that provision dealt with internal means of escape from a fire, London's increasingly tall buildings needed additional fire escapes. Section 63 required any building over sixty feet tall to install "such means of escape in the case of fire for the persons dwelling or employed therein as can be reasonably required under the circumstances of the case." This vague rule repeated the same provision from the 1891 Factory and Workshop Act, expanding it to all taller buildings, not just those employing forty or more workers.[36] Neither Act, however, specified the type or style the "means of escape" should take. Both Acts also only specified these provisions for new construction—grandfathering in older

[36] London County Council, *The London Building Act, 1894, and the London Building Act, 1898 (Amendment)* (London: Printed by J. Sears and sons, 1901), 170–71, 43–46, 59, 52–53, 236, http://archive.org/details/londonbuildinga01coungoog.

buildings.[37] These new provisions meant to forestall future issues, but compared with the specificity of other portions of the Acts they left much to be desired.

The 1895 Factory and Workshop Act clarified some provisions related to escape from fire. Section 10 required a number of moveable fire escapes sufficient to the number of employees and that owners lock no doors during business hours in such a way that would prevent an employees' escape.[38] In an 1899 addendum to this Act, the London County Council (LCC) laid out some of the specifications for these fire escapes. For example, the means of escape could not be "windows [or] loop-hole doors" from the upper stories. Instead, the LCC listed three acceptable means of escape from the upper floors:

> (a) A second staircase in the same block; (b) a proper staircase in another block, to which access is available on all the upper floors by proper openings in the party or division walls, or by external communications; or (c) open iron bridges where the blocks are not adjoining each other.[39]

As in previous legislation, the staircases had to be "constructed of incombustible materials" so as to make them effective during a fire. This 1899 addendum, however, went on to specify such aspects as the width and height of the stair tread, the stair direction at which doors communicated with them, and that the doors to these staircases must also be built in "fire-resisting materials."[40] For the first time, though, this Act allowed "external iron staircases" to be the means of escape. These iron staircases had to be "constructed with dead bearings and without cantilever works," to adhere to the specifications for internal staircases, and to have treads made of "non-slippery material" to allow for quick and safe descents.

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[37] This would become especially important following the 1902 Queen Victoria Street Fire discussed in Chapter 5.

[38] This presaged New York City's Triangle Shirtwaist Factory Fire in 1911 where over 100 people died because the employers had locked the exit doors. Jo Ann Argersinger, *The Triangle Fire: A Brief History with Documents* (Macmillan Higher Education, 2016); Richard Greenwald, *The Triangle Fire, the Protocols Of Peace, and Industrial Democracy In Progressive Era New York* (Temple University Press, 2005).

[39] London County Council, *London Building Act, 1894*, 241, 245.

[40] London County Council, 246–47.

Combined with roof escapes, wide windows, and out-swinging exit doors these external fire escapes were meant to make factories more fire-safe for the employees.[41]

Taken together, these various Building Acts and Factory Acts reflect fire safety's evolution over the Victorian period from one primarily concerned with property to one concerned with lives. The earlier Acts concerned themselves with party walls and creating fire breaks between buildings. They isolated dangerous industries and identified theatres as a particular concern. Eventually more and more fire safety provisions dealt with egress from buildings on fire. This coincided with greater emphasis generally among Londoners on saving lives from fire and specifically with the official addition of lifesaving to the Metropolitan Fire Brigade's mission in 1865, discussed later in this chapter. As London grew both upward and outward, protecting these urban citizens' lives from fire became increasingly important.[42] These building legislations, by the beginning of the twentieth century, sought to make buildings as fire-resistant as possible and to make escape in the case of fire as easy as possible. In this way, legislators required builders and property-owners to exercise fire caution. By adding death preventing clauses to its various Acts, Parliament moved toward embodying both aspects of social responsibility around fire.

As seen in this section, these social responsibilities were manifested differently in Calcutta and London. In Calcutta, the focus was on banning thatched roofs and limiting fireworks or other fire propagation among the Indian population with implicit assumptions that the city's White population were already socially responsible with fire. In London, where carelessness was considered the crux of their fire problem, the legislation tended to focus on

[41] London County Council, 248–50.

[42] The Metropolitan Fire Brigade made lifesaving even more obvious after 1870 when they started recording all Londoners endangered by fire, and enumerating the victims—both saved and lost to the flames—in their annual reports.

preventing fires from spreading between buildings, and later in the century providing safer escape routes. Calcutta's commissioners thus believed that fires could be largely eradicated by controlling the Indian population, and the decline in fire damage in the 1860s seemed to bear that out.[43] London's municipal overseers, in contrast, believed fires to be inevitable—because they were caused by human carelessness—and sought instead to limit fire's spread. Both cities took the job of enforcing social responsibility around fire prevention very seriously, but how each defined the fire problem led them to different means of intervention.

2.2 Municipal Fire Protection in London and Saving Lives, 1865–67

While building codes and fire safety legislation forced Londoners to take on their social responsibility for preventing fires, the legislation that created the city's municipal fire brigade further concentrated Londoners' social responsibility for extinguishing fires. In the eighteenth and early-nineteenth century, most firefighting in London was carried out by community members. From 1707, an Act of Parliament required every London parish to keep and maintain a fire engine for extinguishing fires within their parish and gave instructions for engine keepers on how to get community members to pump said engines.[44] Even once fire insurance companies began running their own fire brigades in London in the mid-eighteenth century, they still required community members to pump their manual fire engines but could afford to pay for such community support.[45] In this way, even as

[43] "Calcutta Police Reports 1855-1869."
[44] Blackstone, *British Fire Service*, 61–62.
[45] Holloway, *Courage High!*, 27.

firefighting became more specialized, it still necessitated clear and immediate aid from community members.

When lawmakers sat down to create a municipal fire brigade for London they had to come up with ways to channel this communal social responsibility for extinguishing fires into a singular institution to undertake the protection of the whole community. In this endeavor lawmakers were aided by the "Great [Tooley Street] Fire of 1861," which forced the fire protection issue into the public view, and by the bottom lines of the fire insurance companies that wished to give up the costly London Fire Engine Establishment [LFEE], but not its fire protection.[46] This section follows the decision process from the 1861 Tooley Street Fire to the passage of the 1865 Metropolitan Fire Brigade Act as lawmakers and fire insurance company lobbyists attempted to enshrine the social responsibility for extinguishing fires into a publicly-funded, municipally-overseen, and efficiently-run fire brigade for London.

The Tooley Street Fire broke out in June 1861, on the south bank of the Thames in a group of wharf-side, six-story warehouses, which contained everything from spices and cacao, to jute and cotton, to saltpeter and tallow. At its greatest extent, the fire covered almost three acres of South London along the river, and the explosions of saltpeter and other superheated goods caused sparks and burning debris to rain down over the entire neighborhood.[47] Once ignited, the fire communicated quickly throughout the warehouses endangering the wharfs to the north, other warehouses to the east, London Bridge and its railway station to the west, and to the south a large number of houses [See Figure 1].[48] The

[46] *Illustrated History of the Great Fire*.
[47] These sparks were largely ineffective against London's tiled roofs. "Dreadful Conflagration," *The Times*, June 24, 1861, 12, The Times Digital Archive.
[48] *Illustrated History of the Great Fire*, 2.

combination of improper construction, dangerous storage of inflammable goods, and burning tallow and exploding saltpeter made the fire extremely hot and dangerous.[49] The London Fire Engine Establishment responded with almost all of their resources, and support also came from the local parishes and a couple of volunteer companies.

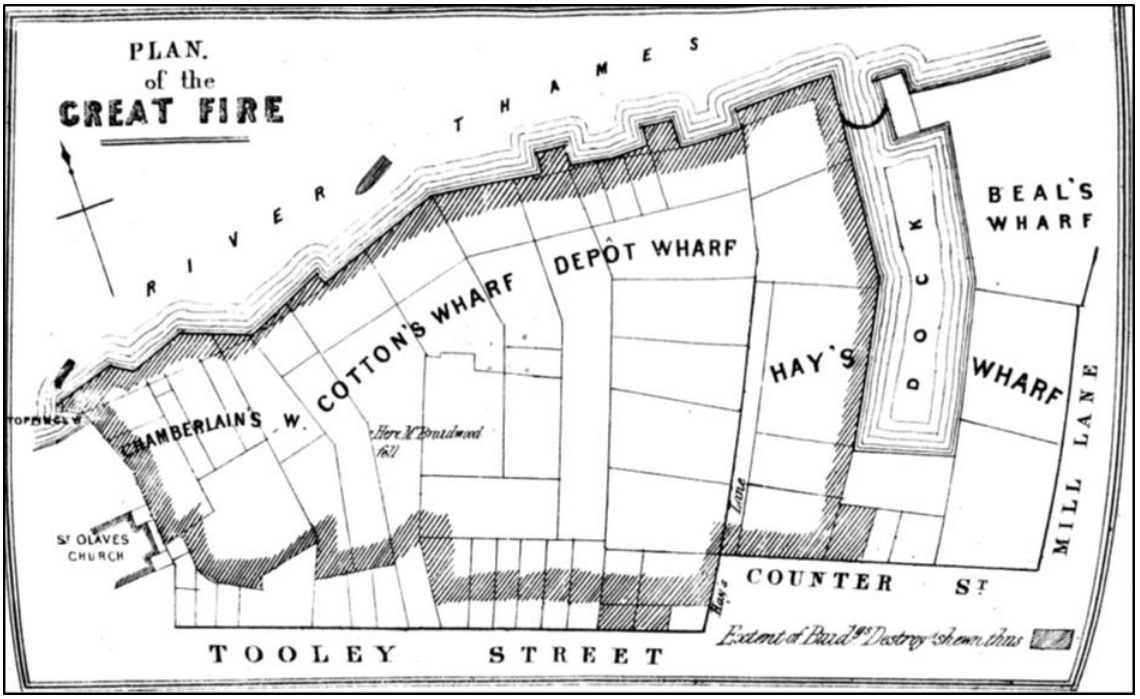

Figure 1 Map showing the extent of the 1861 Tooley Street Fire from the *Illustrated History of the Great Fire* published in 1861.[50]

The Tooley Street area was well known to London Fire Engine Establishment firemen and the properties were almost all insured with the fire insurance companies. This section of South bank warehouses and wharfs the LFEE knew as "a locality which ha[d] been singularly unfortunate during the last twenty-five years, some of the largest fires having occurred there," and a focus for many LFEE operations.[51] The eight massive six-story

[49] John Drummond of the Sun Fire Office reported to the Select Committee on Fire in the Metropolis that at Tooley Street they had warehoused jute right next to saltpeter. The Committee noted that "Jute is very liable to spontaneous combustion" and saltpeter liable to "explosions" making for a very dangerous and potentially deadly combination. "Report from the Select Committee on Fires in the Metropolis," Select Committee (London: House of Commons, May 8, 1862), 74, House of Commons Parliamentary Papers Online.
[50] *Illustrated History of the Great Fire*, 2.
[51] *Illustrated History of the Great Fire*, 3.

warehouses where the fire broke out were dutifully made of brick—a prerequisite for being insured—and even employed the latest in fire safety technology: substantial iron fire doors between different storerooms with the warehouses.[52] Unfortunately, human carelessness is fire's friend. The main warehouse took fire because "the workpeople had made the fatal omission of not closing the iron doors," which meant that the party walls were useless and all that could stop the fire were the exertions of London's firefighters.[53]

The particular hazards that contributed to this fire—improper fire safety protocols, aggregations of highly inflammable materials, and tall, tightly-packed buildings—exposed the firemen fighting it to greater dangers than at most fires they fought. The explosions from saltpeter barrels and the heat from burning oil combined to undermine the warehouse walls' integrity, which was particularly dangerous for firemen who had to work around these walls.[54] As was customary, LFEE Superintendent James Braidwood was on site to oversee his firemen's actions. While making his rounds, one of the warehouse walls buckled and bricks rained from the upper story onto Braidwood and several other firemen. Braidwood was killed almost instantly as the wall collapsed, leaving the LFEE without its chief and London without its most fervent fire protector. The fire did not pause for Braidwood. Instead, the Tooley Street Fire raged for almost two weeks and the firemen could not recover Braidwood's body until the third day. By the end, the fire destroyed around £2

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[52] The 1844 Metropolitan Building Act required not only building walls in brick and roofs in tile, but stipulated that party walls too should be made of "sound Bricks or of Stone" in order to prevent fires from transmitting from one building to another. Gibbons, *The Metropolitan Buildings Act. 7th & 8th. Vict. Cap. 84. With Notes ..*, 5.

[53] *Illustrated History of the Great Fire*, 5.

[54] The Metropolitan Building Acts were particularly concerned with how walls ought to be constructed, and offered specific dimensions for the width of the base and the top of the walls depending on their height. This was meant to increase their stability and discourage their collapse under strenuous circumstances. Even with proper construction it was difficult to fully prepare for or predict a situation like the Tooley Street Fire. Reginald Cunningham Glen and W. Cunningham Glen, eds., *The Metropolitan Building Acts, 1855 to 1882 : With Appendices : Containing the Building Clauses of the Metropolis Local Management Acts and of the City of London Sewer Acts, Also Bye-Laws, Regulations, Circulars, and Other Official Documents of the Metropolitan Board of Works : With Notes, Cases, and Index* (London: Shaw & Sons, 1883), http://archive.org/details/b28717041.

million worth of insured merchandise and property, and forced Londoners to reevaluate their fire protection.[55]

London mourned the loss of Braidwood; his funeral included over 2200 people in the cortege and thousands more lining the streets, but his death revealed the precarity of London's fire protection under the fire insurance companies.[56] In order to forestall the public losing trust in the fire insurance companies themselves, the companies that oversaw the London Fire Engine Establishment started looking for a way out of the direct fire protection of London. After forming a subcommittee of representatives from eleven LFEE-funding companies, they resolved that:

> considering the increase of the expenditure of the Brigade during recent years, and the large prospective immediate expenditure, the altered character in the nature of the risks in London, and the growing magnitude and number of Fires to be contended with, it appears to this Committee to be desirable that serious attention be at once given to plans directed to a transfer of the Fire Prevention Service of London to the Metropolitan and City Police, or other competent Public authorities.[57]

They did not mention the death of Braidwood directly, but the Tooley Street Fire clearly exposed the possible extent of London's fire risks, which the LFEE no longer felt confident they could combat in a cost-effective manner. Examining the LFEE's annual reports bears out the fact that the "magnitude and number of Fires" did appear to be increasing, even though Braidwood argued that the percentage of buildings "Totally Destroyed" by fire was decreasing due to the LFEE's actions. The annual reports also show how the brigade's cost increased over time. In the five years leading up to 1861, the total annual LFEE

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[55] The potential economic impact of the fire extended beyond the insurance companies and warehouse owners' losses. An article from The Times, reprinted in the Manchester Guardian, noted that "Perhaps 1,500 or 2000 labourers are necessarily cast adrift [become unemployed], for the time at least; while a large number of clerks, collectors, &c. are also deprived of their customary occupation." "The Great Fire in London," *The Manchester Guardian (1828-1900); Manchester (UK)*, June 25, 1861; *Illustrated History of the Great Fire*, 6–7, 52.
[56] Holloway, *Courage High!*, 60.
[57] "LFEE Committee Minute Book 1860-63," 100–101.

contributions raised around £3,000.[58] Furthermore, the LFEE's annual budget had more than tripled in its 30-year tenure from about £8,000 in 1833 to a little over £26,000 for 1865.[59] This increase in cost occurred despite the LFEE not adding any new stations and only latterly shelling out the capital for new apparatuses and technologies. These factors all pushed the LFEE's committee toward petitioning Parliament.

With pressure from a frightened populace, merchants angered by rising insurance premiums,[60] and the fire insurance companies threatening to give up their fire brigade,[61] it was impossible for Parliament to ignore the Tooley Street Fire. The Home Secretary did the next best thing: he sent the question of current and future firefighting arrangements to committee. Parliament instituted a Select Committee on Fires in the Metropolis in February 1862, charging it with investigating the metropolis' current fire protection system and with offering potential reforms that might improve that system. Between its inception in February and submitting its report in May, the Select Committee interviewed around 42 witnesses, some directly connected to fire protection, some not, but all concerned with London's future fire safety. In these three months, this Select Committee discussed the major fire protection issues and tried to resolve the major debates that had to be addressed before they could even

[58] In 1857, 24 Fire Insurance Companies paid in £15,675 toward the Brigade's maintenance. In 1861, 28 companies paid in £18,528. With the average additional annual cost for each of the largest five companies being around £500. "LFEE Committee Minute Book 1854-58," 1858, CLC/B/017/MS15728/007, London Metropolitan Archive; "LFEE Committee Minute Book 1858-60," 1860, CLC/B/017/MS15728/008, London Metropolitan Archive; "LFEE Committee Minute Book 1860-63."

[59] Accounting for an annual 3% inflation, the LFEE's cost appears to have risen faster than inflation, and to have done so without the addition of new stations and only limited outlay for new apparatus or men. Much of the increase in cost, according to the LFEE, was simply the increase in fires, which each cost the fire brigade in maintenance costs and for payment to pumpers. Shaw, *Records of the late London Fire Engine Establishment.*, 12.

[60] The fire insurance companies had to pay out almost £2 million in losses after Tolley Street, and as a result, chose to raise their premiums in a very significant way—from 4s 6d per cent to 15s per cent. Holloway, *Courage High!*, 62.

[61] The committee in February 1862 sent a letter directly to the Home Secretary, Sir George Grey, stating their intention "of relinquishing, at an early date, the maintenance of the London Fire Brigade." "LFEE Committee Minute Book 1860-63," 167–68.

consider acceding to the LFEE committee's desire for the government to take on the burden of protecting London from fire.

While the Select Committee interrogated their witnesses on the state of the metropolis' water supply for firefighting[62] and the parish engine system[63], the three debates for future fire protection they hoped to resolve were the jurisdiction, funding base, and mission of the new brigade. In their cross-examining, the Committee framed each of these questions in terms of whether current fire protection was "sufficient" and/or "efficient" and what needed addressing to make up the difference. Thomas Sheppy, the fire protection officer at the East and West India Docks, summarized the general position on the LFEE very well. When asked if the LFEE were a sufficient force for London he replied, "They are decidedly not sufficient, but are very efficient."[64] Multiple witnesses repeated this phrasing and provided the committee with an anchor to which to moor their deliberations—they wanted a London Fire Brigade that was both "sufficient" for the whole metropolis and perfectly "efficient."

The Select Committee drilled down into the critical questions to be answered in order to make a "sufficient" and "efficient" new municipal fire brigade. The first question was over how far the jurisdiction of a new brigade should extend. With their very first witness, Police Commissioner Richard Mayne, the Select Committee solidified the distinctions between the Metropolitan Police's jurisdiction and the Metropolitan Board of

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[62] Surveyor Thomas Piper told the Select Committee that "the water arrangements in London…are not efficient in relation to the public question of fire." Captain Shaw noted in his testimony that the supply of water in London was very "unequal" from district to district, which further compounded the issue for firefighting. "SC on Fires in the Metropolis," 31, 62.

[63] When asked by the Committee, Captain Shaw listed out the parishes which he considered to have a "good engine" or a "good man" for firefighting, and he was able to name eleven parishes which had at least one, totaling sixteen good engines and eleven good men for all of the London parishes. With over two hundred parishes in Metropolitan London, this was nowhere near sufficient. "SC on Fires in the Metropolis," 32.

[64] "SC on Fires in the Metropolis," 45.

Works'. According to Mayne, the Police jurisdiction extended on "a radius of 16 miles" from Charing Cross in all directions—"about 700 square miles"—and the Board's district was only "about six miles round Charing Cross," a significantly smaller area of operations than for the Police.[65] George Vulliamy, the Board's architect, compared the two jurisdictions in terms of parishes, with the Board encompassing 79 parishes compared to the Police's 217, then went on to state that the Board's area of operations was 170 square miles.[66]

The jurisdiction's potential size was critical. Every witness directly involved in firefighting agreed on what was most important: arriving fast and attacking the fire as soon as possible. As late as 1860, Braidwood still felt comfortable using the excuse of a fire being "2 to 9 miles distant from the nearest station" as an explanation for why a building was "totally destroyed" by fire.[67] The LFEE's stations, which had added only one land and one river station in thirty years, were clustered around the river and the City and had refused to expand with London's population. LFEE Secretary Browne noted that the stations had been established "to protect the portions of the town in which the property insured by the offices was of the most hazardous nature, and the most like for fires to produce heavy losses in a short space of time."[68] In other words, as the Select Committee members discovered, the stations were centered on insured property rather than on London's population. This meant that any expansion of the LFEE's efficient system would require extensive outlays to bring fire stations to the metropolis' outlying districts.

Ultimately, jurisdiction and funding became a combined debate. If a new rate were going to support a municipal brigade then a broader jurisdiction would encompass a larger

[65] "SC on Fires in the Metropolis," 1–2.
[66] The MBW's jurisdiction was only about a quarter of the total jurisdiction of the Metropolitan Police, which came with various benefits and drawbacks. "SC on Fires in the Metropolis," 57–59.
[67] "LFEE Committee Minute Book 1858-60," 203–12.
[68] "SC on Fires in the Metropolis," 23.

number of ratable properties. According to Mayne, a penny in the pound rate for the Metropolitan Police's district would net an annual return of around £49,569 to £56,207 depending on which rural parishes were excluded.[69] This would more than double the LFEE's 1861 budget and with the addition of contributions from the Government and the fire insurance companies would go a long way to fulfilling Shaw's "perfected" fire protection plan for London, which had a £70,000 annual budget.[70] If the fire brigade's jurisdiction were kept to the area of the Metropolitan Board of Works, however, ratable property would drop precipitously and with it the potential tax revenue. Yet, the capital needed to add stations, and the annual expenditure to maintain the engines and men there, would similarly scale to the size of jurisdiction chosen. The Select Committee kept asking their witnesses to offer their opinions on this conundrum.

The witnesses, as a rule, agreed that the number of fire stations needed to be increased. As the Metropolitan Board of Works architect Vulliamy told the committee, the "outlying districts of the metropolis are not adequately protected" and despite the LFEE brigade being "efficient…[it] ought to be enlarged" to protect more of the metropolis.[71] The degree of the expansion split the witnesses. The Metropolitan Police commissioner argued for expansion across his entire jurisdiction, the representatives from the fire insurance companies only cared about keeping their current stations in efficient order, and the dock companies and vestry clerks were agnostic outside of their immediate areas of concern but cared deeply about the potential rise in rates. The Sun Fire Office director, John

[69] "SC on Fires in the Metropolis," 11.
[70] In the midst of creating the Metropolitan Fire Brigade Act, Shaw was asked to submit a potential annual budget and his £70,000 budget "would be more completely efficient" than the £50,000 that Secretary Grey would force Shaw to shoehorn his system into. "LFEE Committee Minute Book 1863-66," 1866, 169–71, CLC/B/017/MS15728/010, London Metropolitan Archive.
[71] "SC on Fires in the Metropolis," 56–57.

Drummond, even argued that if the government gave the LFEE a subsidy of £10,000 a year they would add ten more stations, thus obviating the debate on jurisdiction. Drummond very cannily did not say where he might situate these stations.[72] Eventually the question became how the government could expand the system while maintaining its efficiency, and, for that, the smaller expansion would more likely accomplish that goal.

In the course of these interrogations, the final debate made its implied presence known—that of a new municipal brigade's mission. This question boiled down to the emphasis on either life-saving or property-saving. The LFEE's foundational documents claimed they formed for "the better protection of the property and lives of the Inhabitants of the Metropolis," but their actions and their interest as extensions of the fire insurance companies necessarily placed their emphasis on protecting property from fire.[73] The LFEE declined to purchase fire escape ladders or train the firemen in their use, encouraging the Royal Society for the Protection of Life from Fire [RSPLF] to take up the slack and protect the metropolis' inhabitants from death by fire.[74] The RSPLF was a charitable institution that maintained fire escape ladders and men throughout the metropolis, relying on contributions from parishes and wealthy philanthropists. This bifurcated mission worried Londoners, and encouraged the Select Committee to try to find some way to combine these missions in any new brigade. As long as their half was efficiently done, the fire insurance companies' and the

[72] "SC on Fires in the Metropolis," 75.
[73] "LFEE Committee Minute Book 1832-33," 86–87.
[74] Sampson Low, "The Royal Society For The Protection Of Life From Fire," *The Times*, June 1, 1865, The Times Digital Archive; Roger Willoughby and John Wilson, *Saved from the Flames: A History of the Society for the Protection of Life from Fire and Its Awards* (Honiton, Devon: Token Publishing, 2012).

RSPLF's representatives to the Select Committee seemed willing to give over their responsibilities to a municipal institution.[75]

The mission debate further exacerbated the divide between the police and the Metropolitan Board of Works for who should oversee the new brigade. Commissioner Mayne argued that his police were already engaged in these integrated missions. He claimed, "the preservation of life and property from fire ought to be as much a part of the duty of the police as preservation from thieves, and murderers, and burglars," conflating his current police duties with that of the fire brigade.[76] George Vulliamy, representing the Board, argued that there "would be difficulty…in drawing the line" for the police between their duties as firemen and as police, and that in conflating the two danger might ensue. Vulliamy went on to state that the "security of life against accidents from fire" was one of the primary duties he and his Board surveyors held as they sought to enforce the metropolis' building acts.[77] In turn, the vestry clerks that paid for their own fire engines and for protection from the RSPLF shared Vulliamy's concerns that the police duty would be too "divided" by the addition of firefighting responsibilities.[78] With such divisions between the witnesses, it was up to the Committee to decide for themselves to whom they should recommend the additional duty.

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[75] As Sampson Low, the director of the RSPLF, stated, "at all events that arrangements of equal value should be secured for the protection of life as of primary importance" rather than merely the protection of property. "SC on Fires in the Metropolis," 40.
[76] "SC on Fires in the Metropolis," 9.
[77] The MBW itself had been created by the 1855 Building Act. Vulliamy also argued forcefully that the MBW's 56 district surveyors would provide the new fire brigade with the information and area knowledge that they would require to be most effective. The surveyors were not as prevalent as the Metropolitan Police, but their particular concern with building construction would make them much more helpful to any future brigade. Braidwood had actually argued that having firemen whose previous employment was in construction or engineering was preferred over any other type of laborer. "SC on Fires in the Metropolis," 57–59.
[78] "SC on Fires in the Metropolis," 94.

The Select Committee did not take long in making their recommendations. After speaking to their final witness on April 1, the Committee submitted their draft report on April 10, and with a few revisions, the final report was printed May 6. The Committee's main recommendations were that:

> A fire brigade be formed, under the superintendence of the Commissioners of Police… that the Acts requiring parishes to maintain engines be repealed…that an account of the expenditure of the new police fire brigade be annually laid before Parliament…[and] that the area of the new fire brigade arrangements be confined within the limits of the jurisdiction of the Metropolitan Board of Works.

These recommendations walked a middle ground between the witnesses' positions, attempted to make a compromise position to lay before Parliament for legislation, and laid out the Committee's responses to the three major debates. They recommended the Board of Works' jurisdiction, the Police's superintendence, and that funding should come from a combination of the Police rate, fire insurance company contributions, and from charging the owners of property wherein a fire occurred. The Committee sent these recommendations with the caveat that no legislation "would supersede the necessity for individual care by the occupiers of houses against the risk of fire," nor could any public measure "prevent individuals from suffering losses from those acts of carelessness from which fires generally arise."[79] The best fire brigade in the world could not prevent fires, they argued, but London may as well have the most efficient fire brigade it could. With these recommendations in hand, Secretary Grey began considering the legislation that would become the Metropolitan Fire Brigade Act.

Almost immediately, however, the momentum broke down. Conflicts between the Metropolitan Police and the City of London Police made it untenable to place the fire

[79] "SC on Fires in the Metropolis," vii.

brigade under the police, so it was decided to place any new brigade under the Metropolitan Board of Works.[80] The Home Secretary also baulked at the idea of raising a penny rate to pay for the fire brigade, and forced Shaw to redraw his plans with a halfpenny rate instead. Shaw's new plan for the Brigade would extend from 19 to only 43 stations and add only an additional 100 firemen to keep within the Home Secretary's arbitrary budget of £50,000.[81] These conflicts took several years to resolve before the law itself could be drafted.

The LFEE had expected the 1862 Select Committee to lead to more immediate change, and when that failed to materialize they created a sub-committee "on future arrangements" to look into additional ways to influence the Government. The sub-committee came up with two ways to sweeten the deal for Parliament to take up their legislation. First, "the Companies would transfer the whole of their plant and stock, and the interest they hold in the Stations, to the Board of Works, free of charge—provided that the existing Stations, and arrangements of plant and Staff be maintained as at present."[82] This had been part of the Select Committee's first draft recommendations, but after four division votes, they left it out of the official report.[83] This transfer of apparatus, stations, and staff served a double purpose. On the one hand, it precipitously cut the startup costs for the Metropolitan Board of Works and ensured that the most well-trained firemen continued in their labor. On the other hand, the fire insurance companies could guarantee that the stations protecting London's most heavily-insured property stayed in operation. Second, the LFEE offered to pay in "by means of fixed charges…a sum on the whole of not less than

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[80] The LFEE Sub-Committee on Future Arrangements noted in their 1863 report that a key benefit of placing the brigade under the MBW was that they had "jurisdiction over both the City and the rest of the Metropolis, and it is the only body which has so." "Report of the Sub-Committee of the London Fire Engine Establishment, on Future Arrangements" (B. Paradise, 1863), 3, MS15728/10, London Metropolitan Archive.
[81] Holloway, *Courage High!*, 65.
[82] "LFEE Committee on Future Arrangements," 4.
[83] "SC on Fires in the Metropolis," XX.

£10,000 per annum" toward the maintenance of the fire brigade.[84] In this way, the fire insurance companies could preserve a hand in London's direct fire protection, while significantly lowering their annual outlay for it.

Once these promises had been made and the Metropolitan Fire Brigade Act drafted, it sailed through parliamentary debates. Indeed, during the Bill's second reading Dublin MP John Vance stated, "What the House had most to complain of was the delay which had taken place. The Committee reported in 1862—it was not till 1865 that the Government had introduced their scheme, and no adequate reason for the delay had been assigned."[85] Other members shared concerns over the Government's responsibility to pay in £10,000 annually to support the brigade and fears that the halfpenny rate would not be sufficient to make up the difference. Either way, the Bill became an Act largely along the lines proposed by the Select Committee and the LFEE.

The Metropolitan Fire Brigade Act settled the three major debates from the Select Committee on jurisdiction, funding, and mission. The jurisdiction chosen was that suggested by the Select Committee, the area of the Metropolitan Board of Works, which included both the City of London and over a hundred square miles of the metropolis under its aegis. The Metropolitan Board of Works was granted the powers to "provide and maintain an efficient Force of Firemen" and to secure the equipment necessary for them to accomplish their duties.[86] The Act also gave the Metropolitan Board of Works the power to raise funds to support the brigade.

The funding debate was the one where the Act showed the greatest compromise. The new Metropolitan Fire Brigade would be funded annually from three different sources.

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[84] "LFEE Committee on Future Arrangements," 4.
[85] *Bill 153 Second Reading*, vol. 179, Hansard (London: UK Parliament, 1865), col. 838.
[86] "An Act for the Establishment of a Fire Brigade within the Metropolis" (1865), sec. 4.

First, the Treasury would pay in an annual amount "not exceeding…Ten thousand Pounds" to help the brigade meet its budget. Second, the Act stated that "Every Insurance Company that insures from Fire any Property in the Metropolis shall pay annually…a Sum after the Rate of Thirty-five Pounds in the One million Pounds on the gross Amounts insured by [each company]" and these sums would be paid in parts four times annually.[87] It also required the insurance companies to report to the Board of Works the total amount they insured within the metropolis, which was information the Government had not previously had access to, so the Board would know how much to expect from each company. Third, the act empowered the Board of Works to levy "the Rate of One Halfpenny in the Pound on the full and fair annual Value of Property rateable to the Relief of the Poor" with the express "Purpose of defraying all Expenses that may be incurred by the Board in carrying into effect this Act."[88] While this rate—equal to roughly 1/480 a pound—did not greatly raise Londoners' taxes, nor did it provide sufficient funds for the new brigade.[89] During the brigade's first year the funds from the Treasury, the fire insurance companies, and the halfpenny rate totaled about £52,000 slightly over the estimated cost, but still not enough to cover "the capital expenditure necessary for new fire stations and equipment."[90] The halfpenny rate and the fire insurance company contributions technically increased with London's growth, but not enough to create the capital for expanding the brigade.

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[87] The last time the LFEE had set contribution levels it was £100 fixed, and £65 per million insured in London. The rate in the Act would greatly reduce the fire insurance companies annual outlay. "LFEE Committee Minute Book 1860-63," 237.

[88] An Act for the Establishment of a Fire Brigade within the Metropolis, secs. 13–19.

[89] Owen stated the "funds were gravely short of the legitimate needs of the Brigade," Owen, *The Government of Victorian London, 1855-1889*, 129–30; Holloway called it "a ludicrously niggardly amount." Holloway, *Courage High!*, 66; Blackstone blamed the fact that "London was growing fast and the fire brigade committee was continually being harassed by demands from parishes both new and old for fire protection which they had no means to provide." Blackstone, *British Fire Service*, 194.

[90] Owen, *The Government of Victorian London, 1855-1889*, 130.

The assigned mission for the new Metropolitan Fire Brigade did not help keep costs down. The Act required the new brigade to place a greater emphasis on life-saving and as such the Metropolitan Board of Works had to "make such arrangements as they think fit as to establishing Fire Escapes throughout the Metropolis." Despite no proposal for it in the Select Committee's report, the Metropolitan Fire Brigade Act suggested the new brigade could either contribute to the RSPLF and encourage it to expand its operations to match the Metropolitan Fire Brigade, or they could purchase the Society's plant and stations, thereby fulfilling their mission.[91] Captain Shaw, as Chief Officer of the new Metropolitan Brigade, chose the latter course and in June 1867 purchased all of the plant and took on the fire escape conductors from the RSPLF for sum of £1414 2*s*, down from the original demand of £2500.[92] These kinds of capital expenditures were generally outside of the budget for the year and so the legislators allowed the Board to borrow money to support the brigade's expansion. Section 21 of the Act permitted the Board to "borrow any Sum not exceeding Forty thousand Pounds, and apply the same for the Purposes of this Act."[93] Still, £40,000 did not cover all of the brigade's needs and the interest on the loans only served to beggar the Board of Works. According to the Fire Brigade Committee's records, by 1869 the brigade was already running at a deficit and considering suspending stations.[94] The Metropolitan Board of Works (Loans) Act of 1869 lessened the restrictions on the Board's borrowing powers allowing it to put some capital toward constructing plant for the brigade.

[91] An Act for the Establishment of a Fire Brigade within the Metropolis, sec. 11.
[92] "FBC Minutes," 455–65.
[93] An Act for the Establishment of a Fire Brigade within the Metropolis, sec. 21.
[94] "Fire Brigade Subcommittee Minutes, October 1865-July 1884" (Metropolitan Board of Works, 1884 1865), 204–10, MBW/974, London Metropolitan Archive.

These loans did not help with the annual budget, however, and brigade funds remained tight.[95]

Despite what would prove to be an unstable funding structure, limited apparatus, and a lack of firemen, the Metropolitan Fire Brigade attended its first fire on January 1, 1866. The Metropolitan Fire Brigade Act secured for London its own municipal fire brigade and created a framework for other cities to follow in making their own. The Act claimed that it would essentially "make further Provision for the Protection of Life and Property from Fire within the Metropolis," officially placing both life-saving and property protection at the forefront of the fire brigade's duties.[96] This created a more balanced and socially-responsible approach to fire protection in London.

Four major factors contributed to the fire insurance companies' success in handing over their brigade to a new municipal service. First, was that the fire insurance companies themselves had gained a great deal of experience in petitioning Parliament. Between 1850 and 1865 when the Metropolitan Fire Brigade Act passed, there were 1,837 petitions submitting to Parliament hoping to convince the Government to equalize, reduce, or repeal the duty on insurance policies. This averaged about 122 petitions a year, which added up to a lot of contact and a developing relationship with Parliament.[97] Second, was the creation of the Metropolitan Board of Works in 1855. The Metropolitan Board of Works provided a governing body for Metropolitan London for the first time with power over both the City and the Metropolis. In combination with the Metropolitan Police the Metropolitan Board of

[95] Owen, *The Government of Victorian London, 1855-1889*, 130.
[96] An Act for the Establishment of a Fire Brigade within the Metropolis, 817.
[97] Each of these petitions averaged about 118 signatures, suggesting limited support, but they served to keep the issue before Parliament. This data is based on research undertaken by "Re-thinking Petitions, Parliament and People in the long nineteenth century" project, funded by a Research Project Grant from the Leverhulme Trust (RPG-2016-097) and led by Richard Huzzey and Henry Miller at Durham University.

Works fixed in Londoners' minds that the government had a role to play in their basic protection, whether it be from improperly constructed buildings, theft, or fire.

Third, Londoners had already claimed the LFEE brigade as their own, with all of its connotations and expectations. Even in the Select Committee's deliberations, both the Committee and witnesses called this institution the "London Fire Brigade" or simply *the* "Fire Brigade."[98] By the 1860s, many Londoners were only vaguely aware that the city did not run the Fire Brigade already, which made the transition to a municipal brigade even easier. Finally, was London fire insurance companies' willingness to raise premium rates and keep them high until the Government negotiated. After almost three decades of working together to fund and run the LFEE, the London fire insurance companies had many of the informal communication networks in place to make collusion possible. This meant that when the companies tripled their premiums after Tooley Street, they were able to do it in tandem without competition, making it all the more effective. These four factors made municipalizing London's fire protection possible in the 1860s, where the attempts in the 1830s fell flat.[99]

With the passage of the 1865 Metropolitan Fire Brigade Act, both the London fire insurance companies and the vast majority of Londoners themselves had transformed their social responsibility for extinguishing fires. Whereas at fires in the 1830s Londoners pumped fire insurance company engines to put out fires, from 1866 these responsibilities had been largely reduced to monetary contributions—the insurance companies giving a percentage of their revenue and Londoners a halfpenny rate on their property. Thus, the social

[98] We saw this elision as early as 1850 when Dickens included an article on the "Fire Brigade of London" in his journal. Richard H. Horne, "The Fire Brigade of London," ed. Charles Dickens, *Dickens' Household Words*, no. 7 (May 11, 1850): 145–51.
[99] See LFEE Minute Book for 1834 after the Parliament Fire. "LFEE Committee Minute Book 1833-37," 86.

responsibility for extinguishing fires in London became a communal responsibility in theory only. Instead, the physical part of this responsibility devolved to the members of the fire brigade, which necessitated its own changes and will be discussed in the next chapter. Overall, the Metropolitan Fire Brigade Act gave Londoners a new, legally-defined, way of thinking about their fire protection and also provided language for other cities, like Calcutta, to start thinking about their own.

2.3 Calcutta's Jute Problem and Fire Brigade Solution, 1872

Allocating the social responsibility for fire-extinguishing in Calcutta followed the same lines of thinking the city's magistrates used to define its fire problem. As we have seen, in the early-nineteenth century Calcutta's magistrates blamed Indian thatched huts for the vast majority of fires in the city and Indian carelessness for the rest. Yet, Calcutta's building codes against thatch roofs—particularly once they empowered police to tear the roofs down—proved incredibly effective, so much so that the police commissioners had to shift how they reported fire damages, from the number of "buildings consumed" to the "approximate value of property destroyed" as their metric for gauging a fire's destructiveness.[100] Part of this shift was accounted for by the buildings being destroyed. Whereas the 1872 Calcutta Police Report noted the destruction of 28 thatched huts accounted for about Rs. 350 destroyed, one jute godown [warehouse] accounted for almost Rs. 25,000 of destroyed property.[101] The two major jute warehouse fires in 1871, and the fact that most jute godown owners were Indian, solidified jute warehouses as the central concern for Calcutta's fire protection.

[100] Hogg, "Calcutta Annual Police Reports 1870-75."
[101] Hogg, 1872:16.

Similar to London, the sparking event for Calcutta's fire brigade municipalization was a warehouse fire, or more precisely, two jute warehouse conflagrations. The first fire, in April 1871, occurred in the city's northern suburbs, closer to the Black Town where such disasters were more expected.[102] Still, the fire drew the attention of the suburbs' Municipal Commissioners who met to discuss the city's fire protection, or lack thereof. At the meeting, the Commissioners recommended that a "special committee [be] appointed to consider measures which should be adopted for bringing under municipal control all depots for unscrewed jute, and for the organization of an efficient fire brigade."[103] While the Commissioners may have intended these as two separate action items—controlling jute warehouses and organizing a fire brigade—bringing them up together intertwined the two projects. Calcutta's Chairman of the Justices of the Peace's letter suggesting for government to take on jute warehouse control and efficient fire protection compounded this conflation of issues.

The second fire reinforced the dangers of jute warehouses and brought the issue to the doorstep of White Calcutta. The fire broke out in November 1871 at Nos. 29 and 30 Clive Street within easy view of Fort William in the White Town and near to the Hooghly River. The *Times of India* reported that the fire started in some "jute screw-houses" and from there "the flames rapidly spread, and in the space of a couple of hours the adjacent godowns, also filled with jute, took fire and blazed with considerable fury." The fire raged throughout the night, eventually consuming several other godowns and houses along Clive Street.[104]

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[102] In Calcutta, the British classified disease and public health concerns along racial lines bringing about "sanitation-based urban spatial politics" for the first time, which became segregationist policies as the correlation between natives and disease translated into a racist threat against whites. Nightingale, *Segregation*, 90–92.

[103] "Bengal Proceedings: Judicial (1 Jan 1871-31 May 1871)," 1871, 160, IOR/P/244, British Library, India Office Records.

[104] "Destructive Fire at Calcutta," *The Times of India*, December 1, 1871.

This fire showed the particular dangers of multiuse or mixed use buildings in Calcutta where warehouses mixed with houses and small manufactories.[105] The *Times* noted the house at No. 28 Clive Street, "which at first appeared to be saved from the flames" took fire late in the night. This house's "upper rooms were occupied by an Armenian family" and the lower portions were leant as warehouse space, but "fortunately the godowns in the lower part of this house had been emptied of the jute they contained, before the building caught fire."[106] The police fought these fires with help from sailors and locals, but were unable to save Clive Street from conflagration.

These two fires, and particularly the Clive Street Fire, initiated an intense debate over the state of fire protection in Calcutta. The *Times of India* ran an editorial openly criticizing Calcutta's police-fire brigade and the fact that "there was little or no attempt at method" for the firefighting. The *Times* editor believed much more property could have been saved if there had been "proper management" and better equipment.[107] In contrast, the Police Commissioner, Stuart Hogg, stated that when he personally visited the fire he "was satisfied with the arrangements made and with the manner in which the fire-brigade was working." The Government were grateful that the fire had been gotten under control at all, and with no lives lost they believed Hogg should have been commended.[108] Somewhere between Police Commissioner Hogg's faith in the status quo and the *Times* editor's abnegation of it, Calcutta's Municipal Commissioners plotted a third course by which the city's fire protection might be improved, but still undertaken by the Police. The Commissioners argued that the

[105] For more on multiuse buildings in Calcutta, see: Chattopadhyay, *Representing Calcutta*, 101–2.
[106] Much like with the Laprimaudaye fire, one of the primary tactics for firefighting in Calcutta was to remove inflammable materials from danger, which also served to preserve trade goods for future sale. "Destructive Fire at Calcutta."
[107] "Article 19 -- No Title [Clive St Fire in Calcutta]," *The Times of India*, December 1, 1871.
[108] "BJP 1871:3," 68.

cost of new steam fire engines and personnel might be "defrayed by the municipalities in the town and suburbs" through a rate similar to that in London, and suggested that the fire insurance companies could also pay in to support the brigade "after the principle accepted in the London Metropolitan Fire Brigade Act."[109] By invoking the London Act and offering funding options, the Commissioners set themselves in a good position to begin taking these debates into the legislative council to create a legal framework for a new municipal fire brigade.

As work got underway on Calcutta's first fire brigade Act, the councilors also considered the problem posed by jute warehouses. Thus, the first Bill on the fire brigade introduced to the Lieutenant-Governor's legislative council in January 1872 arose from a special committee report, which recommended placing restrictions on where and how unscrewed jute could be stored, licensing jute warehouses, and using the licensing proceeds to help fund an efficient fire brigade.[110] These action steps could materially reduce Calcutta's fire risk and the funding suggestion took the Metropolitan Fire Brigade Act's spirit and applied it to Calcutta's particular situation.[111] Since "jute warehouses were soon found to be only less dangerous than thatched houses," legislators saw their regulation as critical to the city's fire safety. Calcutta entered the jute industry in earnest during the mid-1850s and, by 1866, Calcutta jute mills predominated the local Indian jute market for gunny bags and gunny cloth. This meant that large amounts of raw and screwed jute were being concentrated in Calcutta at never before seen levels, and that, as a growing industry, it was rife with speculation and incomplete infrastructure. In turn, these concentrations immensely

[109] "BJP 1871:1," 160.
[110] Goode, *Municipal Calcutta*, 281.
[111] Calcutta's Act VI of 1866 had already stipulated that jute warehouses required licenses to be rebuilt, it just became a question of applying that licensing to all jute warehouses and putting the funds toward the fire brigade. "Bengal Acts, 1862-1876," 147.

increased the city's fire dangers.[112] When the bill for the 1872 Fire Brigade Act only repeated Act VI of 1866's licensing qualifications—which simply stipulated that jute warehouses needed licenses to be rebuilt—both the "Calcutta Justices and…the Chamber of Commerce…gave very decided opinions that the Bill did not go nearly far enough."[113] Therefore, the legislative council, in its debates, sought to make their Act even more stringent about jute warehouses.

Many of the counselors felt that more restrictive conditions for jute warehousing would solve Calcutta's fire problem, as outlawing thatch had seemed to do. Both the Calcutta Justices and the Chamber of Commerce hoped the resulting Act would lay out "the conditions and restrictions under which jute warehouses might be licensed…as to reduce the chance of fire to a minimum," both in the warehouses and throughout the city. Meanwhile the British Indian Association, an Indian political advocacy group, held some reservations about the regulations' severity. They feared that the high licensing fees would force Indian warehouse owners out of the trade, further limiting native Indian economic prospects. The Council sided with the Justices and the Chamber of Commerce. One councilor even defended the stricter regulations and high licensing fees arguing, "no real hardship would be inflicted by saying that persons should not be permitted to endanger the lives and property of the neighbourhood, simply because they had hitherto been allowed to do so with impunity."[114] This response did not really address the economic concerns of the British

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[112] Dipesh Chakrabarty, *Rethinking Working-Class History: Bengal, 1890-1940* (Princeton: Guildford Princeton University Press, 1989); Goode, *Municipal Calcutta*, 280; Gordon T. Stewart, *Jute and Empire: The Calcutta Jute Wallahs and the Landscapes of Empire*, Studies in Imperialism (Manchester: Manchester University Press, 1998); Anthony Cox, *Empire, Industry and Class: The Imperial Nexus of Jute, 1840-1940*, Routledge/Edinburgh South Asian Studies Series (London: Routledge, 2013).

[113] *Proceedings of the Council of the Lieut.-Governor of Bengal for the Purpose of Making Laws and Regulations*, vol. VI (Calcutta: Bengal Secretariat Press, 1873), 58.

[114] *Proceedings of the Council...*, VI:58–60.

Indian Association. Instead, it implied that jute warehouse owners had been willfully endangering their neighbors through inattention to fire safety conventions—one can only infer whether that hypothetical owner was Indian or not. Furthermore, the licensing fees' steepness was a separate issue from making the warehouses more fire-safe. By conflating the two, the European councilor could justify the heavy fees falling almost entirely on Indian shoulders. According to the Council, then, the communal benefits in fire protection were well worth the cost to any individual and further relieved them of their social responsibilities for extinguishing fires.

In this way, the Bengal Legislative Council began to address the question of how to fund a new fire brigade. In the select committee's recommendation, they suggested charging the fire insurance companies operating in Calcutta toward the maintenance of the brigade, as laid out in the Metropolitan Fire Brigade Act.[115] Councilor B.D. Colvin had some reservations about this funding source. He feared that charging the fire insurance companies would amount to "a tax upon individuals for the benefit of the community," as the companies might pass the cost on to fire insurance policy purchasers, which had been several Parliamentarian's concerns as well. Colvin chose not to press the issue because he had the "satisfaction to know that he was sailing in good company, as precisely similar provisions were contained in the London Fire-Brigade Act," which was a good enough reason for him.[116] Colvin was the same councilor that had no problem charging punitive licensing fees on Indian jute warehouse owners, but his concerns about taxing the fire insurance companies were allayed by the political cover of legislative precedent. The Council

[115] I am hoping to get the records of the Sun Fire Office's dealings/policies in Calcutta during my archive trip this summer (2019).
[116] *Proceedings of the Council...*, VI:60.

would continue to use the Metropolitan Fire Brigade Act as a guide as they sought to resolve how to fund, define the jurisdiction, and clarify the mission of a new municipal fire brigade.

Like the British Parliament, the Bengal Legislative Council hoped to secure several revenue streams to support the new brigade. One was the licensing fees on jute warehouses. This served the double purpose of keeping jute warehouses under municipal scrutiny—thereby encouraging adherence to fire safety protocols—while also providing an annual revenue source for the fire brigade. There were various penalties for not taking out a license or for continuing to warehouse jute after being refused a license.[117] A second revenue source was charging the fire insurance companies. Aside from it being adopted in the Metropolitan law, Councilor Colvin also pointed out that the "amount of the charge proposed to be levied was comparatively insignificant," which would likely serve to make it less of a burden on the fire insurance companies.[118] The same could not be, and was not, said of the licensing fee scales proposed for the Calcutta Act.[119] Finally, the Bill under discussion proposed that any overdraft of the "fire-brigade fund" would be covered by a proportional payment of seven-tenths by the Calcutta Justices and three-tenths by the Commissioners of the Suburbs, up to ten thousand rupees. This meant that only very indirectly would a general tax support the fire brigade, lessening the impact on Calcutta's rate-paying citizens.[120]

This final piece of funding indicated the intended jurisdiction for the new fire brigade. It would serve both the town, represented by the Justices, and the suburbs of

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[117] The President of the Council noted that these penalties fell under the "principle of better late than never." *Proceedings of the Council...*, VI:63.

[118] *Proceedings of the Council...*, VI:60.

[119] As early as September after the Calcutta Act was passed, the Judicial Department began receiving letters complaining about the jute warehouse licensing fee scale. "Bengal Proceedings: Judicial (1 Aug. 1872-31 Oct. 1872)," 1872, secs. 101–103, IOR/P/250, British Library, India Office Records.

[120] This section of the Act was agreed to without any amendment or debate. It was accepted by the councilors, unlike the rest of the funding questions. *Proceedings of the Council...*, VI:73.

Calcutta, represented by the Commissioners. The Bengal Act VI of 1863 established the borders of the town and suburbs, and then Act VI of 1866 had amended them.[121] As Calcutta's Justices had wider authority the Council opted to place the fire brigade under their purview. One Councilor, C. E. Bernard, "pointed out that if the fire-brigade was to be worked cheaply, and the town was not to be heavily burdened for its support, then it would naturally happen that the European and Native members of the Calcutta police should be the persons to work it."[122] The Calcutta Police, like the Metropolitan Police, had the power to enforce laws in the suburbs and the town.[123] This made the police ideal firemen, as well as a potentially more cost effective option than forming a brigade from scratch. It would also work to better integrate the town and suburbs over all.

Choosing to place the fire brigade under the Justices and the Police also affected the articulation of the brigade's mission. The Council wanted Calcutta's Justices of the Peace to "organize and maintain an efficient fire-brigade for the town and suburbs of Calcutta" with the power to hire or fire members of the brigade and to acquire the necessary equipment. The legislators then essentially passed on to the Justices the responsibility of framing byelaws that would define how the fire brigade acted within the community.[124] They did grant to the Justices—or their proxies in the police or fire brigade—the powers to collect the license fees

[121] "Bengal Acts, 1862-1876."
[122] *Proceedings of the Council...*, VI:80.
[123] Much like one of the deciding factors for the MFB to be placed under the MBW was the latter institution's jurisdiction over both the metropolis and the City of London.
[124] The first item under the byelaws section was the question of "giving of gratuities to persons who have given notice of fires," which meant the Justices had to decide when/if such rewards would be granted. This question had greatly divided the council who feared that the "coolies and the like" and "the *gharamees*" would abuse the system for their own greed. The other subjects requiring byelaws were on awarding gratuities to firemen or engines for exceeding their duties, the exact manner of "training, discipline, and good conduct" to be expected of the new firemen, and any fines required to enforce that good conduct. "Bengal Acts, 1862-1876," 11; *Proceedings of the Council...*, VI:67.

or to impose the penalties outlined in the Bill.[125] The Justices, thus, had wide discretion in what the new fire brigade would look like.

With the Council's decision to punt to the Justices on particular byelaws, the Bill went to the governor who passed "The Jute Warehouse and Fire-brigade Act, 1872" into law on March 12, 1872. The Act codified the new standards for jute warehousing in Calcutta after several decades of piecemeal attempts to bring it under government control. While the jute warehouse provisions in the Act were unique to Calcutta, several of the Act's sections on the fire brigade were borrowed from what Councilor F. F. Wyman called "the English Act." One part of the Metropolitan Fire Brigade Act caused significant division in the Council: the question of granting gratuities for giving notice of fires. Councilor Wyman took particular interest in this provision and noted that such a "clause was in the English Act" in order to induce citizens to give "early intimation of the occurrence of fires," but he felt that such a system was unnecessary in Calcutta. Wyman argued

> That the provision was introduced for affording assistance to insurance companies, who were largely interested in the prevention of fires. There was therefore very good reason for the introduction of such a provision in England; but a like state of things did not apply to Calcutta. The fire-brigade here [Calcutta] would be under the superintendence of the municipality, who had no personal interest.[126]

This lack of "personal interest" meant that ideally the Calcutta fire brigade would respond to each instance of fire equally. Up to the 1865 MFB Act, London fire engines received government rewards based on the order in which they arrived at a fire. Thus, it was in the interest of the various insurance company brigades or parish engines to learn of a fire quickly. In Calcutta, no such system existed. Moreover, by this time in London, the

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[125] This kind of split attention was one of the concerns articulated by several witnesses to the Select Committee on Fires in the Metropolis, wherein the firefighters might not be too involved on the legal side of things to perfect their firefighting, or vice versa. "Bengal Acts, 1862-1876."

[126] *Proceedings of the Council...*, VI:66.

metropolitan police gave most of the fire alarms, and the same was true in Calcutta. According to the Councilor Wyman, there was no reason for such a provision in Calcutta's Act. He succeeded in having it struck out, but the other Councilors opted to give the Justices the explicit option to introduce such a gratuity into the byelaws if they felt it was prudent. This debate spoke explicitly to the municipal governors' trust, or lack thereof, in the social responsibility of their Indian citizens. The new law implemented these sections almost word for word, but with a few slight alterations.

The 1872 Jute Warehouse and Fire-Brigade Act, was indicative of many colonial legislations under the Raj. The Act sought to resolve a present problem and do so by enforcing greater controls onto the native population. Calcutta's citizens feared that "under these circumstances the remedy is not likely to prove worse than the disease"—that the economic hardships would outweigh the benefits.[127] The government began receiving panicked communications from the East Bengal Railway company who feared that, as there were now so many fewer jute warehouses in Calcutta, merchants might take their raw jute via the river instead—thereby depriving the rail company of its profits. There were "numerous complaints…by native merchants" that the license fees were too high and would press "very heavily on small traders" whether Indian or not.[128] The city's fire protection seemed worth the potential revenue loss, and the Justices continued to refuse licenses to those warehouses that did not meet the Act's conditions. These conditions included having brick or stone walls, iron roof beams, tile or masonry roofs, and "solid doors or gates which can be securely closed" so as to prevent a fire from spreading beyond the warehouse.

[127] "Bengal Proceedings: Judicial (1 April 1872-31 July 1872)," 1872, 218, IOR/P/249, British Library, India Office Records.
[128] "BJP 1872:3," 101–2.

The Act went on to require that the warehouses must be "at any time open to inspection" and echoed the Act VI of 1866 stating, "no artificial light or lucifer matches shall be introduced therein, and that no person shall smoke therein." The condition with the greatest impact on the warehouse owners, other than the licensing fees, was that "no portion of such jute warehouse shall be used as a residence." Many buildings in Calcutta were multiuse, with dwellings, businesses, and godowns intermixed, and warehouse owners often provided a durwan or other warehouse keeper with rooms over the warehouse as part of their compensation, but that arrangement created greater fire risks.[129] Forces outside the Calcutta Justices' control also diminished the effect on the jute industry. The Bengal Secretary observed in October of 1872 (seven months after the Governor signed the Act) "that the jute crop being late, and the demand slack, the unavoidable injury to trade has been less than might have been expected" and he went on to hope that "the transition period of disturbance…will ere long be got over."[130] In this small stroke of luck, both the weather and the international market worked in Calcutta's favor, mitigating the Act's immediate economic impact.

The Act's effect on the city's fire service involved an initial flurry of activity, but then settled back into relative neglect. The police Commissioners put the sudden influx of funds to immediate use. They spent about 20,000 rupees to set up four branch fire engine stations at "Tallah, Palmer's Bridge, Kaleeghât, and Watgunge" and to import a new steam fire engine from England.[131] Each of these outstations was "provided with a hand engine, a complement of men, and a lofty watch tower," marking them off from the police *thannahs*

[129] "Bengal Acts, 1862-1876," 8; For more on mulituse buildings in Calcutta, see: Chattopadhyay, *Representing Calcutta*.
[130] "BJP 1872:3," 23.
[131] Three of these four new outstations were closer to the White Town

and stations that had been used before.[132] Calcutta's Justices, in drawing up the byelaws for the new brigade did not name a dedicated chief officer, but rather placed the brigade officially in the hands of the Commissioner of Police as an addition to his other duties.[133] This saved the municipal government the extra cost of hiring a dedicated fire chief, as did making "all European police sergeants and constables" members of the brigade rather than hiring new men to fill the positions. This explains how the 1872 police report stated that the new brigade would only increase annual expenditure by Rs. 7,334.[134] The warehouse licensing fees more than covered the cost, making the fire brigade fund steadily increase over time.

Any disparity between income and costs could cause problems for the fire brigade. Under the Metropolitan Board of Works in London the brigade had to take out loans to afford to expand and Londoners still complained about the meager halfpenny rate that supported the brigade. Calcutta had the opposite problem. Between 1872 and 1879, the number of fires in Calcutta significantly decreased. In some parts of the town, the number of annual fires was in the single digits.[135] This meant that after the cost-saving measures of total police integration and despite the outlay for new apparatus and stations, the fire brigade fund was actually making money. This was one reason why the Bengal Council amended the Jute Warehouse and Fire-Brigade Act in 1875 and 1877, and gave it an overhaul in 1879. The 1879 Act lowered the licensing fees and completely abolished the charges to fire insurance

[132] Hogg, "Calcutta Annual Police Reports 1870-75," 1872:15.
[133] The Commissioner of Police had run the fire engines before the 1872 Act, but the additional powers granted by the Act to the fire brigade's Chief Officer required an official to hold the reins. Goode, *Municipal Calcutta*, 282.
[134] Hogg, "Calcutta Annual Police Reports 1870-75," 1872:15.
[135] Hogg, "Calcutta Annual Police Reports 1870-75"; Hogg, "Calcutta Annual Police Report 1876-80."

companies.[136] The 1879 Act also abolished the Fire Brigade Fund and took Rs. 60,000 from it and put it "to the improvement of the town," which went toward improving the Chitpore Road. The combination of lowered licensing fees, abolishing the fire insurance company contributions, and taking away the dedicated Fire Brigade Fund threatened to turn its new fund "into a deficit which, the declining income from jute licenses threatens to make chronic. The question of equalising receipts and expenditure, is therefore under consideration."[137] The city's municipal government, in their effort to correct a surplus, created the conditions under which the fire brigade might start to lose the city money. For all of the attention paid to the question of how to fund the fire brigade, in Calcutta, it clearly took a lot of finessing to try to find the balance.

Still, the question remains how was it possible to create fire protection reform in Calcutta in the 1870s when it had largely failed to reach a systematic level in the 1810s, the 1830s, and the 1850s? Much like with London, a number of factors coalesced to allow for systematic change. The first factor was the creation of the Raj. The adoption of a less profit-oriented government for India opened the door to greater fire protection. With the exception of Calcutta's jute warehouse licenses, fire brigades do not make money. They can save money for individual property-owners or fire insurance companies, but their actual maintenance and operation is all outlay and no income. This is why the second factor, building from the Raj, was the creation of municipal government. Much like with the Metropolitan Board of Works in London, establishing Calcutta's Justices of the Peace in the 1860s and the City Commissioners in the 1870s provided a hierarchy and a taxation base

[136] This refers to Act No. V of 1879, "An Act to consolidate and amend the law relating to Jute Warehouses and Fire-brigades." Goode, *Municipal Calcutta*, 283.
[137] By 1879, the Fire Brigade Fund had accrued almost Rs. 65,000 before it was drained for town improvements. "Municipal Admin Reports."

under which a fire brigade could be effectively built. Moreover, it set the jurisdictional boundaries for the fire brigade, which allowed for the brigade to limit its area of operations and keep costs down. These two governmental factors, one national and one local, made systematic reform not only possible, but necessary to fulfill their protective paternalistic programs.

The conditions for creating Calcutta's municipal fire brigade shared two other factors with London: non-property tax funding sources and legal precedent. Whereas London charged the fire insurance companies and the treasury in addition to their tax-base, Calcutta had the licenses for jute warehouses and the charges on fire insurance companies to support a fire brigade. In fact, Calcutta's plan was all the more viable because it *did not* include a general property tax increase, which greatly reduced resistance to the plan. While all Londoners could complain about their rate going up a halfpenny on the pound, only jute warehousers and fire insurance company agents—a very small proportion of Calcutta's population—had justification to grumble to the government about their fees. Second, the legal precedent not only provided ideas for Calcutta's lawmakers, but also gave them political cover. Councilor Colvin's point that he had "satisfaction to know that he was sailing in good company, as precisely similar provisions were contained in the London Fire-Brigade Act," echoed across the Legislative Council.[138] While the Parliamentary Select Committee for London built on the local fire brigade acts for Manchester and Liverpool, Calcutta used London's Metropolitan Fire Brigade Act as their starting point. With legal precedent and limited tax increases, the benefits of a municipal fire brigade were easy to sell to the urban populace.

[138] *Proceedings of the Council...*, VI:60.

What made municipal fire protection even easier to sell in Calcutta was that these particular 1871 fires endangered Calcutta's European population. This galvanized the city's white lawmakers in a way that fires in the Black Town would not have been able to accomplish. We will discuss this segregation more in a later chapter, but for now it suffices to say that the impetus for municipal or governmental reform greatly depended on the victims' race or class. Despite the fact that jute warehouses were overwhelmingly Indian-owned, the warehouses' proximity to the White Town and other European enterprises made it a problem to be solved immediately.[139] This problem threw the other factors into relief and made the passage of fire brigade reform not only possible, but a critical to Calcutta's continued success.

Still, while a major fire was the spark for change, human actors made reform happen, and the conditions on the ground decided the form that the new brigade would take. As much as anything, the 1872 Jute Warehouse and Fire-Brigade Act attempted to enforce carefulness on Calcutta's Indian populace. Following the tradition of previous building acts, the 1872 Act focused much more on buildings' construction and maintenance than on what should happen after a fire broke out except that firemen and police were liable "to damages on account of any acts done by him without reasonable cause" in the pursuit of extinguishing a fire—placing the onus of carefulness on the individual rather than on

[139] Of the 68 jute warehouse license holders in 1880 in Calcutta only six were of European descent or were representatives of European-led organizations (like the Port Commissioners or the India General Steam Navigation Company) showing that despite the heavy license fees the industry remained tightly in the hands of Indian owners. "Municipal Admin Reports," 1880: i-ii; Moreover, the jute industry was exploding in Calcutta and those who were benefitting from that boom likely garnered little sympathy from the rest of the populace. For example, "In the year 1881–1882, Calcutta's dockworkers shipped out no fewer than twenty- four million jute bags destined for the United States alone. They loaded a further twenty- two million for Australia and just under nine million for the Straits Settlements in British Southeast Asia." Aniruddha Bose, *Class Conflict and Modernization in India: The Raj and the Calcutta Waterfront (1860-1910)* (Routledge, 2017), 2.

community protection after the fact.[140] Still, Calcutta's number of major conflagrations declined after the institution of this law and the fire brigade, when employed, served the city as well as they could. In this way, Calcutta's new municipal fire brigade sought to meet the city's challenges in the late-nineteenth century, and would continue to do so with limited reform into the twentieth century, which will be discussed in a later chapter. Ultimately, Calcutta's fire protection fit under the vicissitudes of colonial governance and helped to stabilize the city's continued rise as the British Empire's second city, even as it placed the social responsibility for both preventing and extinguishing fires almost entirely onto their Indian citizens.

Conclusion

The social responsibility for fire, whether prevention or extinguishing, was held by every member of the urban community, but was unevenly carried out. Carelessness and accidents caused far more fires than incendiaries and were that much more preventable but for the unthinkingness and irresponsibility of urban citizens. The need to have community members pump fire engines kept them closely involved in extinguishing fires up to the 1860s when steam fire engines made it possible for fire brigades to cut them out of the process. Municipal governments used legislation to redefine urban citizens' changing social responsibilities for fire. On the one hand, building codes made explicit what socially responsible construction would look like and endeavored to limit careless fires by laying out when and where fires were acceptable. While the goal was preventing fires, these legislations also sought to keep any fire from spreading and thereby protect the community. On the other hand, municipal fire brigade legislations formally removed the responsibility for urban

[140] "The Acts Passed by the Lieutenant-Governor of Bengal in Council, 1877-1880," 1880, 1879: 68, IOR/V/8/124, British Library, India Office Records.

citizens extinguishing fires, placing it all on the fire brigade, in return for urban citizens financially supporting the brigade through taxes, fees, or licenses. This transfer of responsibility increased the authority of the fire brigade, but also brought them under greater scrutiny. The next chapter examines how the London and Calcutta fire brigades sought to make their firemen worthy of the responsibility placed on them.

Chapter 3 Disciplining Firemen, Creating Trust: Constructing Socially-Responsible Municipal Fire Brigades

"An impossibility" for him "to make skilled firemen fit for London, out of street constables," declared Captain Eyre Massey Shaw, the future chief officer of London's Metropolitan Fire Brigade.[1] The 1862 Select Committee on Fires in the Metropolis had asked Shaw if he had any objections about placing London's fire brigade under police supervision. He had no real objections in a "general sense," but when it came to personnel, he had very particular ones. Like his predecessor as superintendent of the London Fire Engine Establishment, James Braidwood, Shaw had a clear vision of the types of men that he preferred for their fire brigade, and street constables were not in it.

Over the course of the nineteenth century, as Britain implemented a fire service using public funds, they had to reframe its mission around saving lives, rather than property, but this shift did not happen equally across all of the empire. Instead, in Calcutta the protection of property remained the primary goal of the fire brigade with life-saving as an addendum, despite the adoption of similar methods of professionalization and discipline. This contradiction undermined the public's trust in the Calcutta brigade and they looked, as London had before them, to reforming their firemen into socially-responsible agents worthy of trust.

Indeed, as the social responsibility for extinguishing fires passed from urban citizens writ large to the ranks of the city's firemen, both fire brigade officers and urban citizens began to care more and more about the character of the men employed in the fire service.

[1] "SC on Fires in the Metropolis," 34.

From the 1830s into the twentieth century, the London Fire Brigades preferred to hire former Royal Navy Sailors whose skills with hydraulics and ladder-climbing made them ideal candidates, but the fire brigade had to contend against public perceptions of sailors as "Jack Tars" and drunken sots.[2] At the other end of the empire, Calcutta's police-fire brigade model necessitated that they use European "street constables" as firemen, but these were to be supplemented by a force of Lascars [Indian sailors] which never really came to fruition. Instead, for much of the nineteenth and early-twentieth century, Calcutta's underfunded fire brigade had to rely on recent Indian immigrants to the city to fill its ranks for the seasonal work of firefighting.[3] In both cities, after the passage of their fire brigade Acts, chief fire officers and municipal governors were left with the question: who should be trusted with the social responsibility for extinguishing fires? London and Calcutta's fire chiefs each went about securing public trust in the fire brigade in their own ways based on their municipalization journeys, the social conditions of their cities, and the recruits available to them.

While chief fire officers in both Calcutta and London had an ideal fireman type in mind, they had to work with the men that they had and get them as close to that ideal as possible. In the process, these fire brigades engaged in what would be identified after the fact as professionalization.[4] This chapter traces the problem of untrustworthy firemen as Calcutta

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[2] Christopher McKee, *Sober Men and True: Sailor Lives in the Royal Navy, 1900-1945* (Harvard University Press, 2002); Quintin Colville, "Jack Tar and the Gentleman Officer: The Role of Uniform in Shaping the Class-and Gender-Related Identities of British Naval Personnel, 1930-1939: The Alexander Prize Lecture," *Transactions of the Royal Historical Society* 13 (2003): 105–29; Mary A. Conley, *From Jack Tar to Union Jack: Representing Naval Manhood in the British Empire, 1870-1918*, Studies in Imperialism (Manchester ; New York: Manchester University Press, 2009).

[3] *Report on the Reorganization of the Calcutta Fire Brigade. [With Appendices, Including Reports by R. T. Dundas, the Officiating Commissioner of Police, Calcutta and B. A. Westbrook, Chief Officer, Calcutta Fire Brigade.]* (Calcutta: Government Press, 1913).

[4] Clifton, *Professionalism, Patronage, and Public Service*; Penelope J. Corfield, *Power and the Professions in Britain, 1700-1850* (London ; New York: Routledge, 1995).

and London's fire brigades tried three different solutions in their effort to create a trusted public service. The chapter starts with a review of contemporary opinions on the character of firemen and why the powers legislated to the brigades could undermine public trust. The next three sections will outline the solutions proffered by the brigades for solving their trust problems: Section 3.2 examines the brigades' hiring preferences and practices as they sought to find ideal recruits; Section 3.3 details how discipline and morality training were used to instill firemen with the desired virtues; Section 3.4 explores the role of militarism in the fire service as its position as a uniformed service—and the hiring of sailors and soldiers—often begged comparison with the military. The three ways the fire brigades thus tried to afford trust to their firemen were through hiring ideal recruits, rebuilding those recruits into moral individuals, and by borrowing disciplinary tactics and social customs from the military. Finally, section 3.5 examines the extent to which the London and Calcutta brigades had achieved their ideal firemen by the early-twentieth century and whether these cities' citizens had put their trust in these new institutions purporting to carry out the social responsibility of extinguishing fires.

3.1 Distrusting the Fire Brigades' Powers

Apart from taking on the social responsibility for extinguishing fires, firemen needed to be trustworthy because of the powers granted to them by the legislations that created their brigades. These powers were sweeping. The Metropolitan Fire Brigade Act enshrined the idea that a fire brigade officer "may take any Measures that appear expedient for the Protection of Life and Property."[5] In other words, the ends of saving life or property from fire would justify almost any means required to do so. Such far-reaching powers meant that

[5] An Act for the Establishment of a Fire Brigade within the Metropolis, 820.

firemen's actions had to be beyond reproach so as to not cause unease among the urban populace. In order to mitigate these *carte blanche* powers, the Metropolitan Fire Brigade and Calcutta's Fire Brigade were the subject of legislation that afforded them powers only related either directly to firefighting or to protecting the municipal institution from liability.

Both London's 1865 Metropolitan Fire Brigade Act and Calcutta's 1872 Jute Warehouse and Fire-Brigade Act shared a lot of the language around the fire brigades' powers. Both Acts included removing "any persons who shall interfere with the due operation of the brigade," which would protect the firemen and their equipment from tampering or maliciousness in the pursuit of their duties. The tales of hose-cutting or other firefighting protests that accompanied incendiary fires may have prompted such a provision, so too simply the need to get distraught victims or drunken "helpers" out of the way of the firemen.[6] However, this provision grew somewhat outdated over the course of the nineteenth century, as this power was more relevant when the fire brigades relied more on local urban citizens to pump the fire engines, especially in London where the pumpers were compensated with beer.[7]

The Acts also gave brigades the power "to break into or through, or pull down, any premises for the purposes of putting an end to the fire, doing as little damage as possible."[8] This provision combined pre- and post-1800 firefighting techniques allowing fire brigade officers to decide whether or not to use them. London Fire Engine Establishment superintendent James Braidwood advocated strongly for firemen to be able to spray their waterjets onto the very "seat" of the fire, where it was hottest and fiercest, in order to get the

[6] Archer, *By a Flash and a Scare*.
[7] Holloway, *Courage High!*, 33.
[8] An Act for the Establishment of a Fire Brigade within the Metropolis; "Bengal Acts, 1862-1876."

whole under control more quickly.[9] In order to get there, however, sometimes meant firemen had to break windows, smash through roofs, or bust down locked doors. Under Braidwood, London firemen began carrying axes or hatchets as part of their standard uniform for just this purpose. Pulling down whole buildings to make a fire break was much more prevalent in cities made of more flammable materials. For example, the 1666 Great Fire of London was eventually stopped by blowing up houses with gunpowder in order to starve the fire of fuel and oxygen.[10] These flammable structures were still a concern in the modern period, though. Even into the nineteenth century, Calcutta's thatched-roof huts could sometimes be more effectively saved from fire by pulling down their roofs than by dousing them with water. The trade journal *The Fireman* reported in its first 1877 issue that firemen in Tokyo would routinely pull down the paper-and-wood houses in the path of the fire in order to protect the rest of the city.[11] While the Acts included the caveat, "doing as little damage as possible," it was difficult for firemen to pull down an entire building to create a fire break without destroying it completely.

Each Act also empowered the fire brigades to direct the water companies to increase the water pressure in the vicinity of a fire, which would greatly aid the firefighting, but deny water or water pressure to other local citizens. London's water companies had been cooperating with firefighting institutions from the eighteenth century onward, but well into the nineteenth century they still did not maintain constant pressure in the water mains, which would have been the most help to the fire brigades.[12] For Calcutta, the issue was less the water in the mains, than the fact that most of Calcutta until the twentieth century was

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[9] James Braidwood, *On the Construction of Fire-Engines and Apparatus, the Training of Firemen, and the Method of Proceeding in Cases of Fire.* (Edinburgh: Bell & Bradfute; Oliver & Boyd, 1830).
[10] Pepys, *The Great Fire of London*; Porter, *The Great Fire of London*.
[11] "Calcutta Police Reports 1855-1869"; "Fires in Japan," *The Fireman* I, no. 1 (June 1877): 10–12.
[12] Lieshout, ""The Most Valuable Means of Extinguishing the Destroying Fires.""

still relying on "tanks" or large aboveground reservoirs for their water. These tanks were often overgrown with weeds or algae, making them difficult to use in a pressurized hose and combined with the silty nature of the Hooghly, this power meant very little for the Calcutta Fire Brigade until the twentieth century.[13] Similarly, both Acts authorized police officers "to aid the fire-brigade in the execution of its duties" by closing streets or removing people interfering with fighting the fire. This provision was a bit redundant in Calcutta since the White firemen in the brigade were also Police constables, but it still allowed for further mobilization of the police force if necessary.[14]

While each of the powers discussed above were meant to increase the efficiency with which the brigades extinguished fires, it opened them to a myriad of complaints from urban citizens. Ranging from wanton destruction of property to create a fire break to overzealous throwing of water, which could ruin trade or home goods, urban citizens had cause to worry that the cure for fires could be as bad as the disease, especially with the introduction of steam fire engines which threw vastly higher quantities of water than their manual predecessors.[15] These worries were not allayed by another provision in both Acts, which averred that "any damage done by the fire-brigade in the due execution of their duties shall be deemed damage by fire" as defined by the fire insurance companies of each city.[16] While this meant that any damages done by the firemen could be added into an insurance policy claim, for those without insurance it meant that they could not sue the fire brigade for

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[13] *Report on the Reorganization of the Calcutta Fire Brigade*, 6–7.
[14] Frederick Halliday, "Calcutta Office of Police Commissioner: Annual Report on the Police Administration of the Town of Calcutta and Its Suburbs, 1899-1910," 1911, IOR/V/24/3216, British Library, India Office Records.
[15] Early detractors of steam fire engines claimed "it would not be desirable to use them, as the quantity of water thrown by them might be 'injudiciously applied' and cause mischief!" Charles Frederic T. Young, *Fires, Fire Engines, and Fire Brigades: With a History of Manual and Steam Fire Engines, Etc* (London: Lockwood & Company, 1866), 137.
[16] An Act for the Establishment of a Fire Brigade within the Metropolis, sec. 12; "Bengal Acts, 1862-1876," 12.

damages. This clause provided cover to the firemen in the execution of their duties and furthered the ends-over-means thinking of the legislators, especially since this clause emphatically ended the powers section in the Metropolitan Fire Brigade Act.

The Calcutta Act, however, added another clause to the fire brigades' powers section. It stated, "But nothing in this section shall exempt any officer of the police or of the fire-brigade from liability to damages on account of any acts done by him without reasonable cause."[17] This provision meant that firemen would be encouraged to have a "reasonable cause" for any action they took in extinguishing a fire. It meant that personal responsibility could be brought to bear on any fire brigade member should he be too zealous in the execution of his duty. This could have been a clause meant to enforce carefulness, but given the racial differences between the London and Calcutta brigades, legislators likely included this clause to protect against the expected "carelessness" of the Indian firemen. It may also have served to protect both Indian and European citizens of the city. During the debate on this section of the Bill, Councilor Moulvie Abdool Luteef feared that the Chief Officer's powers "regarding the pulling down of houses were very serious" and such power should not be exercised or delegated with abandon.[18] This additional clause provided both Europeans and Indians with a legal avenue for protecting their property from firemen's unreasonable acts.[19] Most likely, however, the council included this clause because they did not trust the Indians employed as firemen and wished to keep them liable for their actions.

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[17] "Bengal Acts, 1862-1876," 12.
[18] *Proceedings of the Council...*, VI:69.
[19] Roy noted that the colonial legal system promoted litigiousness among both Indians and Europeans who all sought to protect their rights in a system that "rarely delivered justice." Tirthankar Roy, "Law and Economic Change in India, 1600-1900," in *Law and Long-Term Economic Change: A Eurasian Perspective* (Stanford, CA: Stanford University Press, 2011), 129.

With municipalization, the fire brigades could legally act with relative impunity when it came to their responsibility for extinguishing fires. Yet, despite having these great powers and great responsibility, fire brigades still had to contend with public trust. The Calcutta legislation included language meant to limit overzealousness as a way of pointing toward trust, but for both the Calcutta and the London Fire Brigades had to create further strategies to promote trust.

For all the reasons that the citizens of Calcutta or London might not trust their firemen, the question remains as to what might happen if that trust were lost entirely. Essentially, if all public trust in the fire brigade were lost it might result in disdain or outright sabotage from the citizenry. The lack of trust would most likely encourage citizens or private companies to feel that their fire protection was best undertaken by themselves. This distrust occurred more often in London under the London Fire Engine Establishment [LFEE] when companies would often create their own fire brigades and maintain engines to protect their property. In 1846, a fire at St. Katharine's Dock in London brought the ire of the LFEE's committee because the Dock Company had opted to try and extinguish the fire themselves rather than to call the LFEE, whose expertise could most efficiently put a stop to the fire, and have likely saved one of the warehouses that burned down.[20] The Committee sent several resolutions to the Dock Company after the fire, but the first one read: "That the probability of extinguishing a Fire in its first commencement would be much greater, if instructions were given to the proper authorities in the Docks to send notice on the first appearance of Fire, to the nearest station of this Establishment."[21] Here, the LFEE Committee were attempting to forward their own claims as to being the sole holders of the

[20] "Fire At The St. Katharine's Dock Cooperage," *The Times*, August 4, 1846, The Times Digital Archive.
[21] "LFEE Committee Minute Book 1846-50," 1850, 8–9, CLC/B/017/MS15728/005, London Metropolitan Archive.

social responsibility for extinguishing fires in London, but were rebuked by the Dock Company who still maintained their own firefighting force twelve years later when LFEE Superintendent Braidwood surveyed their fire safety.[22] This distrust for the fire brigade would have even more dire consequences at the 1902 Queen Victoria Street Fire where a late call to the fire brigade likely resulted in nine deaths. Indeed, the jury's verdict during the inquest into this fire noted that "the call was a very late one and in our opinion contributed to the lamentable loss of life."[23] Thus, distrust in the fire brigade could result in not only in a slower extinguishing of fires, but also in the loss of lives.

While a late fire call could be dangerous, should distrust verge into disdain or hatred then it could become disastrous. There were various ways that bystanders could actively sabotage the fire brigade in its duties. With manual fire engines, citizens could simply refuse to pump the engines, thereby rendering them largely unusable.[24] During Calcutta's Laprimaudaye Fire, a number of impressed coolies [laborers] became too tired to pump the engines and so the magistrates brought in one hundred convicts from Alipore Gaol to pump the engines and throw mud on the fire's embers.[25] At rural incendiary fires, the members of the village might pelt the firefighters with stones or mud in order to prevent them from extinguishing the fire before it had run its course, as the community felt it deserved.[26] This sabotage could also be brought to bear on others who engaged in firefighting. For example, when John Braithwaite introduced his new steam fire engine to London in the 1830s his invention was met with immense hostility and distrust. Despite throwing more water, more

[22] James Braidwood, *Report on the St. Katharine Docks to the Committee for Managing the London Fire English Establishment* (London: Norris and Son, printers, Blomfield-Street, Finsbury-Circus, EC, 1858, 1858).
[23] "City Fire Inquest Proceedings-Fire at Queen Victoria Street, EC4 on 9 June 1902-7th to 12th Days" (London County Council, July 16, 1902), LCC/FB/GEN/02/111, London Metropolitan Archive.
[24] Blackstone, *British Fire Service*, 115.
[25] "Papers Regarding a Fire...," 28–30.
[26] For more on this concept, see: Archer, *By a Flash and a Scare*.

efficiently, than manual fire engines Braithwaite's engine was attacked many times by Londoners. The mob even went so far as to cut his hoses repeatedly, rendering the engine inoperable, because they feared that his new invention would prevent them from ever receiving the pay or beer that was customarily given to manual engine pumpers.[27] Cutting hoses was one of the worst ways to sabotage a fire engine in the early nineteenth century as they were made of leather, impossible to repair on the spot, and immensely heavy and hard to move once rendered unusable.[28]

Before the advent of police cordons and steam fire engines, then, there was always a chance of the citizenry actively trying to sabotage the firemen or others in their attempts to extinguish a fire. The antidote to these possibilities, however, was to court public trust and respect, without which disdain or sabotage remained likely. The following sections detail some of the strategies the Calcutta and London fire brigades employed to create public trust in this new municipal service, and particularly in the very firemen that made up these brigades.

3.2 Hiring the "Right" Men

The first solution to the fire brigades' trust problem was to hire the "right" kinds of men to become firemen. Both fire brigades had an ideal fireman in mind to hire—generally a sailor—but did not always get what they wanted. From early in the nineteenth century, the fire brigades in London believed that those men would be former Royal Navy sailors given the skills and discipline requisite to that kind of work. Yet, sailors did not have the most trustworthy reputations. Over the nineteenth century, however, several Royal Navy reforms sought to change that perception and to make sailors into respected professionals. The

[27] Blackstone, *British Fire Service*, 115.
[28] Holloway, *Courage High!*, 23.

London fire brigades benefited immensely from these disciplinary reforms, but as a precaution only hired former sailors without any disciplinary demerits to their names. Meanwhile, Calcutta's White firemen were chosen from the city's police constabulary, which in turn were mainly composed of off-cycle soldiers from Fort William. To these men, the Calcutta fire brigade hoped to add a team of Indian Lascars [sailors], but instead had to rely on underpaying recent Indian immigrants to the city.

In eighteenth-century London, both the Navy and the fire insurance companies recognized the overlapping skill-sets shared by their ideal candidates. Sailing and firefighting both required long hours of inactivity followed by brief periods of intense action, the ability to climb ladders or ropes in all kinds of weather, and a basic understanding of hydraulics—in order to work a fire engine or a bilge pump. Both the navy and the fire insurance companies found solid candidates among the Thames watermen, putting the two organizations in direct competition for personnel.[29] These watermen shuttled people across the Thames making them better versed in maritime matters, but it also made them easy targets for pressgangs. In order to protect their supply of watermen-firemen, the fire insurance companies lobbied for parliament to make their men immune to impressment, forced enlistment in the Royal Navy. The 1707 "Act for Better Preventing Mischiefs that happen by Fire" provided firemen with a certificate that saved them from the pressgangs, but only if they were officially employed by a fire insurance company and if they could produce the accompanying badge to prove it.[30] Each institution sought out the best men for the job at hand, which put them into competition.

[29] Carry van Lieshout, "'The Most Valuable Means of Extinguishing the Destroying Fires': Fire-Fighting and the London Water Companies in the Long Eighteenth Century," *The London Journal* 42, no. 1 (January 2, 2017): 53–69.
[30] Blackstone, *British Fire Service*, 68.

By the early nineteenth century, however, the London Fire Brigade had transitioned from competition with the Navy to poaching able seamen recruits from the Royal Navy.[31] The insurance company fire brigades started favoring former sailors especially after naval reforms in the 1740s began to create a better-disciplined and dutiful officer class within the British navy.[32] The Napoleonic Wars in the late-eighteenth and early-nineteenth centuries intensified these efforts with their extreme need for able-minded officers, creating space for limited meritocracy among the navy's officer class.[33] These officers turned their sailors into agents of discipline and efficiency—making them ideal candidates for the fire brigade.

Over the nineteenth century, the fire brigade honed its justifications for why to hire former sailors—always centering ion "discipline"—and they trusted the Navy to continue to provide those disciplined recruits.[34]As with the insurance company fire brigades, as soon as London had a dedicated fire brigade, they started seeking naval candidates. The fire insurance companies that founded the London Fire Engine Establishment in 1833 knew the importance of asserting a confident, trustworthy, and efficient persona to London's residents, and they knew that the "heroes of Trafalgar" might be able to do just that. Their chosen superintendent, James Braidwood, opted to hire former sailors in particular because of the discipline they had learned in the service. Braidwood knew that the advertising that his

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[31] With the Navy's dearth of able sailors during the Crimean War, the LFB had to once again cajole the Admiralty into not impressing their firemen into service. This was particularly difficult since many of London's firemen were still in the Naval reserve. "LFEE Committee Minute Book 1851-54," 231–32, CLC/B/017/MS15728/006, London Metropolitan Archive.

[32] Sarah Kinkel, "Disorder, Discipline, and Naval Reform in Mid-Eighteenth-Century Britain," *The English Historical Review* 128, no. 535 (December 1, 2013): 1451–82.

[33] This limited meritocracy allowed the naval officer class to include some sons of middle-class professionals and take some positions from less capable sons of nobles. The same process did not really occur in the Army. Evan Wilson, "Social Background and Promotion Prospects in the Royal Navy, 1775–1815," *The English Historical Review* 131, no. 550 (June 1, 2016): 570–95.

[34] According to Ewen, "despite their differences, constables and firefighters shared similar positions in working in uniformed and visible services, responsible for upholding public order, and subject to a disciplinary regime that conditioned their behaviour to adhere to austere controls imposed from above." Ewen, "Managing Police Constables and Firefighters," 45.

men would do for the fire brigades would not be in their clothes, which had served the insurance companies in the eighteenth century, but rather in their sober efficiency.[35] It was more important to be seen responding to fires, to be active, than to be seen around the metropolis in uniform. This desire to project efficiency in response to fires underlay the hiring of former able seamen.

When asked by the fire insurance company committee that oversaw the LFEE to justify this hiring preference, London's Fire Superintendent James Braidwood claimed discipline as his central justification. In an 1859 report, Braidwood argued that skilled construction workers made the best part-time firemen, with their base knowledge of construction materials and structural engineering, but in a full-time brigade he felt they would "not submit to the necessary discipline" to make an efficient brigade.[36] He believed instead that "able seamen from the Royal Navy…suit remarkably well" when it came to discipline, as "able seaman" was a non-commissioned rank that connoted some expertise and responsibility. What Braidwood meant by "discipline" had two dimensions. Primarily, he meant able seamen's willingness to follow orders unconditionally and quickly—what he called "implicit obedience." Secondly, he meant Victorian sailors' technical training, which provided sailor-recruits with a "discipline" in a particular expertise. With its new steam-powered gunboats, the Victorian Navy needed specialized engine stokers, engineers, and artillery gunners. All of these lower deck jobs prepared able seamen to work with fire engines, which similarly required constant maintenance, periodic use, and skilled handling. Braidwood used this second sense of "discipline" to argue that able seamen "become useful

[35] Holloway, *Courage High!*
[36] This echoed Braidwood's sentiments when he ran the Edinburgh Fire Brigade, which consisted almost entirely of part-time firemen. By 1859 the LFEE had also largely abandoned their preference for watermen as that class had largely disappeared with the construction of multiple bridges over the Thames. Braidwood, *On the Construction.*

firemen much sooner, and a great deal of time, and consequently money, in teaching them is saved," allowing for a shorter probationary period and for each recruit, making them ideal candidates.[37]

Braidwood's successor, Captain Eyre Massey Shaw, also believed that the discipline of the Royal Navy created the best recruits for the fire brigade. In an 1890 revision of his book, *Fire Protection, A Complete Manual…*, Shaw discussed at length the relative discipline imposed upon those employed by "the army, the navy, the mercantile marine, railway companies, large shops, schools, public offices, workhouses, charitable societies, factories, and workshops," with varied success. To Shaw's mind, the object of discipline in any of these situations was the same: to establish "a complete chain of communication" with "clearly-defined duties and responsibilities for those of every position." Shaw saw the "perfection of discipline" in the army at the expense of "great freedom or intercourse of thought." In other words, the army did not allow for individual initiative. In the merchant marine and the other industrial concerns Shaw mentioned, he saw an "obedience to all orders," but not necessarily with the speed required of someone who might work in the fire brigade. Only in the navy did Shaw see the proper balance of obedience to orders with the "exercise of individual thought and action." This helps to explain why under his section on "Appointment of Men" his very first condition was that the candidates "must be seamen."[38]

Two mid-nineteenth century naval reforms greatly enhanced naval discipline, the Navy's 1853 Continuous Service Act and the 1861 Naval Discipline Act. Before the 1853 Act, sailors only served for their ship's commission term, with options limited to rejoining

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[37] "LFEE Committee Minute Book 1858-60," 131–32; Captain Shaw would later offer the distinction as that between "skill" and "discipline," where without the former the latter is impossible. Both, however, he believed could be trained. Eyre Massey Shaw, *Fire Protection: A Complete Manual of the Organization, Machinery, Discipline, and General Working of the Fire Brigade of London*, Revised edition (London: C & E Layton, 1890), 313.
[38] Shaw, *Fire Protection*, 311, 318–19.

that ship voluntarily, joining a merchant ship crew, or being impressed back into service. The Continuous Service Act commissioned every sailor for ten to twelve full years of service. This meant the Royal Navy had to reform itself to keep sailors from deserting, and to make that decade-plus commitment worthwhile to the volunteers. The Naval Discipline Act provided many of these reforms and built a more humane Navy. By the twentieth century, the Navy's lower deck sailors were much more professional and educated than their early-nineteenth century predecessors.[39]

This professionalization and the Continuous Service Act threatened the navy-to-fire-brigade pipeline. The Act forced Braidwood to argue for a change in brigade hiring policy in order to continue recruiting sailors. The fire brigade only accepted candidates between the ages of 18 and 25—excepting the sons of firemen, who could be hired on at age 16—and the Act would age out all naval candidates.[40] Braidwood thus argued for raising the age cap on naval recruits to 30, saying:

> Men from the R[oya]l Navy being thoroughly disciplined are some years ahead of the other classes, and therefore an older man from the Navy will sooner become an efficient fireman, than younger men who have not been so trained.[41]

Braidwood believed that able seamen's discipline and skills more than made up for the relative loss of years in the fire brigade. This sentiment was later echoed by Braidwood's replacement, Captain Shaw who similarly argued that a former sailor could be trained as a fireman in a quarter of the time of non-sailors.[42]

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[39] Conley, *From Jack Tar to Union Jack*, 33–35, 19–20.
[40] Similar to the navy, which overwhelmingly preferred to promote the sons of navy officers than those whose fathers were in other professions. Wilson, "Social Background and Promotion Prospects in the Royal Navy, 1775–1815," 571.
[41] "LFEE Committee Minute Book 1858-60," 132–33.
[42] Shaw, *Fire Protection*, 312.

In order to convince his oversight committee to raise the age cap, Braidwood provided evidence that able seamen who joined the fire brigade tended to stay as firemen. In a table added to his report [See Table 3], Braidwood showed that for the five years between 1852 and 1857, able seamen from the navy had a 74% retention rate (the column labeled "Remaining") in the brigade compared to 18% for merchant sailors, 50% for laborers, 60% for watermen, and 20% for mechanics, with straight numbers of able seamen outnumbering any other occupational group.[43] With this evidence, Braidwood argued that hiring ex-navy sailors assured the fire brigade of a disciplined and loyal set of recruits who were most likely to remain in the fire service for many years.[44] These arguments swayed the committee and the new policies ensured a consistent pipeline from Navy to London Fire Brigade for decades. This preference for recruiting able seamen into the brigade remained official policy up to 1889, and the tendency to hire ex-seamen continued even after these policies had expired, well into the 1930s.[45]

[43] "LFEE Committee Minute Book 1858-60," 133.
[44] London fire chiefs consistently used statistics to bolster their arguments. These mathematical arguments appealed to the fire insurance companies, who favored an actuarial approach to fire protection, and to the municipal government, which cared about the costs involved in training new firefighters.
[45] Holloway, *Courage High!*, 46.

Previous Employment	Resigned		Discontinued		Dismissed		Appointed to other situations		Remaining		Total	
	No.	Rate per cent	No.	Rate per cent	No.	Rate per cent	No.	Rate per cent	No.	Rate per cent	No.	Rate per cent
Royal & EIC Navy	6	13.04	1	2.17	3	6.53	2	4.35	34	73.91	46	100
Merchant do.	9	32.15	0	0.00	14	50.00	0	0.00	5	17.89	28	100
Labourers	1	3.33	6	20.00	8	26.67	0	0.00	15	50.00	30	100
Watermen	2	20.00	0	0.00	1	10.00	1	10.00	6	60.00	10	100
Mechanics	2	40.00	1	20.00	1	20.00	0	0.00	1	20.00	5	100
Servants	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00	2	100
Total	20		9		27		3		62		121	

Table 3 LFEE Superintendent James Braidwood's breakdown of firemen appointed from 1 Jan. 1852 to 31 Dec. 1857 based on their previous employment, and intending to highlight the retention rate for sailors in the fire brigade.[46]

While the London fire brigades were successfully hiring and retaining Royal Navy sailors, the Calcutta Fire Brigade was struggling to create their own efficient force, held back both by limited funds and racial prejudice. In part, the problem was Calcutta's combined police-fire brigade model. As London's Captain Shaw had told the 1862 Parliamentary Select Committee, it was difficult to make police constables into effective firemen as the skillsets necessary for each job did not really overlap and nor did the missions.[47] This problem was compounded by the extension of the racial recruitment and organizational systems of British colonial institutions in India. Much like how the Indian Army comprised Indian troops with European officers, the Calcutta Police and fire brigade followed the same model.[48] In this model, European constables could become "firemen" as such in the fire brigade arm of the

[46] "LFEE Committee Minute Book 1858-60," 133.
[47] "SC on Fires in the Metropolis," 34.
[48] Nair, *Origin of the Kolkata Police*; Kaushik Roy, "Race and Recruitment in the Indian Army: 1880– 1918," *Modern Asian Studies* 47, no. 4 (2013): 1310–47.

Calcutta Police, but Indian members of the brigade were assigned positions and titles based on their race rather than their importance to the work.[49]

While this division of labor and titles may have been cost-effective, it was not necessarily the most efficient organization. With municipalization in 1872, under the 1872 Jute Warehouse and Fire-Brigade Act (Bengal Act No. II of 1872), Calcutta's municipal administration set out to create an effective fire brigade, but maintained the racial labor divisions of the police establishment and followed the broader racial systems in place in Calcutta. The fire brigade was divided between a headquarters station at the Police Office in Lalbazar (central Calcutta) and four outstations at Kaleeghat, Watgunge, Palmer's Bridge, and Tallah. The comparative staffing of the headquarters and the outstations made the two inconsistently effective in fighting fires. The municipal commissioners proposed to assign four Europeans at the headquarters station, divided between the jobs of "engineer," "coachman," and "fireman," and then have twenty Indian staff that broke down into two "Tindals" [petty officers], ten "Khallassies" [laborers or dockworkers], and eight "Syces" [horse grooms].[50] The headquarters required this full staff as it contained the brigade's only working steam fire engines, which required horses to pull them to fires. Each of the outstations were only assigned two tindals and ten khallassies as that was deemed sufficient to pull a manual fire engine a short distance and begin extinguishing fires.[51] These Indian staff were also afforded significantly lower wages than either their White counterparts or even other Indians among the police force. Combined with the seasonal nature of

[49] Calcutta Corporation, "Report on the Municipal Administration of Calcutta, 1872," 1872, sec. Appendix No. 6, IORV/24/2865, British Library, India Office Records.
[50] Khallassies were distinguished from the "coolies" that also worked Calcutta's docks because the khallassies were employed on a permanent rather than an incidental basis. Aniruddha Bose, *Class Conflict and Modernization in India: The Raj and the Calcutta Waterfront (1860-1910)* (Routledge, 2017), 46.
[51] Calcutta Corporation, "Calcutta Mun. Admin. Report, 1872," sec. Appendix No. 6.

firefighting employment in Calcutta—the majority of the staff were only maintained during the three "dry" months—these policies made it difficult to have a consistent or efficient fire brigade.

If they were not apparent before, the results of low pay and racialized hiring became obvious when the Calcutta Fire Brigade underwent reorganization in 1913. The new chief officer, Bernard Westbrook, summed up the staffing situation in his 1913 reorganization report: "A few of the present Indian staff can be retained, but the majority are useless." Westbrook went on to explain that the low pay prevented the brigade from enlisting "a sufficiently good class of Indians" and that those that had been hired generally lacked the "strength, endurance, and initiativeness [sic]" required for firefighting work.[52] In order for him to hire the "right" men, Westbrook argued that he needed to be able to pay a competitive wage and until that happened the chances of enticing Lascars into the fire brigade was almost impossible. This preference for lascars was partly following London's sailor focus, and partly because they comprised a different caste of Indian workers. In the Police Commissioner's report on reorganization, the Commissioner, R. T. Dundas, expanded on the pay issue for hiring and connected it to religious differences between the city's Indian inhabitants. Dundas noted that in his experience "Hindus ha[d] a distaste for fire-work" and that the brigade was thus forced to rely on Muslim recruits "of inferior physique" who had been denied entry into the Police.[53] These statements speak to the recruitment problems the Calcutta fire brigade had been dealing with since 1872, and also help point toward who they deemed their "ideal" recruit: Hindu lascars.[54]

[52] *Report on the Reorganization of the Calcutta Fire Brigade*, 35.
[53] *Report on the Reorganization of the Calcutta Fire Brigade*, 19.
[54] For more on lascars, see: Visram, *Ayahs, Lascars and Princes*.

For both the London and Calcutta fire brigades, then, the ideal fireman-recruits were former sailors. To this qualification were added various sub-requirements. In London, the recruits needed to be coming from the Royal Navy at the rank of "able seaman" and with near-spotless disciplinary records. For Calcutta, it was preferred that the recruits be of the Hindu faith as the British had begun to ascribe physical and martial traits to the members of that religious group that would make them better for firefighters.[55] With these particular requirements in mind, both brigades set out to hire the "right" men in the long-nineteenth century, but only London was able to achieve their goal because they were willing to pay wages competitive with the Royal Navy and the Calcutta brigade would not.[56] Thus, these brigades' efforts to use recruitment to create community trust and accomplish their social responsibility to extinguish fires was only as effective as their willingness to compensate their recruits in a sustainable way, European firemen received far and away better remuneration than their Indian counterparts despite the Calcutta brigade being relatively well-funded.

3.3 Instilling Discipline and Morality in London's Firemen

Even as the London fire brigades were able to hire more closely to their ideal recruitment candidates than the Calcutta fire brigade, they both had to find ways to make their firemen appear more trustworthy to the urban citizens they were responsible for protecting. While the Calcutta brigade appears to have simply carried over the disciplinary system from the Police, the chief officers of the London fire brigades engaged in a broader variety of tactics by which to make their firemen acceptable to Londoners. Through a combination of Christian morality, temperance, and punitive discipline, the London fire

[55] Pradeep Barua, "Inventing Race: The British and India's Martial Races," *The Historian* 58, no. 1 (1995): 107–16; Tejimala Gurung, "The Making of Gurkhas as a 'Martial Race' in Colonial India: Theory and Practice," *Proceedings of the Indian History Congress* 75 (2014): 520–29.
[56] "LFEE Committee Minute Book 1832-33," 68–77; Conley, *From Jack Tar to Union Jack*, 48–52.

brigades attempted to create socially responsible firemen. The problem was that the recruits they were generally starting with were Royal Navy sailors, who already had a poor reputation with the London public.

Even as sailors' shipboard discipline appealed to the London fire brigade, they had to contend as well with sailors' shore-side reputations. Many negative stereotypes persisted from the eighteenth century about "Jack Tars" based on their shore-leave actions. To many Britons, sailors were slovenly, antagonistic, licentious, irreligious, carousing drunkards who should not be trusted anywhere near to a pub or a woman's bedroom, where firemen could find themselves professionally.[57] These stereotypes were precisely the opposite of what the fire brigade hoped their men would represent to the urban community. As such, the fire brigade adopted various moral improvement programs in order to show the metropolitan community the probity and virtue of London's firemen—despite their naval background. These moral improvement programs often came with religious undertones, or were explicitly religious in nature.

One major program, begun by London Fire Engine Establishment [LFEE] Superintendent James Braidwood, seemed to backfire. In 1854, Superintendent Braidwood—a devout Scottish Presbyterian—engaged a missionary from the London City Mission to minister to his firemen. The firemen were often unable to attended Sunday services or other weekly religious instruction because they were on duty near-constantly.[58] The City Missionary was meant to remedy this disadvantage and to provide religious and

[57] R.M. Ballantyne described an amusing interaction between a fireman and the woman that he was attempting to save from a house fire. In this moralistic novel, much was made of the need to maintain a woman's modesty even when carrying her down a fire escape ladder. R. M. Ballantyne, *Fighting the Flames: A tale of the London Fire Brigade ... With illustrations.* (London: J. Nisbet & Co, 1868), 343.
[58] Firemen were on "continuous duty" system that sometimes meant they were working 70+ hours straight. Terry Segars, "Working for London's Fire Brigade, 1889-1939," in *Politics and the People of London: The London County Council 1889-1965*, ed. Andrew Saint (London: The Hambledon Press, 1989), 176.

moral direction to London's firemen. While this relationship started off very positively, after a change of missionary in 1857 it quickly soured. The new missionary, Mr. Burns, reported that in his work with the firemen he had discovered that:

> Many of the London Fire Brigade have been sailors, and have been to India, Australia, America, and different parts of the world. They are, therefore, a hard, rough, robust, and sometimes, I fear, a hardened class of men. Many of them, from their habits, and also from prejudice, have no desire to enter a church or any place of worship.[59]

The missionary connected the firemen's previous lives as sailors to their apparent lack of religious sentiment, and tied it to interactions with other cultures. In this assessment, Burns was building on previous stereotypes about sailors and focusing on his particular connection to those stereotypes. Burns also claimed that many firemen spent their Sundays "in drinking and gambling" rather than attending church services or in religious instruction.[60] The missionary extended no grace for the firemen's need to stay close to their stations at all hours, opting instead to blame the navy for their irreligiousness. The navy only implemented consistent attempts at Christianizing their lower deck later in the century, but such assumptions about sailors' lack of religious education were right in line with negative sailor stereotypes held over from the eighteenth century.[61] To counter those stereotypes, firemen and sailors alike needed to act moral and in London that often meant appearing "Christian."

The missionary Mr. Burns' claims incensed Superintendent Braidwood. He felt that Burns had completely misrepresented his men by choosing to focus on the low moral and religious qualities of a few, rather than the rectitude of the many. Braidwood responded in a report to his oversight committee, claiming that the missionary "appears to be void of talent

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[59] "The Missionary to the Fire Brigade," *The London City Mission Magazine* XXIV, no. 288 (December 1, 1859): 359.
[60] "The Missionary to the Fire Brigade," 360.
[61] Conley, *From Jack Tar to Union Jack*.

to engage the attention of those around him, and sorely wanting in prudence and judgment," providing evidence that his firemen attended worship services (or explaining why they did not), and noting that only 30 dismissals specifically for intoxication had been issued in 27 years. Braidwood stated that he "never saw a more able, moral or better conducted body of men" than those under his command, contradicting Burns' report. Either account's truth is impossible to know for certain, but Braidwood's conclusion to his report is telling. He wrote: "as the success of this Establishment depends very much upon the good opinion of the public…I thought it my duty to state all the circumstances to the Committee in order that the evil effects of the printed paper already referred to might be…counteracted."[62] In order to have public support, the fire brigade required public trust, and, in a society (and economy) built on individuals' character, portraying one's institution as moral and righteous was an essential aspect of achieving that trust.[63]

As a bolster to that trust, the London City Mission issued a complete retraction of its missionary's report, after Braidwood corresponded with the Magazine in order to redress the "gross misrepresentation of the characters of the firemen."[64] The Magazine's editors apologized, writing:

> The Brigade are a most praiseworthy and exemplary body of men, *deserving of the fullest confidence on the part of the public*. We [the editors] quite believe that as to honesty, sobriety, *manliness of character*, and even as to attention to religious duties, they are not only equal, but even superior to most classes of their own grade… [and] a body of men so deserving rather of commendation.[65]

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[62] "LFEE Committee Minute Book 1858-60," 193–95.
[63] For more on character and the economy see: Margot C. Finn, *The Character of Credit: Personal Debt in English Culture, 1740-1914*, Cambridge Social and Cultural Histories; 1 (Cambridge; New York: Cambridge University Press, 2003).
[64] "LFEE Committee Minute Book 1858-60," 195.
[65] The London City Mission received £40 a year to minister to the firemen, a significant sum that likely figured into their considerations on whether or not to issue the retraction. Yet, their services were discontinued shortly after this episode. "London Fire and Life Brigades," *The London City Mission Magazine* XXV, no. 289 (January 2, 1860): 1 [emphasis added].

The apology contained two key components. First, the editors also admitted that public "confidence" was essential to the brigade. They entreated their readers to forget about drunken firemen, and instead trust the brigade to do its work. This bolstered the brigade's reputation within London. Second, the editors connected self-discipline, exemplified by honesty and sobriety, to "manliness of character." Naval sailors were simultaneously constructing a similar "manliness," making the imbrication of fire brigade and navy ultimately a more positive connection. In this way, London firemen did not need to exude "Christian" morality because they embodied British manliness, which itself often intersected with imperial ideals of "muscular Christianity" and "evangelical morality."[66]

While having an unqualified positive review from the London City Mission would have gone a long way toward proving the trustworthiness of Braidwood's sailors-turned-firemen, the firemen garnered the public's "fullest confidence" through their actions. Thus, Braidwood's choice to discontinue the City Mission's services ultimately did not greatly impact Londoners' view of their firemen.

Yet, the City Missionary did hit upon one critical component of firemen's morality that Londoners might care about: sobriety. Braidwood was a temperance Christian, but did not force such a position on his men. On the one hand, the naval grog tradition was well-established and a total prohibition on alcohol would have negatively impacted the number of naval recruits for the fire brigade.[67] On the other hand, the insurance fire brigades had a long tradition of compensating fire engine pumpers with beer or other liquors. The pumpers often chanted "Beer-Oh, Beer-Oh!" in rhythm to the pumping and might refuse to continue

[66] Conley, *From Jack Tar to Union Jack*, 104.
[67] Christopher McKee, *Sober Men and True: Sailor Lives in the Royal Navy, 1900-1945* (Harvard University Press, 2002); Conley, *From Jack Tar to Union Jack*; Margarette Lincoln, *Representing the Royal Navy : British Sea Power, 1750–1815* (Routledge, 2017).

pumping should the alcohol not flow freely enough.[68] These two inherited traditions made it almost impossible to eradicate alcohol from the fire brigade, but that did not mean that fire brigade officers gave up on enforcing sobriety.

While fire brigade officers could not prevent firemen from drinking alcohol, they could punish them for drinking to excess. As Braidwood had noted in his response to the City Mission, there had been thirty specific dismissals for intoxication or drunkenness between 1833 and 1858.[69] Often drunkenness or intoxication combined with other unacceptable behavior to amount to a dismissal. For example, in April 1844 Junior Fireman John Timms not only had intoxication going against him, but also "neglect of duty and threatening to strike a sub engineer," which taken together made it an egregious offence.[70] Intoxication greatly increased the likelihood of the latter two offenses and Timms received his dismissal.[71] The fact that dismissal for "intoxication" so often came with other offenses suggests that drinking alone was not a dismissible offense, but drinking to excess, or chronically—represented by the charge of "drunkenness" rather than "intoxication"—either of which would undermine the trust in a fireman's abilities, could result in dismissal.[72]

Morally, the fire brigade could only accept so much intemperance with alcohol as it would directly affect a fireman's ability to fulfill their duties, but the moralizing around firemen's relationships to women went well beyond the effect on their duty and instead

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[68] Holloway, *Courage High!*, 33.
[69] "LFEE Committee Minute Book 1858-60," 193–95.
[70] "LFEE Committee Minute Book 1842-46," 128.
[71] Of the five firemen dismissed for being drunk between November 1868 and June 1869, three had been "disorderly" and two engaged in "assault" or fighting while on duty—neither of which were acceptable. "Fire Brigade Committee Minutes Vol. IV" (Metropolitan Board of Works, 1868), MBW/912, London Metropolitan Archive.
[72] For example, a Senior Fireman in 1862 named James Joyce was found guilty of "deserting his post and getting drunk on duty," but rather than being dismissed he simply had his rank "reduced." Most likely this punishment for drinking was far more common than dismissal. "LFEE Committee Minute Book 1860-63," 168–69.

encouraged them toward a form of middle-class domesticity.[73] This push for adherence to domestic ideals coalesced with religious expectations around matrimony to allow the fire brigade to police their firemen's relationships. The brigade also felt they had a right to intervene in their firemen's love lives since so many of them resided in the fire stations and their choice of partner could upset the delicate ecosystem of the station. For example, in 1838 a foreman complained of "the conduct of the wife of James Stewart Senior Fireman," the foreman then required Stewart to produce his marriage certificate, and had him "removed to another Station where the men do not lodge in the house," in order to solve the situation. The same foreman also protested that another senior fireman, William Prizeman, had "brought an abandoned woman into that Station and [was] passing her off as his wife," which the Committee investigated and noted that future instances of which would be "visited with immediate dismissal."[74] The relationship between firemen and their wives was thus touted as an essential piece of the fire brigade's success.

While the brigade used pensions and widows' benefits to entice sailors to join the fire brigade under these moral ideals, it could be hard for them to break certain habits developed in the Navy.[75] In 1845, two London firemen were dismissed "for introducing loose women into the premises where they were on duty." The overseeing committee of fire insurance agents found this act both morally and professionally unacceptable—the implication being that these women might distract the firemen from their appointed duty. Just a month earlier, however, the LFEE committee dismissed another senior fireman for "bigamy" after they

[73] John Tosh, *A Man's Place: Masculinity and the Middle-Class Home in Victorian England* (New Haven, CT: Yale University Press, 1999); John Tosh, "Gentlemanly Politeness and Manly Simplicity in Victorian England," *Transactions of the Royal Historical Society* 12 (2002): 455–72; John Tosh, *Manliness and Masculinities in Nineteenth-Century Britain: Essays on Gender, Family, and Empire*, Women and Men in History (London: Routledge, 2016).
[74] Officially, Prizeman's reason for resigning was the "improper conduct of the woman he lived with," but ultimately it was likely the social pressures of the men around him. "LFEE Committee Minute Book 1837-41," 1841, 55, CLC/B/017/MS15728/003, London Metropolitan Archive.
[75] "LFEE Committee Minute Book 1832-33," 68–77; Conley, *From Jack Tar to Union Jack*, 48–52.

discovered that he "had disgraced himself by marrying a woman whose husband the Supt. had ascertained is a corn porter now living in London."[76] For the upholders of London's social responsibility for extinguishing fires, such immoral acts were unacceptable and they went against the professional, moral, and religious expectations of the time.

After municipalization the moral and disciplinary expectations of London firemen remained high. The London Fire Brigade's register of men who have ceased to belong to the brigade detailed the full gamut of reasons why firemen would leave the brigade and note particularly some of the more immediate causes of dismissal or resignation. While many firemen left the brigade for appointments elsewhere—like in other British cities or in colonial situations such as Australia, Canada, South Africa, or China—the most common causes of dismissal from the brigade related to drunkenness on duty, absence without leave, insubordination, or theft. For example, in 1886 George Cooke, who had been a fireman for all of eleven months, was "Drunk on duty; using abusive language, and threatening to use his axe," which combined to warrant his dismissal. Each of these acts—drunkenness, immoral language, and violent insubordination—would greatly undermine the image of the socially responsible fireman if allowed to persist and be visible to the public. Yet, less egregious examples also abound. Fireman William Taylor was dismissed in 1880 for being "dull and lazy," while four years earlier Thomas Thompson was dismissed after two months in the fire brigade for being "Deficient in scholarship and tied too much to time. He was too lazy to learn the use of the telegraph."[77] It was not enough for London firemen to be morally upright or physically capable of the work, they had to be both.

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[76] "LFEE Committee Minute Book 1842-46," 183–85.
[77] "Register of Men Who Have Ceased to Belong to the Metropolitan Fire Brigade, Showing the Length of Service and Cause of Retirement (1876-1913)" (Metropolitan Board of Works, 1916), LCC/FB/STA/03/037, London Metropolitan Archive.

Through this rigorous process of training, disciplining, and weeding out those apparently unsuited to the work the London Fire Brigade set about creating a group of men that reflected the social responsibility that they carried for all of London. Whether through Christian moralizing, enforced temperance, or domestication the fire brigade's officers tried to make their men worthy of the public's trust. While each of these attributes were cultivated in individual firemen for the betterment of the brigade overall, attempts were also made to foster a particular culture for the brigade as a whole and hoped to create an image of firemen as positive as those afforded to military heroes.

3.4 Cultivating Militarism in the Fire Service

In many ways, fire brigades were constructed as semi-militarized institutions—the very fact that they were called "brigades" connotes the martial thinking that went into their creation.[78] First, by becoming a uniformed public service, the fire brigades invited urban citizens to put them into the same categories as the military.[79] Then, the connection was made even stronger by fire brigades like those in London and Calcutta explicitly recruiting firemen from military services like the Royal Navy or the Indian Army, respectively. In turn, the brigades cultivated a martial culture in which firemen were constantly at war against the "devouring element," which provided a shortcut to solidarity and companionship among the firemen themselves. Finally, in comparing themselves to the explicitly militarized firefighting services of Continental Europe, firemen in London had to decide just how "martial" they wanted to be while their counterparts in Calcutta had their "martial" nature decided for them. Modern municipal fire brigades worldwide turned to the model of the military to

[78] Even though the American fire service preferred the term "department" to "brigade," they still maintained many military cultural elements. Greenberg, *Cause for Alarm*; Greenberg, "Origins of the American Municipal Fire Department"; Tebeau, *Eating Smoke*.
[79] Ewen, "Managing Police Constables and Firefighters."

present themselves as efficient and competent, but this model was ultimately less effective; London's fire brigade was a paragon of an alternative model, which boasted professionalization on its own terms for the sake of protecting the populace from the threat of fire. Calcutta's fire brigade serves as a contrast to this model, as it continued in a more military mold, to Calcutta's detriment.

The militarization of the fire service started first with its uniforms. Indeed, the late-eighteenth to early-nineteenth century transition in fire brigade uniforms marked the move from firemen as servants toward firemen as professionals. In the eighteenth century, each fire insurance company fire brigade had its own garishly colored uniform that served as a livery to identify the company's servants and to differentiate each company's firemen from the others.[80] These uniforms, much like the brigades themselves, were an advertisement for their particular fire insurance company encouraging all bystanders to purchase that company's coverage—if the firemen did their work efficiently. With the creation of the London Fire Engine Establishment in 1832 it became not only ineffective for the different fire insurance company brigades to have unique uniforms, but also unpopular. As Charles Young, a respected fire engineer and author, noted in 1866, "Few things look worse than a brigade in uniform without uniformity," but that consistency was secondary to the uniforms being simple, cheap, strong, and easily put on.[81] Braidwood first regulated the firemen's uniforms in 1832. He replaced the brightly colored insurance company jackets with dark gray woolen suits and black leather helmets, giving an overall impression of seriousness and efficiency. Each of the firemen had their rank number sewn in red on their uniforms in

[80] Similarly, the Georgian army itself was often attacked for its officers' "addiction to fancy uniforms, gallantry, and the niceties of politeness," which could serve much better in a ballroom than on the battlefield. Kevin Linch and Matthew McCormack, "Defining Soldiers: Britain's Military, c. 1740–1815," *War in History* 20, no. 2 (2013): 155.
[81] Young, *Fires, Fire Engines, and Fire Brigades*, 445–46.

order for their officers and the public to recognize them. Therefore, should a fireman act improperly he would be reported by number to the superintendent for punishment, and made the first steps toward some public accountability.[82] The change in uniforms coincided with British culture's dismissal of the "fop" in favor of the more somberly dressed "professional," and reflected a move away from firemen as servants toward recognizing them as professionals.[83]

As *The Fireman* put it in 1889, "it is almost universally agreed that a fireman's working uniform ought to be neat and serviceable, and that, from this point of view, it is difficult to improve upon the dark blue tunic with brass buttons."[84] The transition toward "professional" uniforms followed the London fire brigade's municipalization in 1866, when the new chief fire officer, Captain Eyre Massey Shaw, saw fit to create a new uniform. With the standardization of naval uniforms in 1857, and his own military background, Shaw had a model for what he wanted his new brigade's uniforms to look like. He rejected Braidwood's gray for seamanlike navy blue, made of kersey woolen cloth, with bright brass buttons, and adding a navy round cap to the dress down uniform. Shaw topped the new uniform with a brass helmet, replacing the old leather helmets. He modeled these helmets on the Parisian *sapeurs-pompiers* (firefighters) helmets: they were modular, and their high crest made them even more effective at protecting against falling debris.[85] [Figure 2] By adopting a uniform

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[82] "LFEE Committee Minute Book 1832-33," 86–87.

[83] Though, it should be noted that several of the fire insurance companies and the Metropolitan Board of Works that took over the fire brigade in 1866 continued to treat the firemen as servants when it benefitted them—all while upholding professionalization ideals to benefit recruitment and retention. Tosh, "Gentlemanly Politeness"; Wright, *Insurance Fire Brigades 1680-1929*; Holloway, *Courage High!*, 46.

[84] "Fire Brigade Uniform," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XII, no. 143 (April 1889): 192.

[85] Holloway, *Courage High!*, 70–71. Shaw was a dedicated Cosmopolitan. During his tenure with the London Fire Brigade, he toured and lectured across Europe and even attended conferences in the United States and Canada. Throughout his career, he argued for his style of fire brigade, independent of police or the military, professional, and taking advantage of changes in technology to improve efficiency.

closer to the navy's, Shaw was likely hoping to imbue his men with a senses of authority and efficiency, suggested by the naval-style uniforms.[86] These uniforms were standard for the London Fire Brigade until the 1930s, and other brigades accepted them as the best uniforms more generally.[87] Shaw's uniform design, thus, set the standard for British fire brigade uniforms.

Figure 2 Metropolitan Fire Brigade uniform and helmets from *The Fireman*, 1889.

[86] Paul Fussell, *Uniforms: Why We Are What We Wear* (Houghton Mifflin Harcourt, 2003), 93.
[87] "Our Firefighters' Uniforms – a Historical Timeline," accessed November 6, 2018, https://www.london-fire.gov.uk/museum/history-and-stories/firefighters-uniforms/.

The uniforms for the Calcutta Fire Brigade could not necessarily follow this standard as they had to deal with colonial conditions. British imperial agents often wore "tropical clothing" because they believed that it had the "ability to protect white Europeans against the supposed harmful effects of a tropical climate."[88] These clothing choices were built into the European uniforms of the army in Calcutta—the now-infamous pith helmets and khaki clothes—and carried over into the uniforms for the police and fire brigade. The image of the Calcutta Fire Brigade included in S.W. Goode's *Municipal Calcutta* showed their uniforms were almost interchangeable with the other services, except for their helmets, which were on the London Fire Brigade model [see Figure 3].[89] Thus, each of these services—army, police, and fire brigade—maintained a continuity of uniform and martial culture, but the relationship between the army and the fire brigade was one of a hiring pipeline via the police. In London, then it was possible to create a distinct uniform for the fire brigade in order to mark it off from other municipal services, but in Calcutta the uniforms had to share similarities with other services in order to mark them as part of the same imperial project.

[88] Ryan Johnson, "European Cloth and 'Tropical' Skin: Clothing Material and British Ideas of Health and Hygiene in Tropical Climates," *Bulletin of the History of Medicine* 83, no. 3 (2009): 531.
[89] Goode, *Municipal Calcutta*, 280.

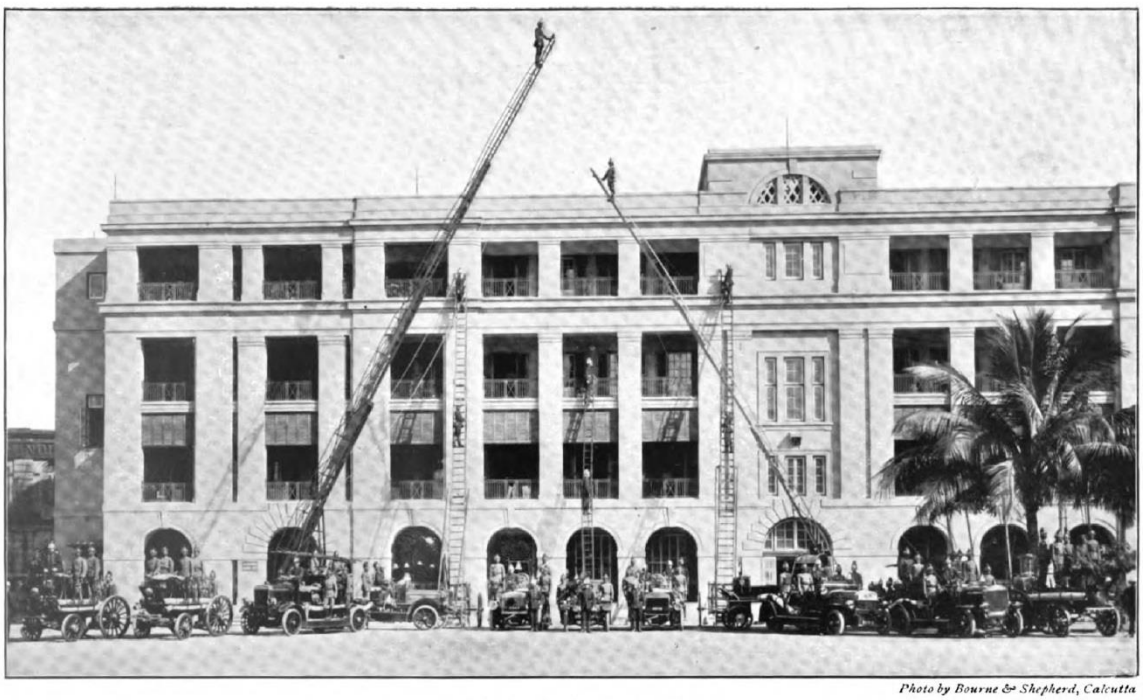

Photo by Bourne & Shepherd, Calcutta

CALCUTTA FIRE BRIGADE

(ENGINES, ETC., MARSHALLED IN FRONT OF THE NEW POLICE OFFICE BUILDINGS, LALBAZAAR. *See* Appendix I.)

Figure 3 Photograph of the Calcutta Fire Brigade c. 1916 first published in Goode's *Municipal Calcutta* (1916).

Calcutta's overbearing adherence to the imperial project meant that the Calcutta fire brigade even sought to hire sailors, much as the London Fire Brigade preferred Royal Navy sailors. While they sought Indian lascars for the "subordinate" staff of the fire brigade—those highest on the ladders in Figure 2—when it came to the European staff they pulled from the Indian Army.[90] For example, Bernard Westbrook's 1913 report on reorganizing the Calcutta Fire Brigade noted "the European firemen and engineers are all picked men, principally ex-soldiers," and often having just come off a tour at Fort William or elsewhere in Bengal.[91] Many British soldiers that served in the Indian Army hoped to secure some wealth for themselves before returning to Britain, and most did not achieve that solely during the years of the military service.[92] Some chose to stay in India to work in businesses,

[90] Nair, *Origin of the Kolkata Police*.
[91] *Report on the Reorganization of the Calcutta Fire Brigade*, 4.
[92] For more on the wealth brought home by these adventurers, see: Margot C. Finn and Kate Smith, eds., *The East India Company at Home, 1757-1857* (London: UCL Press, 2018), https://goo.gl/PR8Qcq.

others opted to work for the Raj government in other departments, and some made the transition from soldier to constable. Fewer still made the transition from constable to Calcutta fireman. In most cases, Calcutta's European firemen were simply protecting the empire in a slightly different uniform.

The ex-soldiers' smooth transition into Chief Westbrook's fire brigade was aided by his introduction of a "drill class." This class had a dual purpose according to Westbrook. First, it would provide a "reserve" from which the brigade could fill any vacancies at the various stations across Calcutta. Second, the drill class would "permit the revision of training, etc., of the whole staff" in order to place them on a more efficient footing for their work.[93] Within this drill class, the firemen would be taught how to use and maintain the various apparatuses the fire brigade employed and be instilled with the ready obedience that would have been so familiar to ex-soldiers. These kinds of drills were not exclusive to Calcutta and Chief Westbrook likely borrowed drill suggestions from the London Fire Brigade and elsewhere, in the hopes that they would, like military drill, turn his firemen into a brigade.

From the seventeenth century onward in Europe, military drills changed the ways in which professional armies functioned both on and off the battlefield. Much as standardized uniforms encouraged solidarity among their wearers, military historian John Keegan has described drill's purpose as "choreographic, ritualistic, perhaps even aesthetic, certainly much more than tactical."[94] There is little tactical purpose in the twenty-first century military for soldiers to practice marching in step, but it creates a unity of purpose and aesthetic uniformity that can build *esprit de corps*. By forcing firemen and soldiers to repetitively practice

[93] *Report on the Reorganization of the Calcutta Fire Brigade*, 35.
[94] John Keegan, *The Face of Battle* (London: Penguin Books, 1978), 33.

skills until they became muscle memory, under the eyes of training instructors who shouted orders to be immediately followed, drill taught both skill and obedience in such a way as to make both reflexive for the men involved.[95] While there were fewer forms of purely aesthetic drill in Britain's Royal Navy, the repetitive actions of the everyday maintenance of sailing ships (and steamships after them) similarly prepared sailors for the drill expected from them in the fire service.[96]

Building from drill manuals and their own military experiences, fire brigade chief officers tended to create fire brigade drill that promoted a semi-militarized firefighting force. For example, a drill book published by the fire engine manufacturing company Shand Mason & Co. in 1898 revealed many of the similarities with military drill. In this drill book, Shand Mason open with encouraging drill instructors to have their firemen line up and march much like soldiers would have done. The book goes on to argue that drill is essential for creating discipline within the fire brigade, but that drills should be short and well-arranged so as to create a facility for repetition. Finally, the first section concludes with a reminder to firemen that while they are in uniform in public "that their conduct…should be orderly and such as to command the respect of everyone."[97] When in uniform, a fireman was not simply representing himself, but the entirety of the brigade and his actions would reflect on his fellows. Or, as the Metropolitan Fire Brigade's own drill book stated, "great caution is necessary in communications with strangers: hasty words or indiscreet conversations often lead to undesirable results which cannot be rectified."[98] Fire brigade drill, then, not only

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[95] John A. Lynn, *Battle : A History of Combat and Culture* (Boulder, CO: Westview Press, 2003), 153–56, https://catalog.lib.unc.edu/catalog/UNCb4303442.
[96] Roger Parkinson, "The 'New' Navies as a Consequence of the Naval Defence Act," in *The Late Victorian Navy*, NED-New edition, The Pre-Dreadnought Era and the Origins of the First World War (Boydell & Brewer, 2008), 161–203, https://doi.org/10.7722/j.ctt15r3xfc.13; Conley, *From Jack Tar to Union Jack*.
[97] Shand-Mason, *Fire Brigade Drills, Etc.* (London: Shand, Mason & Co, 1898), 3–10.
[98] Metropolitan Fire Brigade, "M.F.B. Drill Book" (London County Council, 1898), 6, LCC/PUB/01/030/0404, London Metropolitan Archive.

created solidarity among the firemen and instilled them with military discipline, but also helped to forward the very image of social responsibility that the brigade hoped to put forward to the public.

While British imperial fire brigades adopted militarized training regimens and uniform styles, other imperial fire brigades went even further into their militarization. In Paris, for example, the fire brigade *was* a military brigade. Napoleon founded Paris' *sapeurs-pompiers* in 1810 as an army regiment assigned to fire protection duties in the French capital.[99] Despite their localized mission, the Parisian firefighters had to maintain imperial army standards of discipline and conduct. David Garrioch has argued, however, "militarization…had little immediate impact" on Parisian firefighters' ability to put out most fires.[100] While militarization may not have greatly changed the rate at which fires were quenched in Paris, it did greatly affect the manners in which fires were extinguished. *The Fireman* reported on Parisian firemen in 1889 saying that the *sapeur-pompier* was "a soldier first and a fireman afterwards," which the journals editors thought could be a "drawback." They noted that when a mixture of regular soldiers and *pompiers* were at a fire, the "military officer of superior rank—although he may know nothing about the process of fire-extinction—[took] the supreme command," which in the editors' minds could only lead to confusion and inefficiency.[101] This military system was not immediately adopted in the rest of France and

[99] It is perhaps unsurprising that Napoleon, a military general, would institute a military solution for the fire problem. The *Sapeurs-Pompiers* also provided a reserve force for French Army, which had expanded so drastically after the *levée en masse* of the French Revolution. David A. Bell, *The First Total War: Napoleon's Europe and the Birth of Warfare as We Know It* (Boston: Houghton Mifflin Harcourt, 2007).
[100] Garrioch, "Fires and Firefighting in 18th and 19th-Century Paris," 10.
[101] "Continental Firemen," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XIII, no. 149 (October 1, 1889): 62.

French provincial cities only began to reform their fire brigades in the mid-nineteenth century.[102]

While, the conflation of militarization with discipline and efficiency proved an effective argument across the European continent and in Calcutta, London continued to resist it beyond their hiring practices and culture. *The Fireman*'s editors reported that "nearly all the Continental fire arrangements are established upon a military basis" because it was "doubtless the cheapest arrangement."[103] This logic of combining services for cost-saving also contributed to the British combined police-fire brigades in places like Calcutta and Birmingham, even though such combinations led to inefficient fire protection. Germany was another nation that had combined military and volunteer firefighting. The government kept firefighting apparatuses with local army regiments who then provided extra help and crowd control at fires, especially when the firefighters had been conscripted.[104] Such conscriptions also happened in Russia where *The Fireman* noted that "fire duty has to be performed as a mild kind of military punishment," which greatly decreased efficiency.[105] Urban fire brigades in late-imperial Russia, however, provided a unique form of associational life for a burgeoning middle-class, but they were still beholden to military oversight with predictable results.[106] Thus, on the European continent, the army and the fire brigade had explicit connections, shared personnel, and a combined dedication to martial discipline.

In the Ottoman Empire, firefighters were often soldiers as well and sometimes overseen directly by the Minister of War, though according to *The Fireman* that oversight

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[102] Greenberg, "Origins of the American Municipal Fire Department," 62; Lussier, *Les sapeurs-pompiers au XIXe siècle*.
[103] "Continental Firemen," 63.
[104] "A German Fire Brigade," *The Fireman* II, no. 19 (December 7, 1878): 106–7.
[105] "Continental Firemen," 63.
[106] Raab, *Democracy Burning?*

could not create enough discipline for efficient firefighting. The editors wrote in 1879 that in Turkey, "when a fire assumes anything like proportion, the fleet send a contingent of smart, active men, who for courage and zeal are not to be beaten by any sailors in the world. Hobart Pasha has taught them much of the quiet pluck of the English sailor."[107] Still in the late-nineteenth century, British fire service professionals tied fire brigade discipline inextricably to the navy, and were wary of army-style discipline.[108]

Whether the Ottomans employed naval discipline or not, *The Fireman*'s take on Ottoman firemen could only be done in comparison with British firemen. In 1892, the editors published an article on "A Modern Turkish Fire Brigade" which included several photographs of Turkish firemen sent by a correspondent. The editors noted:

> [These photographs] shew the Turkish firemen to be a very 'good looking lot'; in fact it is difficult to believe from their appearance that some of them are not English; to say which is to give them the highest praise we know how to bestow. Our American friends may ascribe this remark to the unconquerable vanity of a Britisher, or to what else they like, we do not object in the least. At all events these unspeakable Turks have the appearance of possessing any amount of grit…[109]

Regrettably, the editors chose not to publish these photographs. The editors did include, however, another correspondent's description of the "Constantinople Fire Brigade." In this article, the correspondent described the Turkish firemen as "drawn up in military order" and presenting a "very warlike appearance, their helmets vermilion, without peaks," which further contrasted them from London firemen. The correspondent went on to comment

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[107] "Fires in Turkey," *The Fireman* II, no. 21 (February 15, 1879): 136–37.
[108] Policies for hiring sailors compounded this fact in Aberdeen, Manchester, and Birmingham where the need for military-style discipline outweighed other considerations. Ewen, *Fighting Fires*, 75–78.
[109] "A Modern Turkish Fire Brigade," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XVI, no. 184 (September 1, 1892): 46.

that the Turkish firemen "being all soldiers, under the command of efficient military officers, worked with great precision," but lacked the modern equipment of an English brigade.[110]

These two articles in the same issue offered the full range of *The Fireman*'s commentary on "foreign" fire brigades. The correspondents suggested that the Turks looked martial, disciplined, masculine, and possibly Caucasian, which were the most important traits for English firemen. Yet, the correspondent called the Turkish firemen "warlike." This served both to speak to the Turks' military profession and to contrast the Turks with English firemen, who were agents of peace and social order. The correspondent and editors were also particularly concerned with whether the Turkish firemen were using modern steam fire engines or manual ones, *pompier* ladders or wheeled escapes, and they used those distinctions as a way comparing the two types of firemen. These comparisons were laden with progressive ideology that suggested the more technologically "backward" brigade would be the worse. Yet, by saying some of the Turkish firemen looked "English" was meant as a high compliment, even as its tone was patronizing.

It could be hard to tell the fire brigades and military services apart, however, as both wore uniforms and swore to protect Britons from harm. In fact, it was the fire service's growing emphasis on life-saving that encouraged British fire brigades to reject total militarism before the First World War. This last point became increasingly important as "invasion scares" from the Russians or the Germans stoked navalist parliamentary policies and an increased expenditure on home military defense.[111] With these invasion scares, the

[110] "The Constantinople Fire Brigade," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XVI, no. 184 (September 1, 1892): 54.
[111] Conley, *From Jack Tar to Union Jack*, 123–59.

fire service began to see itself as equally essential to Britain's protection as the army or navy.[112] The *Fireman* editors made this connection explicit, stating:

> Surely if it is praiseworthy to form battalions to protect us from invasion and destroy our enemies, it is equally praiseworthy to band ourselves together to extinguish that deadly and merciless enemy, fire, and save our friends from the devouring element. There is more real honour in mounting a ladder and rescuing from a fire some helpless sufferers than in scaling a wall and killing those we have never seen before.[113]

In this passage, the editors suggest parity between firemen and their military counterparts, but also argued for firemen's moral superiority. The editors maintained that saving lives imbued much greater morality than taking them. Yet, lifesaving had only become critical to London firefighters after municipalization. This passage also contrasted the episodic nature of invasion scares with fire, which was a constant threat. *The Fireman* used similar arguments about fire dangers to advocate professional over volunteer fire brigades.[114]

Thus, the moral argument that life-saving was more honorable and patriotic than killing a stranger served as the foundation for contrasting the fire service from the military. These sentiments concerning the moral contrast between firemen and sailors or soldiers were not unique to *The Fireman*. Ballantyne discussed this contrast in his 1867 novel, in a conversation explaining why firemen kept at their duty. The main fireman protagonist in *Fighting the Flames*, Frank Willders, was injured after being thrown from an engine and a family friend interrogated him about why he wanted to return to duty once his leg healed. He responded, "'I like the vigour and energy that are called forth in the work, and I like the object of the work, which is to save life and property. Why,' exclaimed Frank

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[112] This would be proven especially prescient during the Blitz and other aerial bombings in the First and Second World Wars. "Editorial Notes," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XXXIX, no. 461 (October 1, 1915): 61–62.
[113] "Spray," *The Fireman* II, no. 17 (October 7, 1878): 80.
[114] Though the editors sold their magazine to both kinds of brigade.

enthusiastically, 'it has all the danger and excitement of a soldier's life without the bloody [violent] work, and with better ends in view.'"[115] First, saying firemen's work required "vigour and energy" connected it to ideal Victorian manliness. Second, Ballantyne's fireman made the explicit connection between his work and soldiers', marking "danger and excitement" in both professions. Yet, Ballantyne followed this with two female characters, Miss Tippet and Mrs. Willders, arguing back that "is a great and glorious thing to defend one's native land." These women were "standing up for the red-coats" against the fireman's claims to moral superiority, and "for the blue-jackets too…they fight for their country as well," recognizing sailors' imperial role, whether they became firemen or not.

The fireman had the final word in this conversation. Willders recognized the important work that soldiers and sailors did for the nation and explained the distinction he saw between the two professions. He said, "I did not refer to ultimate ends, I only thought of the immediate results in connexion [sic] with those engaged. The warrior fights, and, in so doing, destroys life and property. The fireman fights, and in doing so protects and preserves both."[116] *The Fireman* echoed this sentiment a decade later. For Ballantyne and many others, then, the preservation of life was nobler than the taking of it. This nobility provided the fire brigade with its own moral exceptionalism in direct contrast to the navy and army.

Whether the firemen themselves rejected the violence of militarism, the effects of it ran throughout the fire brigade's structure. From uniforms to drill classes, or from hiring former military men to maintaining a close relationship with military services, the fire brigades in the British empire maintained a degree of militarism and martial culture when it came to fighting fires. Much like with military training, it was in fire brigade drill classes that

[115] Ballantyne, *Fighting the Flames*, 281.
[116] Ballantyne, 281–82.

firemen were made certain of the social responsibility that was theirs to undertake in urban life. As Commander Lionel Wells of the MFB stated in 1898:

> It is difficult to exaggerate the importance of the duties with which we are entrusted, lives as well as property being frequently dependent on our exertions. The knowledge of this…should alone suffice to prompt every member of the Brigade to spare no pains to bring himself up to the highest standard of efficiency.[117]

3.5 Conclusion: Creating Trust and Social Responsibility?

While the fire brigades recognized the social responsibility of extinguishing urban fires was almost entirely on their shoulders, the question remained whether urban citizens trusted them to carry out that responsibility. For the most part, they did, and the fire brigade simply became a part of the background of urban life.[118] But when the urban public had occasion to think deeply about their fire brigades it often came in moments following disastrous fires or when individual citizens had occasion to see the firemen at work up close. One such citizen, Ernest Hamilton, noted that the "London Fire Brigade with its dramatic and picturesque *entourage* [was] the idol of the public," in a letter to the editor of *The Times* in which he unequivocally criticized the brigade's handling of the Queen Victoria Street Fire in which nine people lost their lives.[119] Even Hamilton, a former-MP and writer, had to acknowledge the heroization of London firemen before he blasted them for inefficiency and lacking the proper equipment.[120] Vitriol like Hamilton's was almost only possible because he and others had such high expectations for the fire brigade, and they had failed to meet those expectations.

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[117] Metropolitan Fire Brigade, "M.F.B. Drill Book," 4.
[118] The "silent service" as Neill Wallington described it. Qtd. in: Ewen, *Fighting Fires*, 2–3.
[119] Ernest Hamilton and Marston C. Buszard, "The City Fire," *The Times*, June 11, 1902, The Times Digital Archive.
[120] The MFB's Captain Shaw was even immortalized in the Gilbert & Sullivan Operetta *Iolanthe*. Ewen, *Fighting Fires*, 85.

As we have seen in this chapter, however, the London and Calcutta Fire Brigades did everything they could to turn their firemen into trustworthy, efficient, and socially responsible members of the urban community. With the sweeping powers granted to fire brigades upon municipalization, urban citizens had every right to be wary of their firemen, despite the fact that the firemen's job was to protect them from fire. In a case from 1914, a Londoner name Frank Gheesman accused firemen of stealing a piccolo and a few pieces of china from his home after a broke out at the back of his building. Gheesman wrote several letters to the fire brigade in complaint about the theft and his treatment after the fact by firemen, whom he claimed "we are taught to respect." In one postcard, he wrote that "people say I do not have to be insured against fire for such a loss as mine; I ought to be insured against firemen." In another letter Gheesman sarcastically bemoaned "when our brave and gallant firemen have a temporary run of our homes," implying that the results were not fire protection, but theft.[121] The vast majority of citizens did not have such contentious relationships with their firemen, but the possibility of theft and irresponsibility meant that firemen generally needed to be above reproach.

In Calcutta and London, the fire brigades first tried to create trustworthy firemen by restricting their hiring pools. Both brigades sought sailors—London from the Royal Navy and merchant marine, while Calcutta hoped for Indian lascars—for their skills and previous training that made it faster for them to be trained as firemen. Captain Shaw claimed that a sailor could be made into an effective fireman in six to eight weeks, while a candidate without sailor training could only be effective after six to eight months.[122] While the London Fire Brigades succeeded in enticing Royal Navy sailors to join their brigade through

[121] "Property Misappropriated by Firemen at Fires" (London County Council, 1914), LCC/FB/GEN/02/020, London Metropolitan Archive.
[122] Shaw, *Fire Protection*, 312.

increased pay and pension benefits, the Calcutta brigades refusal to raise the wages for non-White firemen and the seasonal nature of the brigade's work kept them from ever retaining a strong lascar base from which to build the brigade. In both brigades, then, they had to try to make the firemen they had into the firemen they wanted.

In order to create socially responsible firemen, both brigades turned to discipline, religion, and militaristic training. While the London fire brigade used Christian moralizing and forced temperance to try and make more moral firemen, the Calcutta brigade endeavored to entice members of the "martial races" of Indian religions to join their brigade to no avail.[123] Both brigades were able to create drill classes and implement a consistent training regimen onto their firemen. Through adopting this military training form, the brigades were not only able to increase their firemen's efficiency in firefighting, but also foment solidarity and *esprit de corps* within the brigades—aided by their adoption of standardized uniforms. Despite juxtaposing themselves with the military in terms of life-saving versus life-taking and against the continental brigades that were literally military units, British imperial fire brigades maintained military-style discipline within their ranks. Through this discipline, the brigades fostered an image of socially responsible firemen that could be maintained just as long as citizens did not have close contact with the fire brigade or the firemen did not make any significant public mistakes. Because of these efforts, firemen became heroes in their cities, largely-trusted holders of the social responsibility for extinguishing fires, and a point of public admiration.

The following chapter will explore the technologies that mediated the relationships between fire brigades and their urban constituents and how those technologies could help

[123] Barua, "Inventing Race"; Gurung, "The Making of Gurkhas"; Amar Farooqui, "'Divide and Rule'? Race, Military Recruitment and Society in Late Nineteenth Century Colonial India," *Social Scientist* 43, no. 3/4 (2015): 49–59.

garner or deny the admiration the brigades so deeply desired. Indeed, the professionalization measures discussed in this chapter did not totally sell Calcutta's or London's citizen's on the fire brigade's ability to fully carry out their social responsibility to extinguish fires. The fire brigades thus chose to adopt new technologies both as a way of furthering professionalism and to project an air of progress in which their constituents could believe in.

Chapter 4 Distrust, Despair, and Discipline: Adopting New Technologies in the Fire Service

"I do not mean [my critiques] as any reproach to the Fire Brigade, because their means and their machinery are not sufficient," stated Sir Richard Mayne, London's Police Commissioner, to the 1862 Parliamentary Select Committee on Fires in the Metropolis. Many of the criticisms of the London Fire Engine Establishment [LFEE] presented before this Committee emphasized that the fire insurance companies' Establishment was "decidedly not sufficient."[1] While these criticisms were generally in reference to the small number of stations the LFEE maintained, others focused on the brigade's relative resistance to technological innovation. The question of sufficiency, however, only arose because Londoners and Parliament had started to see the LFEE as the bearers of the social responsibility for extinguishing fires in the Metropolis, and the distance between this expectation and the reality of the LFEE's coverage furthered claims of insufficiency. Being considered insufficient to protect London placed a cap on how much the public could trust the LFEE and furthered the conclusions put forward by this 1862 Select Committee that London needed a municipal fire brigade to embody the social responsibility for fire.

Yet, there were other tactics possible for gaining public trust, and one of the ones used most often by fire brigades was the adoption of new technologies. In the three years between the Select Committee and the institution of the Metropolitan Fire Brigade in 1865, the LFEE brought in new steam fire engines and greatly extended their use of the telegraph, as discussed in Section 1 below. Similarly, the Calcutta Police responded to a spike in

[1] "SC on Fires in the Metropolis," 18, 45.

buildings destroyed by fire in 1865-66 by procuring five steam fire engines from Merryweather & Sons, a London fire engine manufacturer.[2] Adopting new technologies provided a way of showing progress without fundamentally reorganizing institutions and gave an obvious outward representation of the Victorian ideal of "improvement."[3] The last two chapters have explored how the government—through legislation—and the fire brigades—through discipline—sought to limit the fire problem by stricter enforcement of carefulness, this chapter instead focuses on how the fire brigades adopted technologies to solve social issues with their constituents and within the brigades themselves. Whether motivated by distrust, despair, or discipline, the fire brigades adopted new technologies to prove that they were taking their social responsibility seriously and to foster public trust.

While many accounts of the fire service seem to take brigades adopting new technologies as inevitable for the sake of efficiency,[4] others have examined the social element critical to technology's role in the fire service.[5] Building from this latter literature, this chapter explores three chronological cases wherein social problems encouraged the London and Calcutta fire brigades to adopt new firefighting technologies. The first section details how distrust of Londoners—and even their own firemen—contributed toward the London Fire Engine Establishment adopting steam fire engines and telegraphic communication in the 1860s. The second section describes the despair Londoners felt following the 1902 Queen Victoria Street Fire and their desire to feel safe from fire once more as evidenced by their pushing pompier ladders onto the Metropolitan Fire Brigade.

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[2] "Calcutta Police Reports 1855-1869."
[3] This desire for improvement also undergirded urban planning and municipal services in the nineteenth century. Datta, *Planning the City*.
[4] Blackstone, *British Fire Service*; Holloway, *London's Noble Fire Brigades*; Holloway, *Courage High!*; Bag, *Fire Services in India*.
[5] Greenberg, *Cause for Alarm*; Tebeau, *Eating Smoke*; Ewen, *Fighting Fires*; Raab, *Democracy Burning?*; Alexander, *City on Fire*.

The third section depicts the desire for increased discipline and further racial division in the Calcutta Fire Brigade contributed to their adoption of petrol-motor engines in the 1910s. Each of these cases showed how the adoption of new fire protection technologies were compelled by breakdowns in the relationships between the fire brigades, the communities they served, and their own firemen.

4.1 Steam Engines and Telegraphs: Distrusting Londoners and Technological Change

When relationships break down between municipal institutions and urban citizens, technology can provide solutions to such social problems.[6] The steam fire engine and the telegraph, which have both been coopted into the fire service's technological progress narrative, were actually adopted in London due to growing distrust between the fire brigade and London's citizens.[7] Under the LFEE, manual fire engines were pumped by compensated citizens and fire alarms raised by remunerated runners from one station to the next, but these systems could be exploited. This section will examine how the London fire brigade hoped to use these new technologies to solve their social problems, and justified them after-the-fact with cost-effectiveness claims, despite the anticipatory concerns that their adoption would be too expensive. Thus, the way the fire brigade had to justify new technologies and their concomitant cost, was not with "efficiency" arguments as such, but through exposing how the new technologies would solve the brigade's social problems.

In London, one of the main social problems during the first half of the nineteenth century was controlling the citizens that pumped the fire engines. These citizens had to act in

[6] Robert C. Allen, *The British Industrial Revolution in Global Perspective* (Cambridge University Press, 2009); Prasannan Parthasarathi, *Why Europe Grew Rich and Asia Did Not: Global Economic Divergence, 1600-1850* (Cambridge: Cambridge University Press, 2011); Leslie Tomory, "Technology in the British Industrial Revolution," *History Compass* 14, no. 4 (2016): 152–67.
[7] Blackstone, *British Fire Service*; Holloway, *London's Noble Fire Brigades.*

unison to maintain a continuous water stream through the hoses for the firemen to use and to prevent the manual engine from seizing up or breaking, which happened often. To encourage this unity of purpose, the pumpers were paid a small hourly rate and provided with "unlimited beer" to quench their thirst and motivate their actions.[8] To keep the pumping rhythm, pumpers would often chant "Beer-oh, Beer-oh" as they went through their five to ten minute shifts on the grueling pump.[9] Pumpers had to be switched and rested often—at one fire in 1840, Braidwood employed 512 extra men, 265 "to work the three floats" and "247 at ten land engines," at a rate of one shilling for the first hour, and six pence for each succeeding hour—but these perks of the pumping positions often prompted scuffles or other competition to get hands on the engine.[10] At larger fires this system could break down as it was only as strong as the men willing to pump the engine.

It was due to these kinds of breakdowns that the LFEE's chief, James Braidwood, began to consider adopting steam-powered fire engines. In his 1850 Annual Report, Braidwood noted that the quality of men who he usually employed to work the floating engines on the Thames, principally old Watermen, were becoming harder to find to pump the floats and this was a problem. Braidwood explained that he was forced "to employ the people who occasionally work at the Docks and Warehouses for 3d per hour," marking them as occasional laborers who were inherently suspicious to their social betters. These laborers, Braidwood noted, did not "possess either the strength of spirit necessary to work the engines efficiently" and therefore required some kind of amendment.[11] One solution

[8] Young, *Fires, Fire Engines, and Fire Brigades*, 279.
[9] Holloway, *Courage High!*, 33.
[10] "LFEE Committee Minute Book 1837-41," 207.
[11] "LFEE Committee Minute Book 1851-54," 4.

Braidwood floated to the LFEE Committee was to introduce steam power onto the floating engines.

While steam-powered fire engines had been present in London from 1829, Braidwood had been reluctant to adopt any kind of steam engines.[12] While fire brigade historians like Sally Holloway and Geoffrey Blackstone attributed that reluctance to Braidwood's inherent distaste for change, it may have actually resulted from a savvy reading of London's social situation.[13] When Braidwood became chief of the LFEE in 1833, the countryside was just beginning to recover from the Swing Riots and many could still remember the Luddites of the previous decade, both of which movements involved extensive machine-breaking.[14] These protests in favor of a "moral economy" saw labor-saving machinery as depressing or denying them their "fair" wages and so the laborers would smash or break the machines to show their displeasure. Braidwood witnessed similar actions in London. From 1829 on, Londoners often saw John Braithwaite's steam-powered land fire engine attending fires around the city, but rather than appreciate his gratis firefighting he was "met with the most frivolous objections and the most determined hostility."[15] This "hostility" included attacking the engine, cutting hose, the firemen, and even Braithwaite himself. The Londoners who pumped fire engines wanted their pay and their beer and the introduction of steam power threatened that prospect, and their response to Braithwaite's engine would likely have caused Braidwood to pause before considering adding steam power to his force.

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[12] Young, *Fires, Fire Engines, and Fire Brigades*, 137.
[13] As Holloway put it, Braidwood "appeared to dislike change for the sake of change." Holloway, *Courage High!*, 47; Blackstone, *British Fire Service*.
[14] Hobsbawm and Rudé, *Captain Swing*; Adrian Randall and Andrew Charlesworth, eds., *Moral Economy and Popular Protest: Crowds, Conflict and Authority* (Basingstoke: Macmillan, 2000); Archer, *By a Flash and a Scare*; Griffin, *The Rural War*.
[15] Young, *Fires, Fire Engines, and Fire Brigades*, 139.

In fact, the prospect of reprisals made the floating engines the best place to experiment with steam power for the LFEE. Prior to steam, the floating engines had to gather their pumpers before setting off onto the river to attend a fire. That process could itself cause delays, but then once the pumpers were on board there was no replenishing their numbers without leaving the site of the fire, giving the pumpers immense bargaining power. Running out of beer or simply having to work too long could render the floating engines inoperable. Yet, by virtue of being in the middle of the river, the floating engine was much harder for machine-breakers to attack. Coupled with Braidwood's explicit comments to the LFEE committee that the manual floats would be "more efficient if better men could have been procured" and after several months of delay, a year after Braidwood's first complaint about the floating engines the LFEE committee resolved to add a steam engine to one of their fire floats.[16] Braidwood himself did not explicitly argue that steam-powered floating engines would be more "efficient," but rather hoped to find "better men" to pump the floats.

Once the first steam float got under way, however, Braidwood was quick to justify the expense to his employers. While refitting the floating engine for steam power cost the LFEE committee over £2000, it appeared to make up the cost very quickly. A few months after its introduction, Braidwood reported that the steam float had worked over 40 hours at a fire for a total cost of £14/8/0 while a manual float that worked for four hours—and threw a third of the water—would have cost £18/15/8.[17] For this one fire, Braidwood argued that the steam float had saved the committee over £170, and implied that after another dozen or so fires like that would have more than made up for the initial investment.

[16] "LFEE Committee Minute Book 1851-54," 38, 65.
[17] "LFEE Committee Minute Book 1851-54," 174, 198.

The steam float, however, did bring up new problems. It required more regular maintenance, constant coal reserves, and firemen that were trained in its use. Furthermore, while the steam float was safe from machine-breakers, the increased water pressure coming through the hoses required three firemen to hold each branchpipe where the manuals only required one. This encouraged Braidwood to report in 1855 that "the want of Firemen is severely felt" and that he had to decide which engines to shorthand at a fire.[18] The LFEE committee's unwillingness to add more firemen or stations thus made adding more steam engines a problem. Coupled with the fears of what CFT Young described as "thirty or forty excited 'roughs' duly primed with 'unlimited beer'" might do if their pumping opportunities were threatened, Braidwood and the committee declined to add a land steam fire engine until 1860, and only added more after Braidwood's death in 1861.[19] By the beginning of 1868, the Metropolitan Fire Brigade had increased their number of large land steam fire engines from 3 to 8 and their small steam fire engines from 6 to 14, more than doubling the total number of steam fire engines used by the fire brigade.[20] With municipalization in 1865 steam became the Metropolitan Fire Brigade's problem to solve, but with their new municipal authority, a much easier one than for the LFEE.

The adoption of steam-powered fire engines showed that efficiency arguments alone were not enough to overcome concerns about initial investment. These new technologies had to address some kind of social deficiency to be adopted and only after the fact could the cost be justified. In addition to steam fire engines, the telegraph provides another example of this pattern in London, with wanting to solve social problems overcoming cost deterrents

[18] "LFEE Committee Minute Book 1854-58," 34.
[19] Young, *Fires, Fire Engines, and Fire Brigades*, 311.
[20] "FB Annual Reports," 1878, 1867: 5.

and post hoc cost justifications smoothing the technology's way into the brigade's daily routine.

Prior to the introduction of telegraphs or electric fire alarms, the LFEE relied on individual citizens or police constables bringing the alarm directly to one of their stations. The LFEE preferred to work with the police and in August of 1832 laid out the call pattern they hoped the Metropolitan Police would adopt in bringing fires swiftly to their notice.[21] To grease these wheels, the LFEE would give constables a small award for raising the alarm and sometimes even covered their cab fare if it was a long way to travel to get to the nearest station.[22] A similar method was employed to encourage regular citizens to bring notice of fires to an LFEE station first. Under the 1707 Act for Preventing Mischiefs by Fire the first engine to attend a fire within London would receive a 30s. reward from the local parish while the second and third engines would receive 20s. and 10s., respectively.[23] Thus, if the LFEE engine was first to a fire and received the 30s. then the one shilling reward they gave to the citizen raising the alarm would still garner the LFEE a 29s. profit and keep the brigade in good standing with their local community.[24]

This system of paying citizens to report fires, however, was ripe for fraud—or so believed urban citizens. For example, the antagonist in R.M Ballantyne's novel, *Life in the Red Brigade*, is someone who makes his living by reporting fires to the fire brigade. The character, Phil Sparks, called himself an "appendage o' the fire brigade" and when there were no fires to report he would sometimes create a fire so he could do so.[25] As we saw in chapter 2, this

[21] "LFEE Committee Minute Book 1832-33," 11–12.
[22] Wright, *Insurance Fire Brigades 1680-1929*.
[23] Blackstone, *British Fire Service*, 61.
[24] The practice of paying alarm raisers also carried over into the MFB. "Fire Brigade Subcommittee Minutes, October 1865-July 1884" (Metropolitan Board of Works, 1884 1865), 50, MBW/974, London Metropolitan Archive.
[25] R. M. Ballantyne, *Life in the Red Brigade ; and, Fort Desolation* (London: J. Nisbet & Co, 1887), 56–57, http://hdl.handle.net/2027/aeu.ark:/13960/t6h13df49.

was precisely the fear that the Calcutta legislative council feared would happen if they included a provision in their fire brigade legislation for paying citizens for reporting fires. Specifically, they worried that "coolies and the like" would abuse the system and since a municipal fire brigade "had no personal interest" in getting to certain fires more rapidly than others several of the council members argued that there was no need for that clause in Calcutta's fire brigade act. So, instead, the Council left it to the byelaws of the brigade, who kept the provision in for a number of years.[26] So, despite rising concerns about citizens abusing the fire alarm reward system, both London and Calcutta's fire brigades continued to use them even after municipalization.

While the manual alarm system could be fraudulently manipulated by citizens, the manual alarm system also created opportunities for disciplinary breakdowns in the firemen themselves. Prior to the fire brigade adopting the telegraph, any message sent from one fire station to another had to be conveyed either by a paid runner or by a fireman. The paid runner might pocket the coin and not deliver the message, so the brigade would only pay after a runner's message had been confirmed. For firemen, the danger was distraction and delay. When returning from fires or from delivering messages, the firemen were expected to be back at their stations and on duty within a specified time frame, and if they did not they could be fined or even dismissed. In 1881, the MFB dismissed two different firemen for not being timely: one fireman, Thomas Pope, was "1 hour 10 min overdue and drunk on his return" while fireman Robert Bowe was dismissed for "Delaying on a message—[and being] drunk on return."[27] Both of these firemen showed the dangers of allowing firemen to be

[26] "Bengal Acts, 1862-1876," 11; *Proceedings of the Council...*, VI:67.
[27] "Retirements and Dismissals (1876-1913)."

alone outside of the station house, and these kinds of actions provided more impetus for an alternative message system.

Introducing the telegraph to the fire brigade as that alternative system, however, took almost as long getting steam fire engines. The telegraph was first recommended to the LFEE in 1846, but was not adopted until 1862.[28] In 1847, the LFEE Committee laid out its reasoning for why it would not adopt the telegraph, stating:

> [That] in consequence of the great expense and the difficulty which would still remain of getting the call conveyed to the station nearest the fire—and further—the probability of this mode of communication being improved and becoming less expensive, and of its being adopted by the Metropolitan Police—this proposal be declined.[29]

In this resolution, the LFEE laid out three concerns that would have to be addressed before they could adopt the telegraph in their stations: cost, methodology, and coadoption. In 1859, the LFEE Committee chairman continued to hold that connecting their stations by telegraph was not "desirable" and that they declined to do so.

Yet, about three years later, the LFEE acquiesced and began connecting their stations via telegraph. Of the concerns the Committee expressed in 1847 each had been assuaged to a sufficient degree. On cost, telegraphic communication did get cheaper and connecting four stations would cost the brigade no more than £60 a year, which the Committee deemed reasonable.[30] For methodology, the new Chief Officer—Capt. Eyre Massey Shaw—from 1861 had some experience with the telegraph from Belfast and his time in the Army and was able to devise a method for communicating calls efficiently that satisfied the Committee.[31] And for coadoption, the City Police had already adopted the

[28] "LFEE Committee Minute Book 1842-46," 229.
[29] "LFEE Committee Minute Book 1846-50," 90–91.
[30] "LFEE Committee Minute Book 1860-63," 227.
[31] "LFEE Committee Minute Book 1863-66," 71–72.

telegraph by 1860, though he Metropolitan Police did not adopt it until after the riots in 1866.[32] Each of these factors helped pave the way for the telegraph, but it was really the LFEE Committee's certainty that they wanted to hand over the brigade to the municipal government after the disastrous Tooley Street Fire in 1861 that made it an easier sell. In other words, the knowledge that the fire insurance companies would not have to bear the burden of the telegraph's annual costs for long, helped push them toward adoption.

After the LFEE took up the telegraph, just like with steam fire engines, they engaged in post-hoc justifications for the cost. Captain Shaw made the first justifications four months after adopting the telegraph. For the 2,582 telegraph calls and stops made during those four months, Shaw estimated it would have cost the LFEE about £129/2/-, while the telegraph had only cost "£19.8.9—making a saving of £109.13.3," which Shaw then used to justify expanding the telegraph system to a further three stations.[33] Shaw went on to show that within its first year, the telegraph had saved the LFEE £267/16/2 and more than made up for the £60 annual payment to the telegraph company.[34] While these justifications made it appear inevitable that the fire service would adopt telegraphic communication, it was anything but inevitable. Only with a new fire Chief, a changing funding landscape, and municipal solidarity did the adoption of the telegraph become a feasible option for the London fire brigade. Yet, it became a critical piece of the brigade's infrastructure.

By municipalization in 1865, both steam fire engines and the telegraph were becoming central pieces of equipment for the fire brigade and forced the men of the brigade to conform to their use [See Figure 4]. While Braidwood had needed to send his firemen to

[32] Chris Williams, *Police Control Systems in Britain, 1775–1975: From Parish Constable to National Computer* (Manchester University Press, 2015), 121–26.
[33] "LFEE Committee Minute Book 1863-66," 11–12.
[34] "LFEE Committee Minute Book 1863-66," 53.

the South Eastern Railway Company to learn how to use and maintain steam engines, Shaw was able to build on the expertise already building within the fire brigade.[35] Moreover, as the Royal Navy continued their own transition over to steam power, the ex-sailors recruited by the MFB were more likely to join the brigade already possessing steam engine experience.[36] The telegraph, on the other hand, had to be taught to new recruits as the fire brigade used its own codes for transmissions. By the 1870s, the telegraph had become so central to the brigade that a fireman being "too lazy to learn the used of the telegraph" was grounds for the dismissal of fireman Thomas Thompson.[37] Thus, as the fire brigade adopted new technologies to solve social problems these technologies in turn fostered greater professionalization and technical expertise.

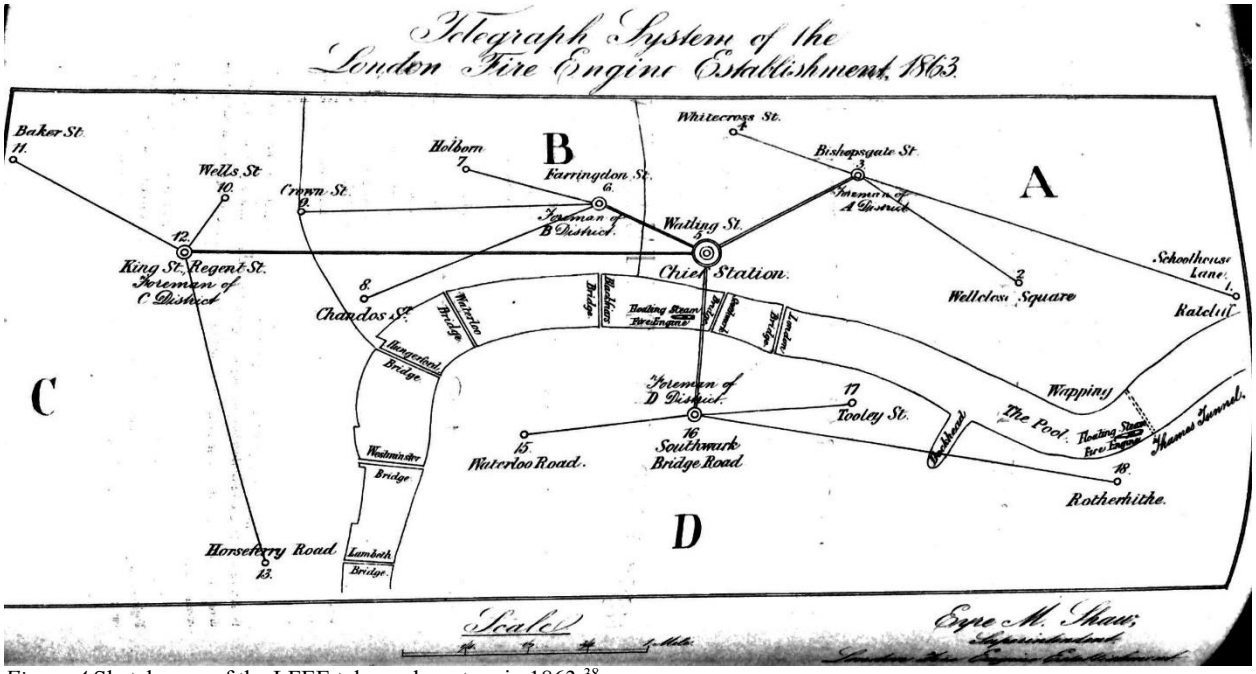

Figure 4 Sketch map of the LFEE telegraph system in 1863.[38]

[35] "LFEE Committee Minute Book 1851-54," 122.
[36] Conley, *From Jack Tar to Union Jack*, 44–47.
[37] "Retirements and Dismissals (1876-1913)."
[38] "LFEE Committee Minute Book 1863-66," 71–72.

Ultimately, the LFEE adopted both steam fire engines and the telegraph due to growing distrust. Whether not trusting Londoners to be up to the physical challenge of pumping the floating fire engines, or not trusting Londoners to forego taking advantage of fire alarm gratuities, or not trusting firemen themselves to return to their stations in a timely manner, these two new technologies helped to smooth over this distrust. In turn, these technologies actually helped to further isolate the fire brigade from their community. With steam engines, the firemen had hardly any direct contact with citizens at fires and the Metropolitan Police began setting up stricter cordons around fires to keep it that way. With the telegraph, firemen had fewer interactions with those raising the alarms, a further isolation. Coupled with the chief officer consistently rotating firemen from station to station, this isolation from the community furthered fire brigade professionalization and the development of a unique culture. Unfortunately, the isolation also encouraged Londoners to begin taking the fire brigade for granted and venerate them as heroes at the same time. This would become a real problem for the brigade when they introduced a new technology—electric street fire alarms—in the 1880s and saw the percentage of false alarms more the double.[39] Even as London's fire brigade distrusted Londoners and believed them incapable of their own fire protection, Londoners' trust in their brigade had only grown stronger over the nineteenth century. That trust would be shaken by the 1902 Queen Victoria Street Fire, discussed in the next section.

4.2 Pompier Ladders: Despair after Queen Victoria Street, 1902

On June 9 1902, a daytime conflagration that broke out in London's Queen Victoria Street claimed ten young people's lives and the destroyed of much property in warehouses

[39] "FB Annual Reports," 1888.

and workshops belonging to the General Electric Company. The fire "broke out in a waste-paper basket…and spread with terrible rapidity and dense clouds of smoke" from its origin point on the fourth floor.[40] *The Times* noted that the fire was "within three hundred yards from the chief City fire-station" so the MFB firemen were quickly on site, but they could not save more of the girls and boys employed on the fifth floor because the Watling Street fire-escape "was too short by a few feet to reach the upper floor."[41] The author of an article in *The Spectator* concluded that "it is clear that the life-saving apparatus available at short notice in the City, with its lofty buildings, is at present by no means adequate, and must be made so without delay, —if, indeed, the whole Fire Brigade does not require reorganization."[42] Reorganization could be shorthand for the adoption of new technologies. The Queen Victoria Street Fire frightened Londoners who lived in an ever-growing city and shook their trust in the Fire Brigade's ability to save them. The answer Londoners settled upon: adopt new life-saving fire apparatuses.

The 1902 Queen Victoria Street Fire saw ten young people killed and Londoners devastated by the spectacle. The aftermath of the fire was characterized by a critical media response, a public inquest, and particular solutions. The public inquests brought out experts who diagnosed what went wrong and generally offered technological solutions. The public, then, grabbed onto some of these solutions and pushed them on the Fire Brigade. Governing bodies like the London County Council thus had to either cave to public pressure or suffer the political consequences. This section will show this process in practice following the Queen Victoria Street Fire and discuss the implications of its chosen technological solution: the pompier ladder. In the end, the upward extension of London's skyline was a

[40] Blackstone, *British Fire Service*, 291.
[41] "Fatal Fire In The City," *The Times*, June 10, 1902, The Times Digital Archive.
[42] "A Great and Fatal Fire Took Place in a Warehouse," *The Spectator*, June 14, 1902, Spectator Archive.

systemic problem, while the pompier ladder was a particular or individual solution. The pompier ladder could not save everyone endangered by fire, but it could restore Londoners' trust in their fire brigade.

Before the Queen Victoria Street Fire, Londoners' trust in their fire brigade had already been shaken by scandal. The scandal centered on James Sexton Simonds who was the first internally promoted chief officer of the Metropolitan Fire Brigade after Captain Shaw retired in 1891.[43] In 1892, he applied his engineering expertise to improving fire escapes and was a joint patentee with G. Bray for a fire escape that was made by Rose & Co. for the Fire Brigade. This became an issue after the London County Council prohibited their officials "from taking out patents for inventions without first obtaining the permission of the Council" and Simonds failed to report his own conflict of interest. Despite disposing of his interest in the patent in 1893, Simonds still recommended in 1895 that the LCC buy the £66 fire escapes from Rose & Co. rather than the £55 escapes from Bayley & Co., which raised suspicions among the Council and encouraged them to investigate.[44] While the fire escapes or hose tenders that Simonds had an interest in may have been better constructed or more efficient than their alternatives, Simonds' interest in them meant he could not be impartial in the Council's eyes and tainted the whole process. Still, the Council allowed Simonds to retire with a gratuity of £1,650 (a year and a half's salary) in 1896, thereby solidifying the Council's control over the Fire Brigade and ending their experiment with internal promotion.[45] Moreover, Simonds became the prime example of what could happen if new technologies were not adopted in at least an outwardly impartial way.

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[43] The next three chief officers were all hired from Royal Navy, much to the chagrin of London's career firefighters who found their lack of fire protection knowledge a liability. Holloway, *Courage High!*
[44] "Captain Simonds And The Fire Brigade," *The Times*, June 16, 1896, The Times Digital Archive.
[45] "The Retirement of Mr. J.S. Simonds," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XX, no. 232 (September 1, 1896): 44.

While Simonds' scandal shook Londoners' trust in the fire brigade, it was soon forgotten as Britain dealt with the Second Boer War and the turn of the century, but the Queen Victoria Street Fire demanded Londoners confront the realities of their fire protection. This particular fire became an issue for several reasons. First, although property loss did not come close to the 1666 Great Fire of London or the 1861 Tooley Street Fire, the ten fatalities comprised the most significant loss of life to a single fire in living memory.[46] Second, the fire took place right in the middle of London where it attracted a large crowd of witnesses. The London newspapers quickly spread the tragic news even further.[47] Finally, the fire became infamous due to its combination of tragedy and farce. The loss of life immediately made the Queen Victoria Street Fire a tragedy—compounded by the victims' ages as the victims were primarily teenagers and young women, the youngest 13 and the eldest 21,which elicited a lot of sympathy in the press.[48] The manner of their non-rescue elevated the whole tragedy to the level of the absurd.

The fire broke out in a converted warehouse-factory building about 300 yards from Watling Street station, which was the Metropolitan Fire Brigade's headquarters station. Londoners expected that their Fire Brigade's chief station would be the best-equipped, the most modern: a model station. The Queen Victoria Street Fire proved that was not the case.[49] The Watling Street fire escape arrived at the fire within twenty minutes of the fire's

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[46] In this way, the Queen Victoria Street Fire shared many similarities with the later Triangle Shirtwaist Fire in New York City. Both fires brought public attention to the working conditions of young factory women and the dangers of tall workshops and factories in cities. Richard Greenwald, *The Triangle Fire, the Protocols Of Peace, and Industrial Democracy In Progressive Era New York* (Temple University Press, 2005); Jo Ann Argersinger, *The Triangle Fire: A Brief History with Documents* (Macmillan Higher Education, 2016).

[47] "Fatal Fire In The City"; "The Disastrous City Fire," *Illustrated London News*, June 14, 1902, Illustrated London News Historical Archive.

[48] The named victims were "Phyllis Elliott, 14 years old...Lily Mansell, 16 years old...Jessie G. Hastie, 15 years old...Mabel Amos, 17 years old...Gladys Chambers, 14 years old...Mabel Garrett, 15 years old...Arthur Vernon Paget, 21 years old...Violet Hodgson, 13 years old...Lily Amor, 21 years old...and a boy named Chapman. [whose age is not given]" "The Fatal Fire In The City," *The Times*, June 11, 1902, The Times Digital Archive.

[49] "Fatal City Fire: Loss of Ten Lives," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XXVI, no. 302 (July 1, 1902): 9.

discovery, but it could not reach the workers trapped on the upper floors because it was "too short by a few feet."[50] The inquest into the fire noted that the height of the windowsill on the floor where most of the victims were stuck was 55 feet. The Watling Street escape ladder, unfortunately, was only 50 feet in length and "in practice" only reached a height of 48 feet, 6 inches.[51] Londoners watched as the Fire Brigade's escape proved useless. As a *Times* correspondent wrote "a shocked crowd saw helpless women throw themselves, one after the other, from the fourth floor into the street, some 80ft. below, because the one fire-escape present refused to work."[52] The Brigade brought up another, longer, fire escape ladder from Southwark and the fire engines quickly extinguished the fire itself, but they could not save the nine victims who died on the fourth floor.[53]

The images of a too-short ladder and dead young women proved evocative. The London press published a flurry of letters to the editor and articles in the weeks following the June 9 fire. These letters and articles took two approaches. First, they sought to ascribe blame for the Fire Brigade's shortcomings. Second, they endeavored to offer technological or institutional suggestions for overcoming those shortfalls. Among those eager to ascribe blame was Lord Ernest Hamilton, a Conservative MP and writer. As a firsthand witness to the Queen Victoria Street Fire, Hamilton felt particularly justified in putting his opinions before the public and wrote multiple letters to the editors of the *Times*, which they published. In his first letter, Hamilton noted that among Londoners generally it was believed that the Fire Brigade "like the King…can do no wrong," that it was "the idol of the public…and to

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[50] "Fatal Fire In The City."
[51] "The Fatal Fire In The City," *The Times*, July 30, 1902, The Times Digital Archive.
[52] The correspondent was Peter Lindley of 30, Fleet-Street. "Fatal Fire In The City."
[53] Several rescues were effected by use of an impromptu jumping sheet made from a fruit cart tarpaulin. Another rescue was made by a fireman using a length of telephone cable to lower himself from the roof, but he was only able to save two of the inmates before being overwhelmed by the heat and smoke. Finally, the Brigade was able to use the special extra-long fire escape ladder from Southwark Station to rescue two more women before that ladder was rendered unusable. Blackstone, *British Fire Service*, 292.

cast any aspersions on the efficiency of its methods will doubtless be looked upon as blasphemy," but Hamilton felt compelled to try anyway. He described his experience of the fire, noting the thickness of the smoke and the speed with which the actual fire was extinguished, but he had specific critiques for the firemen. Once the fire had been gotten under control, Hamilton observed several firemen engaged in "a policy of masterly inaction" where Hamilton perceived them to be lacking initiative whereby they might have saved other victims from the flames. For Hamilton, this inaction was compounded by the fact that the firemen absolutely ignored the people shouting in the windows opposite the fire that tried to alert the firemen that there were still people in the burning building. Claiming that the firemen were "following the general principle that all persons except those crowned with the helmets of officialdom are idiots and unworthy of attention," Hamilton noted that the firemen ignored the shouting crowd and lost even more time that could have been used to rescue the victims in the building.[54]

While Hamilton blamed the individual firemen for their inaction, others laid the blame more on the London County Council. *Times* correspondents like the anonymous "EMPLOYER" noted that the LCC were not only responsible for managing the Fire Brigade, but also the regulation of "industrial buildings within the metropolitan area" and enforcing the required safety measures in the case of fire.[55] The building in which the Queen Victoria Street fire occurred contravened multiple sections of the 1894 London Building Act. For example, section 68 provided that all buildings over 125,000 ft³ had to construct

[54] Starting from Braidwood's tenure with the LFEE and codified even more by Shaw and the MFB, London firemen were trained to listen only to their officers' orders rather than the entreaties of the crowd around them. This policy served to preserve firemen's lives and apparatuses from what could be impossible or fatal attempts at rescuing doomed fire victims. Hamilton and Buszard, "The City Fire"; Braidwood, *On the Construction*; Shaw, *Fire Protection*.

[55] Ernest Hamilton, Employer, and Frank E. Rosher, "To The Editor Of The Times," *The Times*, June 13, 1902, The Times Digital Archive.

"lobbies, corridors, passages, and landings, and also the flights of stairs… [in] fire-resisting material and carried by supports of a fire-resisting material." While that provision dealt with internal means of escape from a fire, London's increasingly tall buildings needed additional avenues. Section 63 required any building over sixty feet tall to install "such means of escape in the case of fire for the persons dwelling or employed therein as can be reasonably required under the circumstances of the case." This vague rule repeated the same provision from the 1891 Factory and Workshop Act, expanding it to all taller buildings, not just those employing forty or more workers.[56] Neither Act, however, specified the type or style the "means of escape" should take.[57] Both Acts also only specified these provisions for new construction—grandfathering in older buildings, like the one on Queen Victoria Street, which had only an illegal small internal wooden spiral staircase to access the upper floors. Similarly, a letter to the editor from Edwin Sachs and the British Fire Prevention Committee also aimed at the LCC's role in regulating buildings. Sachs claimed that "there is little or no control exercised as to the uses of buildings or parts of buildings" and that given that lack of regulation the buildings became "exceedingly dangerous" with fatal results.[58]

The *Times* editors cut a middle path for their critique and suggested that the London County Council should reexamine the Fire Brigade's management and its chief officer—Captain Lionel de Latour Wells. The editors hoped:

> that public opinion will now require from the [LCC] councilors something more than unavailing expressions of regret; and will expect them to collect

[56] London County Council, *London Building Act, 1894*, 170–71, 43–46, 59, 52–53, 236.
[57] For example, following the Queen Victoria Street Fire, Merryweather and Sons began advertising their fire escape "chute" as a possible way for people to exit burning buildings quickly. Firefighting apparatus makers sought to capitalize on these kinds of tragedies even while promising that their products could prevent them from happening again. "Advertisement: Merryweather on Life Saving from Fire," *Illustrated London News*, June 21, 1902, Illustrated London News Historical Archive.
[58] Edwin O. Sachs and Ellis Marsland, "To The Editor Of The Times," *The Times*, June 12, 1902, The Times Digital Archive; Similar to Calcutta, it was often the mixed- or multi-use buildings that created the most fire danger. In both cities it was an economical use of space and limited property, but ultimately made the cities more dangerous. Chattopadhyay, *Representing Calcutta*.

> information concerning the organization and equipment of fire establishments elsewhere, to see that the brigade under their control is brought up to the highest attainable level of efficiency instead of being permitted to remain at or near the lowest.[59]

The *Times* editors hopes proved warranted as first the public, then a legal inquest, and then other fire protection experts weighed in on the shortcomings of the Fire Brigade. One fire protection expert wrote an anonymous pamphlet claiming Captain Wells was the "responsible man" who had not "shown himself an efficient fire chief" and had instead made himself a "champion opponent of reform," rejecting calls for new equipment or apparatuses.[60] This lack of technological innovation also showed in the inquest jury's verdict. When asked if the Fire Brigade had been legally negligent, the jury responded "No, *considering the appliances at their disposal*."[61] According to the jury, then, the Fire Brigade's shortcomings were in its apparatus and the answer for how it should proceed was through improving the same. These sentiments were reflected in popular culture more broadly. In August 1902, Punch ran several different jokes about the Metropolitan Fire Brigade's apparatus. One went, "An International Fire Exhibition is to be held next year, and the English authorities have been invited to contribute to the Retrospective Section." Another was more pointed about Captain Wells. It claimed, "Captain Wells has declared that the appliances used by our Fire Brigade are the best in the market. He is now busy getting better ones." Such jokes revealed Londoners' anxieties around their fire protection that arose following the Queen Victoria Street Fire.[62]

Commentators offered many different technological solutions after the Queen Victoria Street Fire. Some argued for the installation of automatic sprinkler systems and fire

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[59] "The Letter Which We Published Yesterday...," *The Times*, June 12, 1902, The Times Digital Archive.
[60] In this way, Phoenix was conflating new apparatus with reform or progress. Phoenix, *The Decay of London's Fire Brigade: A Plea for Public Safety* (London: William Heinemann, 1902), 51.
[61] "The Fatal Fire In The City," July 30, 1902, emphasis added.
[62] "Charivaria," *Punch*, August 13, 1902, 105, Hathi Trust.

alarms in buildings.[63] Some called for building metal fire escape ladders on the outsides of all buildings above three stories.[64] While these recommendations focused on the buildings themselves, other writers heaped their technological recommendations on the fire brigade itself. One avenue of suggestions focused on London's fire engines claiming that the best MFB engines could only pump "450 gallons a minute," while cities like Liverpool had engines capable of pumping 1,800 gallons per minute.[65] This observation may have elicited some consternation among Londoners, but it did not appear to solve the immediate issue brought up by the Queen Victoria Street Fire, which was how to save lives from tall buildings.

To handle upper story rescues, experts began to focus on a particular fire protection apparatus: the pompier ladder. Many Londoners probably did not know what a pompier, or "hook," ladder was, but the author of the damning post-Queen Victoria Street Fire pamphlet, *The Decay of the London Fire Brigade*, made it the centerpiece of their recommendations. The author, calling himself or herself "Phoenix," opted to make their pamphlet's frontispiece a picture of various lifesaving apparatuses [Figure 5], notably including several pompier ladders.[66] Blackstone and other fire service professionals have suspected that "Phoenix" was actually Edwin O. Sachs the founder and driving force behind the British Fire Prevention Committee. Sachs was known to have had personal differences with Captain Wells and the vitriol heaped on Wells by Phoenix's pamphlet might support this theory. [67]

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[63] "The Letter Which We Published Yesterday..."
[64] Sachs and Marsland, "To The Editor Of The Times."
[65] The author of this piece smoothly elided the fact that a fire engine of that size would be almost impossible to navigate through London's rabbit warren of streets and alleyways, making it an impressive but impractical choice for the MFB to adopt. Phoenix, *Decay of London's Fire Brigade*, 25.
[66] Phoenix, i.
[67] Blackstone and other fire service professionals suspected that "Phoenix" was actually Edwin O. Sachs the founder and driving force behind the British Fire Prevention Committee. Sachs was known to have had

A LIFE-SAVING BRIGADE—SYRACUSE, N.Y.

(In front are hook-ladders, and in the case in the centre a life-gun. The London Brigade has neither of these. Behind the gun is a jumping-net; London uses heavy jumping-sheets. Life-lines are prominent; in London they are almost neglected. Each man has a swivel hook attached to his belt—instantly adjustable. In place of an automatic hook the London Brigade men have cords, which they must tie doubly. The Syracuse men, however, have not polished brass helmets; London men have.)

Figure 5 Frontispiece featuring pompier ladders from Phoenix's Decay of London's Fire Brigade (1902).

In fact, later in the pamphlet, Phoenix introduced the pompier ladder by saying if it had been available to trained firemen at the Queen Victoria Street Fire then "probably every girl would have been saved." This counterfactual was a provocative statement, but ultimately unprovable. Phoenix, perhaps following the call from the *Times* editors to compare with other fire brigades, provided examples of pompier ladders at work in other cities. The author noted that British fire chiefs during an 1894 tour of the continent saw pompier ladders used in Berlin, Vienna, and Budapest. These chiefs suggested that pompier ladders could "be used in many places where it is impossible to work fire escapes, extension ladders, etc.," and the chiefs went on to recommend their adoption.[68] While the pompier ladder originated in

personal differences with Captain Wells and the vitriol heaped on Wells by Phoenix's pamphlet might support this theory. Blackstone, *British Fire Service*, 298.

[68] Phoenix, *Decay of London's Fire Brigade*, 14–15.

France in 1826, it did not come into the British market seriously until the 1880s.[69] *The Fireman* ran its first article on pompier ladders in 1886 with accompanying illustrations to show their potential benefits, and another article a decade later on the training of New York City firemen to use pompier ladders [Figure 6].[70] The London Fire Brigade had knowledge of pompier ladders, and had even purchased a few before the Queen Victoria Street Fire, but opted not to use them because Captain Wells "did not consider them suitable for London," much to Phoenix's dismay.[71]

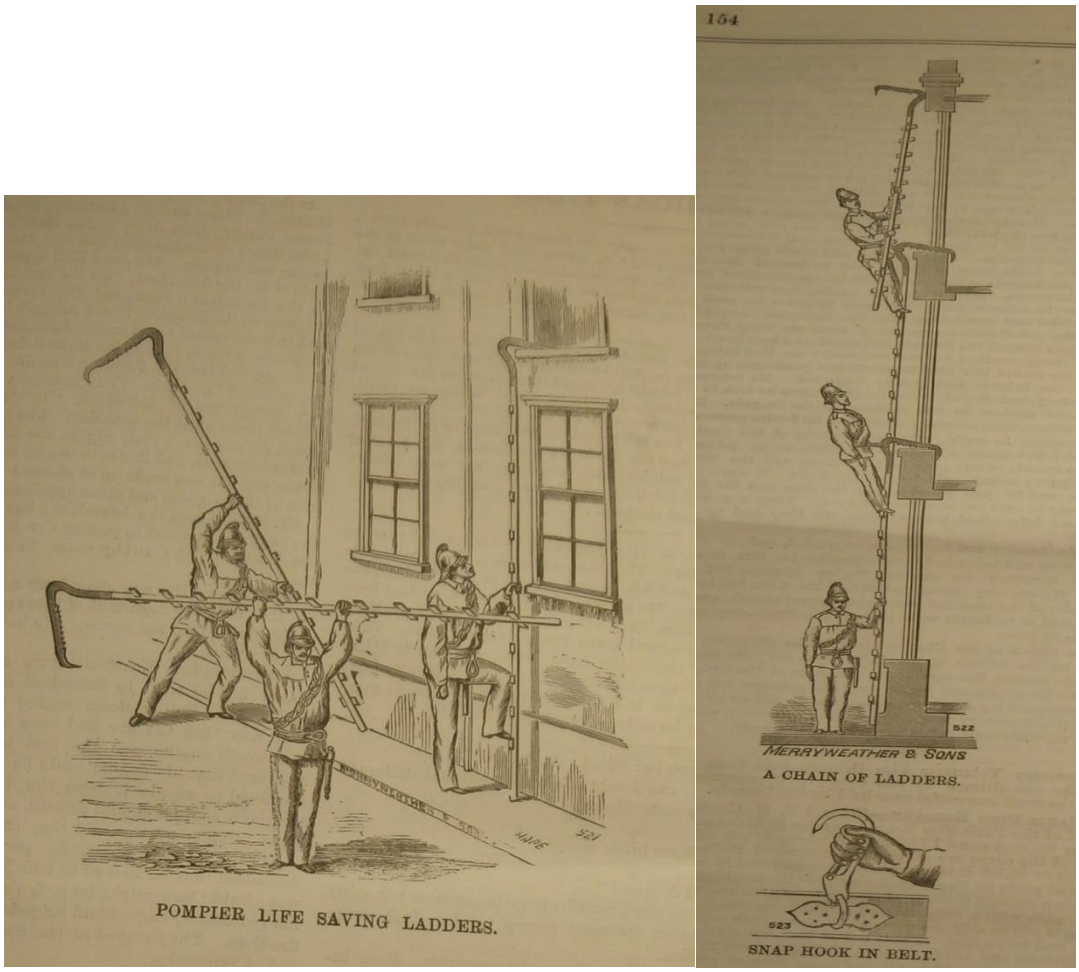

Figure 6 Images of Pompier ladder drill from The Fireman (1886).

[69] Blackstone, *British Fire Service*, 295.
[70] "Pompier Life Saving Ladders," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* IX, no. 8 (February 1886): 154–55; "Training Pompier Men," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XIX, no. 225 (February 1, 1896): 157–58.
[71] Phoenix, *Decay of London's Fire Brigade*, 16.

Yet, the public outcry by experts like Phoenix, and from Londoners more generally, placed immense pressure on the London County Council and the Metropolitan Fire Brigade to adopt pompier ladders. Whereas the 1902 Fire Brigade Annual Report listed no pompier ladders, by 1905 the Brigade had bought 174 pompier ladders and distributed them throughout London.[72] By 1910, this number had almost doubled to 319 pompier ladders and been accompanied by the addition of 328 "Hook belts," which allowed firemen to clip onto these ladders.[73] This came out to about three pompier ladders per fire station and one ladder for every four firemen in London. The rapid adoption of pompier ladders in London even inspired their use elsewhere in the Empire. In 1908, the Calcutta Fire Brigade purchased a pompier ladder from England and it "proved itself useful" in a very short period.[74] The rapid and broad adoption of pompier ladders marked the attempts by early-twentieth century fire brigades to prove their desire to save lives from fire and in so doing assuage community fears.

While Londoners could sleep safer at night knowing their fire brigade had pompier ladders, the same could not be said for the firemen themselves. Geoffrey Blackstone, himself a firefighter trained in pompier ladder use, denied that pompier ladders had "through accidents at drill…cost more lives than they have saved," but he did admit that there were a "number of drill accidents" attached to pompier ladders.[75] Most of those drill accidents resulted in injuries that could be recovered from—broken bones, scrapes, or bruises—but

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[72] James de Courcy Hamilton, "Report of the Fire Brigade Committee of the London County Council Submitting the Report of the Chief Officer of the Fire Brigade for the Year 1905" (London County Council, December 19, 1905), 7, LCC/PUB/01/086/0936, London Metropolitan Archive.
[73] The introduction of telescoping turntable ladders mounted on petrol-motor chassis would make pompier ladders nearly obsolete within the next two decades. "LFB Annual Report 1910," 9.
[74] F. L. Halliday, "Report on the Working of the Fire Brigade in the Town and Suburbs of Calcutta and in Howrah During the Year 1907-1908" (Bengal Secretariat Press, 1908), 5, IOR/V/24/1676, British Library, India Office Records.
[75] Blackstone, *British Fire Service*, 296.

one pompier ladder accident in London as noted above led to death. In September 1913, Fireman W.H.E. Martin was practicing his pompier ladder drill and missed his footing moving from the first to the second ladder. He fell a little over 25 feet striking another pompier ladder on the ground with his face and neck. Martin was removed, unconscious, to St. George's Hospital, but he never regained consciousness and was declared dead the next day.[76] Such events highlighted the dangers involved in firefighting, particularly when life-saving was involved. Indeed, the most heroic depictions of firefighters usually involved the firefighters putting themselves in harm's way to save someone else. These depictions served to make community members safer, but encouraged firefighters to further endanger themselves.

While many Londoners believed the Queen Victoria Street Fire revealed shortcomings in the Brigade or its management, it also brought home the reality that London was outgrowing the Fire Brigade's ability to save lives from or control fires in its buildings. The 1894 London Building Act limited new buildings to no more than 80 feet tall, but, when the majority of Fire Brigade fire escapes only reached 50 feet, even that was too tall.[77] The solution to this problem, proffered by Londoners and fire protection experts was more firefighting equipment like the pompier ladder. London's growing building height was a systemic problem, particularly with the introduction of steel girders and steel-enforced architecture in the Edwardian Period, which made it easier to build taller, stronger buildings.[78] The pompier ladder, in contrast, was a particular or individual solution to this

[76] The advent of turntable ladders, building-attached metal fire escapes, and other types of extendable ladders lessened the need for pompier ladders, but did not completely eliminate them until well into the twentieth century. LFB, "Death of Fireman W.H.E. Martin as a Result of Accident During Hook Ladder Drill," 1913, 1–2, LCC/FB/STA/01/005, London Metropolitan Archive.
[77] London County Council, *London Building Act, 1894*, 43–44.
[78] Alastair A Jackson, "The Development of Steel Framed Buildings in Britain 1880- 1905," *Construction History* 14 (1998): 21–40.

problem. Pompier ladders may have been able to make up the difference between a 50-foot fire escape ladder and a 60-foot high window, but it could not prevent 70- or 80-foot buildings from being constructed. Furthermore, the Fire Brigade only drilled their pompier ladders on a tower 50 feet high, which could not prepare their firemen for the tallest buildings in the metropolis.[79]

Therefore, while the Metropolitan Fire Brigade adopting pompier ladders could restore Londoners' trust, it did not and could not solve the growing fire danger that taller buildings represented. Either way, this event showed how loss of public trust could encourage fire brigades to adopt new fire protection technologies. The London public's despair at the tragic Queen Victoria Street Fire contributed directly to the Metropolitan Fire Brigade buying more pompier ladders as the brigade strove to regain the public's trust. In turn, much like with steam engines and the telegraph, adopting these new technologies forced the brigade itself to institute new drills and discipline. In the next section, we will see how a drive for discipline and racial differentiation in Calcutta's fire brigade contributed to the adoption of petrol-motor engines.

4.3 Petrol-Motor Engines: Disciplining the Calcutta Fire Brigade, 1911–18

As seen in the last chapter, the Calcutta Fire Brigade considered personnel one of its most important problems to solve. While the brigade limped along in a state of imperfect discipline in the fin-de-siècle, the 1910 Nimtolla Fire brought the city's fire protection under the scrutiny of the Municipal Commissioners who decided to reorganize the brigade. Following the Nimtolla Fire's huge losses of about 96 buildings and goods estimated to be

[79] LFB, "1913 Hook Ladder Accident," 3.

worth around Rs. 700,000, the Commissioners resolved that the Calcutta Fire Brigade was "no longer adequate for the requirements of the City, and that it need[ed] to be replaced by a staff employed for the special purpose of fire protection."[80] To that end, the Commissioners started by dismissing the CFB's superintendent, head engineer, and four of the White sergeants that served both in the police and the fire brigade for improper conduct.[81] This created a vacuum that the Municipal Commissioners hoped to fill with discipline and a reorganized brigade.

This section traces how the Calcutta Fire Brigade—through reorganization and the adoption of new technologies—sought to solve its self-identified discipline problems. These actions had varied results. On the one hand, the CFB's adoption of new petrol-motor apparatuses provided their creator, Merryweather and Sons, with essential imperial advertising and showed how these technologies could be adapted to colonial settings. On the other hand, petrol-motor apparatuses furthered the distinctions between the White European and Indian members of the fire brigade and even lessened the number of Indian firemen needed to staff the brigade. This served the ends of the new fire chief, Bernard Westbrook, who claimed in his reorganization report that while "a few of the present Indian staff can be retained…the majority are useless."[82] Thus, even while reorganizing and adopting new petrol-motor engines created the opportunity for increased professionalism and independence for the CFB it came at the expense of the Indian members of the brigade and further entrenched the racialized divisions within the brigade.

Those racialized divisions, however, had already been present from the CFB's municipalization in 1872. Organized as a subsection of the Calcutta police, the fire brigade

[80] *Report on the Reorganization of the Calcutta Fire Brigade*, 22.
[81] Halliday, "Annual Calcutta Police Reports 1899-1910," 1910.8-9.
[82] *Report on the Reorganization of the Calcutta Fire Brigade*, 35.

was placed in 1872 under the superintendent of the Police Reserve Force and all of the "European police sergeants and constables were made members," though they were not all attached the fire brigade permanently.[83] Instead, most of these constables and sergeants were called upon when a fire actually occurred and only four or five were put on dedicated fire brigade duty at the various stations. The permanent part of the fire brigade—apart from the rainy season—was primarily made of native Indians and followed the organizational patterns of the Indian Army, the Calcutta Police, or the Bengal Steam Department with White European officers over Indian subordinates.[84] The Indian fire brigade members were divided into *tindals* [petty officers based on lascar crew ranks], *khallassies* [deck-hands or dockworkers], and *syces* [horse grooms] with two *tindals* and ten *khallassies* at each of the five fire stations. The 1872 Municipal Administration Report for Calcutta outlining the pay-rates and number for each of these positions marked only one position for a "Fireman," among the European wages, and left the Indian members of the establishment apart.[85]

While the racial distinctions between different jobs within the Calcutta fire brigade caused some disgruntlement, the low pay and seasonal nature of the work made the situation even worse. The low wages assigned by the municipal government for Indian fire brigade members was a constant issue for the brigade trying to keep employees. In 1872, they stated that *tindals* would make Rs. 10 and *khallassies* only Rs. 6 a month, while the Bengal Steam Department had paid Rs. 14 and Rs. 8 respectively in 1837 for the same positions.[86] These

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[83] Hogg, "Calcutta Annual Police Reports 1870-75," 1872:15.
[84] Henry T. Bernstein, *Steamboats on the Ganges: An Exploration in the History of India's Modernization through Science and Technology* (Orient Longmans, 1960), 119; David H. Bayley, "The Police in India," *Economic and Political Weekly* 6, no. 45 (1971): 2287–91; Nair, *Origin of the Kolkata Police*; Roy, "Race and Recruitment in the Indian Army."
[85] Calcutta Corporation, "Calcutta Mun. Admin. Report, 1872," pt. Appendix 6.
[86] Bernstein noted that the wages for Indians "were extremely low by contemporary European standards" and that the cheapness of Indian labor actually "threatened to forestall the introduction of steam-power." Bernstein, *Steamboats on the Ganges*, 164–65; Calcutta Corporation, "Calcutta Mun. Admin. Report, 1872," pt. Appendix 6.

wages did not alter materially until reorganization in 1912 when the incoming fire chief made it a critical part of his plan as his "proposed increase in the pay [was] necessary to attract and retain the men" in the brigade. Westbrook's proposal was to increase the pay for *tindals* to Rs. 35 and for *khallassies* to Rs. 20 a month.[87] What a monthly pay increase could not solve, however, was the fact that the majority of the brigade were dismissed for the rainy season meaning three to four months without pay. These two factors contributed immensely to the brigade's technical and disciplinary difficulties as it transitioned into the twentieth century.

To solve these problems, the Calcutta Commissioners set about reorganizing the Calcutta fire brigade along two prongs of attack—changing the staff and adopting new technologies. The staff changes began after the Nimtolla Fire when the Commissioners dismissed six of the White officers at the top of the fire brigade.[88] The Commissioners followed this house-clearing with the appointment of a new chief fire officer from England, Bernard Westbrook, to oversee reorganization. They opted for Westbrook, the former chief of the Tunbridge Wells Borough Fire Brigade in Kent, since the Chief of the Bombay Fire Brigade was unavailable.[89] Westbrook went about advocating for increased pay for his whole staff, for a more consistent distribution of plant and personnel throughout the city, and for the adoption of new motor appliances and electric street fire alarms.[90] By increasing the pay Westbrook hoped to encourage retention of firemen in the brigade and by the adoption of new technologies he hoped to improve their professionalism, as had happened in London after the introduction of steam fire engines.

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[87] *Report on the Reorganization of the Calcutta Fire Brigade*, 4, 36.
[88] Halliday, "Annual Calcutta Police Reports 1899-1910," 1910:8-9.
[89] *Report on the Reorganization of the Calcutta Fire Brigade*, 1.
[90] For more on distribution of resources see Chapter 5. *Report on the Reorganization of the Calcutta Fire Brigade*, 10.

When Westbrook took over the Calcutta Fire Brigade, they had just started to transition toward motorized petrol-motor fire engines. Despite the costs of early adoption R.T. Dundas, Calcutta Commissioner of Police, who oversaw the Fire Brigade in 1910 noted in his annual report that the Brigade had "decided to purchase a motor fire-engine and tender at a cost of Rs. 45,000." Stuck in at the very end of the report it might have been easy to miss this short declaration or the fact that the new engine cost almost forty percent of the municipal contributions received toward the maintenance of the Brigade, which was only Rs. 116,631.[91] Yet, when considering reorganization, Calcutta's commissioners were committed to motorization. In 1911 and 1912, the commissioners purchased one petrol-motor fire engine and two petrol-motor tenders—essentially motorized hose carts with small pumps and some ladders—and approved requests for more petrol-motor apparatuses in 1913.[92] By 1919, they had acquired six motor fire engines, one motorized turntable ladder, and one motor ambulance [Figure 7].[93] Despite some concerns as to the costs concomitant with reorganization, the committee considered the professionalizing and protective potential of motorized fire engines critical for their city's brigade.

[91] R.T. Dundas, "Report on the Working of the Metropolitan Fire Brigade in the Town and Suburbs of Calcutta and in Howrah, 1909-1910" (Bengal Secretariat Press, 1910), IOR/V/24/1676, British Library, India Office Records.
[92] *Report on the Reorganization of the Calcutta Fire Brigade*, 33.
[93] Westbrook, "1919 CFB Annual Report," viii.

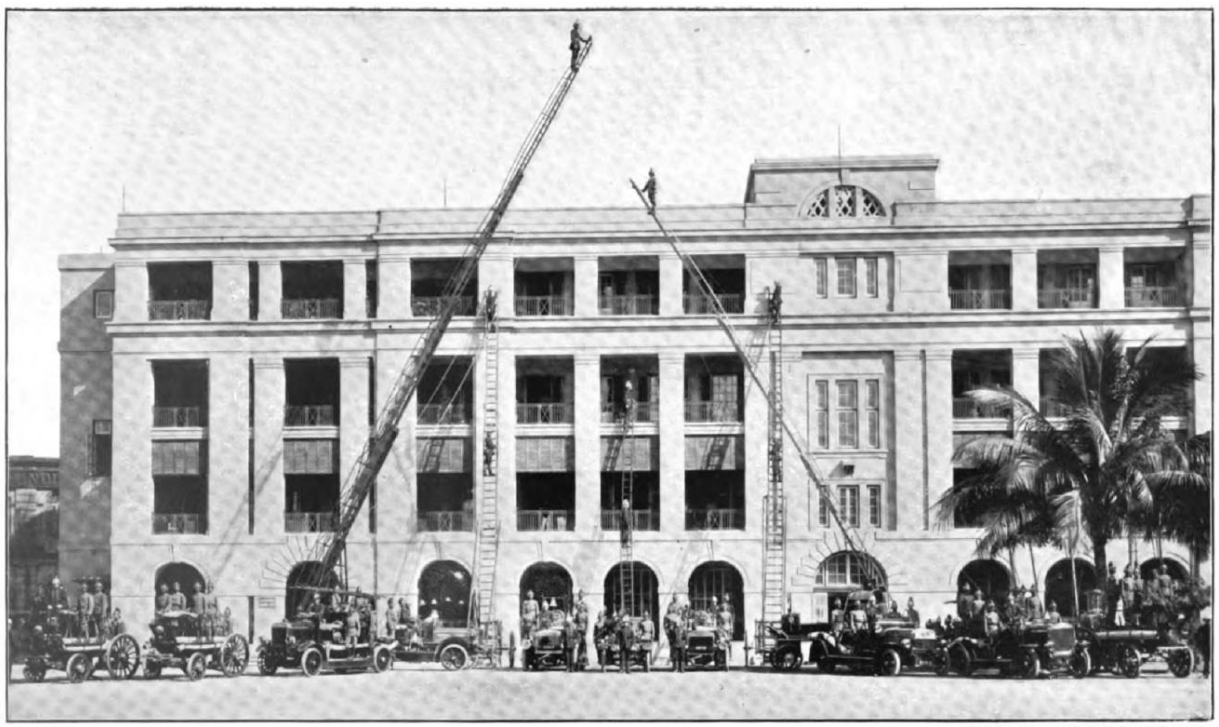

Photo by Bourne & Shepherd, Calcutta

CALCUTTA FIRE BRIGADE

(ENGINES, ETC., MARSHALLED IN FRONT OF THE NEW POLICE OFFICE BUILDINGS, LALBAZAAR. *See* Appendix I.)

Figure 7 Photograph of the Calcutta Fire Brigade in 1916 featuring their petrol-motor apparatuses, reproduced from Goode's Municipal Calcutta (1919).

Adopting petrol-motor engines had several effects for the brigade, but primarily it altered the brigade's necessary staff and its racial make-up. For instance, in his reorganization report, Westbrook noted that adding a petrol-motor fire engine to the Garden Reach station would necessitate "an extra engineer…, while the *syces* and driver would not be required."[94] In the Calcutta Fire Brigade, these different ranks or jobs had explicit racial connotations.[95] The so-called "superior staff" of the Brigade included the chief, station officers, engineers, and European firemen who were all white. The "subordinate staff" was comprised of several

[94] In this case "driver" specifically referred to someone knowledgeable in driving horses, which was much more specialized than petrol-motor driving would become. *Report on the Reorganization of the Calcutta Fire Brigade*, 5.
[95] This division of jobs along racial lines followed the same trends in the Indian Army, which had white officers overseeing Indian troops. Similar ethnic and religious stereotypes were employed to justify the recruitment of particular groups into the Calcutta Fire Brigade. For more on this see: Kenneth Ballhatchet, *Race, Sex, and Class under the Raj: Imperial Attitudes and Policies and Their Critics, 1793-1905* (New York: St Martin's Press, 1980); Barua, "Inventing Race"; Roy, "Race and Recruitment in the Indian Army"; Gurung, "The Making of Gurkhas"; Farooqui, "'Divide and Rule'?"

Indian drivers, 19 *tindals*. 12 *syces*, and 181 *khalasies*, who were all Indian or non-white.[96] Thus, motorization immediately diminished the need for *syces* because fewer horses meant needing fewer grooms. It also meant that as the petrol-motor engines replaced manual fire engines the *khalasies* were employed more for salvage or support, rather than active firefighting. Motorization therefore further limited the firefighting expertise in the Brigade to the European "superior staff," and ultimately increased the percentage of White brigade members.

While the Calcutta fire brigade recognized the whitening and professionalizing side benefits of adopting petrol-motor fire engines, the engines' maker, Merryweather and Sons, were marketing their engines to the empire with that as a main draw. Despite the technology for applying petroleum combustion engines to firefighting existing as early as the 1894, it was only with the combustion engine's application to movement as well as pumping that it made a significant change from the horse-drawn steam fire engines.[97] By 1914, Merryweather & Sons were exhaustively advertising their "Hatfield" petrol-motor fire engine, which they claimed was the "Perfect Pump" for all firefighting needs.[98] They tested this claim in Calcutta to positive effect.

Calcutta's motorization became a poster child for Merryweather & Sons. In the August 1914 issue, *The Fireman's* editor exclaimed, "The progress made by the Calcutta Fire Brigade since it has been under the charge of Chief Officer Westbrook has been the subject of great admiration, and many encomiums have been passed regarding the improvements

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[96] *Report on the Reorganization of the Calcutta Fire Brigade*, 4–5.
[97] "Portable Petroleum Fire Engine," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XVIII, no. 211 (December 1, 1894): 116.
[98] "Advertisement: 'Hatfield' Petrol Motor Fire Engine," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XXXVII, no. 440 (January 1, 1914): 138.

made in the organization and equipment."[99] In this copy, the editor was playing on both the adventurer and expert tropes in Victorian advertising—the improved "organization" was due to Westbrook the adventurer who could lead native firemen, and the improved "equipment" was from his expertise.[100] The *Fireman* editor also included four photographs with the article, two showing off Merryweather & Sons' "Hatfield" petrol-motor fire engine in action, one their "Valiant" steam pump, and the final one an invention by Chief Westbrook for mitigating danger to firemen from collapsing walls. These images illustrated Merryweather & Sons' apparatuses at work and featured Calcutta's White firemen. This forwarded Merryweathers' advertising claims that their engines could bring civilization and order to the empire. Calcutta had become a center of nationalist sentiment in the twentieth century and these images, coupled with pictures of Westbrook himself, reassured the *Fireman*'s readers that white experts remained in control of Calcutta even though the Raj had abandoned it.[101]

Furthermore, like it was for imperial policies, Calcutta was also a proving ground for one of Merryweather & Sons' new apparatuses: their motorized turntable fire escape. Premiered in 1915 this petrol-motor fire escape was unique among the Merryweather & Sons catalogue. Whereas their "Hatfield" fire engine had a wheeled escape attached to the back as an addendum to the pumping engine, the turntable escape did not have any water pumping capabilities.[102] Instead, it consisted of an 85-foot telescoping ladder that could rotate 360 degrees, a search light, and a thirty-mile-per-hour motor engine [Figure 8]. While built to Chief Westbrook's specifications, this apparatus became a particular asset to Merryweather

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[99] "Calcutta Fire Brigade," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XXXVIII, no. 447 (August 1, 1914): 28.
[100] Lori Anne Loeb, *Consuming Angels: Advertising and Victorian Women* (New York ; Oxford: Oxford University Press, 1994).
[101] Sukanta Chaudhuri, *Calcutta, the Living City* (Calcutta ; New York: Oxford University Press, 1990); Soumyendra Nath Mukherjee, *Calcutta: Essays in Urban History* (Calcutta: Subarnarekha, 1993); Dutta, *Calcutta*; Chattopadhyay, *Representing Calcutta*; Bose, *Class Conflict and Modernization in India*.
[102] "Advertisement: 'Hatfield' Petrol Motor Fire Engine."

& Sons' offerings. As the editor of *The Fireman* put it, this motorized escape was "an out-and-out British production; in fact, the Merryweather firm can justifiably claim to be the only English makers of up-to-date escapes of this type."[103] This combination of patriotism and progress marked many of the advertisements in *The Fireman* during the First World War and they included adverts for this Calcutta fire escape in almost every issue to 1918.

Figure 8 Petrol-motor turntable fire escape ladder for Calcutta from The Fireman (1914).

[103] "Motor Turntable Fire Escape for Calcutta," *The Fireman: And Journal of the Civil Protective Forces of the United Kingdom* XXXVIII, no. 456 (May 1, 1915): 210.

Even as these petrol-motor fire engines appeared to be solving professional and disciplinary issues for the Calcutta fire brigade they created their own technical problems. Much of Calcutta's water supply was unfiltered water coming from the Hooghly or from reservoirs outside the city. The city's fire reports complained that "the foreign substances in the water create difficulties as the Fire pumps frequently get choked up when working for any length of time," and with severe lack of filtered mains and tanks being filled in "on sanitary grounds," unfiltered water was often the only option.[104] The loss of pumping time or jet stream power could mean the difference between an effective extinction and absolute destruction, and with the increased pumping power inherent to petrol-motor engines the rate at which hoses would clog was greatly increased. In their reorganization report, the Calcutta Commissioners credited Westbrook for solving this problem himself. They noted, "the ingenuity of Mr. Westbrook has risen to the occasion in inventing an appliance whereby the water is strained by duplicate strainers and by a special arrangement either of the strainers can be cleared whilst the pump is in motion," which meant that there would be no loss of water or time.[105] Westbrook's invention was necessitated by the conditions on the ground and carried out by someone familiar with the equipment rather than an inventor. While Westbrook's filter solved the immediate problem facing the brigade's new engines, it further highlighted the overall lack of investment in Calcutta's water supply infrastructure. The fire brigade's authority may have increased with reorganization, but they were still constrained by their municipal circumstances.

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[104] These above ground reservoirs were often breeding grounds for mosquitos and diseases like Cholera as they were generally open to the air or any other pollutants. Moreover, they often got choked up themselves with algae or other water plants, furthering the difficulties in getting a steady stream of water for the Calcutta Fire Brigade. Frederick Halliday, "Report on the Working of the Fire Brigade in the Town and Suburbs of Calcutta and in Howrah, 1911-12" (Bengal Secretariat Press, 1912), 5, IOR/V/24/1676, British Library.
[105] *Report on the Reorganization of the Calcutta Fire Brigade*, 7.

These municipal circumstances included insufficient funding for the Calcutta fire brigade to completely solve its disciplinary issues. While adopting petrol-motor fire engines allowed the brigade to lower the number of men needed to staff the brigade, they still could not necessarily pay to get the men they wanted. In his first annual report as Chief Officer, Westbrook noted that the "discipline and general behavior" of his men had been "very satisfactory," but the overall brigade was plagued by the "considerable difficulty [he] experienced in recruiting the right class of Indian Fireman on the pay as at present offered."[106] Unfortunately for Westbrook, the pay increases he proposed were not forthcoming and were completely abandoned when the First World War broke out in 1914. In fact, his 1915 Annual Report noted that precisely because of their training on petrol-motor fire engines, "Firemen are particularly useful in the Military Motor Transport Service, and consequently a large number of men have been permitted to join."[107] Motorization thus actually undermined the brigade's strength and professionalism during WWI, and left Westbrook hoping in 1919 that "on demobilization a suitable class of men will again be enlisted in the Fire Brigade," but without municipal support that remained unlikely.[108] This showed that in petrol-motor fire engines, the Calcutta fire brigade's technical and social problems were inextricably linked.

The 1910s reorganization of the Calcutta Fire Brigade and its concomitant adoption of petrol-motor fire engines sought to solve the disciplinary, technical, and social problems the brigade faced. By purchasing a fire engine for the Police Headquarters Station that could reach a fire in the suburban districts as quickly or faster than the manual engines at the out-

[106] Bernard Westbrook, "Report of the Calcutta Fire Brigade for the Financial Year Ended 31st March 1913" (Bengal Secretariat Press, 1913), 2, IOR/V/24/2873, India Office Records.
[107] Bernard Westbrook, "Report of the Calcutta Fire Brigade for the Financial Year Ended 31st March 1915" (Bengal Secretariat Press, 1915), 2, IOR/V/24/1676, British Library, India Office Records.
[108] Westbrook, "1919 CFB Annual Report," 2.

stations changed the dynamics within the brigade. This development lessened the need for Indian *khalasies* to pump the manual engines and altered the professional skills that the brigade prioritized toward petrol-motor maintenance and driving and away from horse care or steam engine maintenance. While those new professional skill preferences made Calcutta firemen easy pickings for the Army's motor corps during the First World War, it also gave Chief Westbrook the opportunity to set up his own training system, which furthered the brigade's internal discipline and external professionalism. Westbrook saw this training as essential for the brigade's future, particularly for the "Indian Staff," and proposed the forming of a 20-person drill class that could "permit the revision of training, etc., of the whole staff" of the brigade.[109] As Westbrook began to be able to exercise more control over his firemen through disciplinary training, the brigade began to be able to extinguish fires more efficiently with their petrol-motor fire engines, thereby establishing their own authority over Calcutta's citizens.

Conclusion

While the fire brigades' adoption of new technologies generally resulted in increased professionalism and efficiency, those imagined benefits alone were not enough to justify the costs of their adoption. Instead, fire brigade chiefs had to offer alternative justifications to their financial overseers, of which those solving social problems were the most compelling. The growing distrust between the London Fire Engine Establishment and the Londoners meant to pump their engines and raise fire alarms contributed to the adoption of steam fire engines and telegraphic communication. Then Londoners' distrust of the fire brigade following the despair-inducing events of the Queen Victoria Street Fire paved the way for

[109] *Report on the Reorganization of the Calcutta Fire Brigade*, 35.

pompier ladders in every London fire station. Finally, in Calcutta the distrust for and perceived ill-discipline of the fire brigade's "Indian Staff" encouraged the new fire chief to embrace motorization as a way of side-stepping the need for an enlarged Indian force for pumping manual fire engines or caring for horses. Even as fire service historians have argued that increased efficiency was reason enough to adopt new technologies, this could only be proven after adoption, and to get there required some kind of breakdown in the relationships between the fire brigade and the citizens of their city.[110] Ultimately, it was up to the fire brigades to repair those relationships and adopting new technologies was one way they could do that. To that end, the next chapter examines the mapping that the London and Calcutta fire brigades did in the early twentieth century to firmly establish their authority within their cities—building on the legislation, discipline, and technology that brought them to that point—and finally define the urban fire problem for themselves.

[110] Blackstone, *British Fire Service*; Holloway, *London's Noble Fire Brigades*; Holloway, *Courage High!*; Bag, *Fire Services in India*.

Chapter 5 "The station's not far off": Mapping the Fire Problem in Calcutta and London

In R.M. Ballantyne's 1868 adventure novel, *Fighting the Flames: A Tale of the London Fire Brigade*, the first disturbance of domestic serenity is a man sprinting through the streets of London to ring the alarm bell at the closest fire station. Ballantyne described the man as knocking over other pedestrians in the street, in a state of relative undress, and "pulling like a maniac at the fire-bell" once he got there.[1] The location of the fire, Beverly Square, is fictionalized, but given the context clues—that the man ran along Tottenham Court Road away from Oxford Street to get to the fire station—it is likely that this was Ballantyne's fictionalization of the real Bedford Square. The nearest Metropolitan Fire Brigade Station would likely have been at Marlborough Street Station over half a mile away or Euston Station almost a mile away from the Square. At a dead sprint, the man may have gotten to the station in under ten minutes, but that was all time lost for fighting the fire. The victim was lucky that the station was even that close. Stations were not necessarily spread evenly across the metropolis. In fact, before the advent of telegraphs and electric street fire alarms, the fire insurance company fire brigades would even compensate policemen's cab fares in order to raise the alarm faster.[2] The location of fire stations, or their proxies represented by street alarms or telegraphic communication, mattered immensely for the relative fire safety of urban citizens. Having a fire station "not far off" could completely alter an urban citizen's relationship to fire.[3]

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[1] Ballantyne, *Fighting the Flames*, 24.
[2] Wright, *Insurance Fire Brigades 1680-1929*.
[3] Ballantyne, *Fighting the Flames*, 202.

As the nineteenth century progressed, London and Calcutta citizens' relationship to fire was increasingly mediated through the fire brigade as those institutions took on more of the social responsibility for extinguishing fires. This mediation meant that most citizens did not think about the fire brigades outside of the immediate crisis of a fire, which made it harder for citizens to uphold their own social responsibility. In the early-twentieth century, then, both the London and Calcutta Fire Brigades opted to start mapping occurrences of fires and the brigades' resources onto maps of their respective cities in order to educate their constituents. This represented a new method added to the brigades' efforts in the nineteenth century, when they used statistics to categorize the fire problem in their cities. As literary scholar Pamela Gilbert has argued, maps are "inevitably persuasive in intent."[4] These maps coincided with what historical geographer Laura Vaughan has described as "the nineteenth-century enthusiasm to map the uncharted 'urban interior' of cities [sought] to bring scientific rigour to analysing and solving the many ills that had befallen cities."[5] The fire brigades' maps argued for a geographic view of the fire problem, in an effort to position fire as an urban social ill that the brigades could heroically control, thus justifying continued financial support from their municipal governments.

Fire was indeed an ever-increasing urban social ill over the nineteenth century, and it fell to the fire brigades' statistics and maps to show how despite the rising number of urban fires that the fire problem was actually well in hand. In the early-twentieth century the Calcutta and London fire brigades used maps to illustrate not only the fire problem's extent, but their control over it to their municipal overseers and the urban citizens that they protected. These two goals were in tension, yet illustrated the inherent contradiction of fire

[4] Pamela K. Gilbert, *Mapping the Victorian Social Body* (SUNY Press, 2004), 16.
[5] Laura Vaughan, *Mapping Society: The Spatial Dimensions of Social Cartography* (London: UCL Press, 2018), 2, https://www.ucl.ac.uk/ucl-press/browse-books/mapping-society.

service statistics: showing evidence of a problem needing to be solved while also claiming it was being solved better than ever before. London's fire maps emphasized dwindling number of "serious" fires while Calcutta's fire maps illustrated the extension of fire brigade control over more Indian areas of the city, and both sought to set their brigades' on the same footing as other municipal services. In so doing, the brigades' maps marked their assertion of authority over the urban landscape and an ability to shape their urban realities.

This chapter is divided into five sections that reveal the fundamental relationships between the fire brigades, their stations, and public trust, and mapping as one way of visually representing those relationships. Section 1 explores how London and Calcutta's citizens knew where to find their fire protection without maps, and the strategies employed by each city's fire brigades to inform the public. Section 2 examines how epidemic disease and fire insurance maps provided the visual vocabulary for the brigades' fire maps and established different ways of representing urban risks. Yet, even as other municipal services fully embraced mapping into their bureaucratic repertoires during the nineteenth century, neither the London or Calcutta fire brigades mapped until the early-twentieth. Section 3 catalogues the maps created by the London fire brigade starting in earnest in 1905 to justify their funding and municipal support, and details what these maps revealed about the distribution of London's fire protection. Section 4, in turn examines the Calcutta fire brigade's fire maps showing how the maps emphasized increasing social control over the Indian parts of the city while obscuring the uneven distribution of the brigade's resources. Section 5 explores how, under the guise of expanding equitably, the fire brigades in both London and Calcutta perpetuated inequalities in their respective cities and used their maps to distract from that fact. By engaging in cartographic arguments, the London and Calcutta fire brigades placed themselves in line with other urban services, some of whom had been mapping for decades,

in order to position themselves as soldiers in the fight against one of the greatest urban social ills: fire.

5.1 How to Find Fire Stations

Whatever the distance R.M. Ballantyne's character ran to ring the alarm bell at the fire station, he knew precisely where to run. That meant that Ballantyne himself took it for granted that any London servant, the character was a butler, would know precisely where to go in the event of a fire in order to raise the alarm for the fire brigade and bring them swiftly to the seat of the fire. Yet, the question remains: how *did* urban citizens know where to go to get their fire protection?

Within London, for over a century, the answer was to run to the local parish church. From 1707 to 1865 every London parish was required by law to keep a fire engine and to pay an engine keeper to maintain that engine and take it to extinguish fires within the parish boundaries. There were dozens of parishes within the London Metropolitan Area, and some in the City of London were smaller than a few square miles [See Figure 9]. The 1707 Act also established a reward system, to be paid by the parish in which the fire occurred, for the first three fire engines that arrived at a given fire.[6] Once the fire insurance companies began providing their own professional fire brigades in the mid-eighteenth century the competition for these gratuities became fierce. For example, while humorist Thomas Hood's 1830s poem "Don't You Smell Fire?" starts with a call for the listener to "run for St. Clement's engine!" the first engines on the scene were actually from "the Phoenix! the Globe! and the Sun!," all London fire insurance companies.[7] As the eighteenth century progressed, the quality of

[6] Blackstone, *British Fire Service*, 61.
[7] Thomas Hood, *Humorous Poems of Thomas Hood, Including Love and Lunacy, Ballads*, ed. John Hamilton Reynolds (London: Phillips, Sampson and Company, 1858), ???

many parish fire engines tended to decline and in the early-nineteenth century Londoners began to look elsewhere for their fire protection.[8]

Figure 9 1754 Map of London parishes demarcated by red or green lines.[9]

The London Fire Engine Establishment [LFEE], created by amalgamating ten London fire insurance company fire brigades in 1833, provided just such an opportunity. Unfortunately, the LFEE's stations did not have the prominence or recognizability of a parish church and their stations were also clustered in central London making it harder for Londoners living in the outer boroughs to call on them for fire protection. The LFEE's

[8] While some scholars fully promote this narrative, others have pushed back on it. Wright, *Insurance Fire Brigades 1680-1929*; Holloway, *London's Noble Fire Brigades*; Ewen, *Fighting Fires*.

[9] John Rocque, *Map of the County of Middlesex in Which Parishes Are Bounded with Red to Be Distinguished from the Others*, Engraving, 3 inch to 1 mile (London, 1754), Maps Crace XIX, British Library, http://www.bl.uk/onlinegallery/onlineex/crace/other/007zzz000000019u00020000.html?_ga=2.166479869.256705512.1595441266-1667036805.1569624252.

solution was twofold. First, they offered a shilling gratuity themselves for whoever promptly brought them news of a fire. This enamored them to certain classes of Londoners who could take advantage of this program.[10] Second, the LFEE formed a close working relationship with the metropolitan police. They provided beat constables with written directions to the closest LFEE station for their beat, and even offered to cover cab fare for constables coming from farther out, in order to receive the fire calls more quickly.[11] Thus, from 1833, Londoners learned to either run for the closest LFEE station or constable when there was a fire, even though they could still technically call on their local parish engine as well.

With municipalization of the fire brigade in 1865, however, the parish engines were almost completely dissolved and some new protocols were needed to educate Londoners on how to find the fire brigade. While the new Metropolitan Fire Brigade [MFB] kept the practices of paying gratuities for fire calls and working with the Metropolitan Police, they also embarked on a new practice of building fire stations. The MFB more than doubled the number of fire stations that the London Fire Engine Establishment had operated, and had to introduce them in a broader swathe of London to replace the parish engines lost to municipalization. Under the Metropolitan Board of Works, who oversaw the MFB from 1865 to 1889, the brigade embarked on a program of building new fire stations that architecturally suited the needs of the brigade.[12] These new station houses stood out from the neighborhoods in which they were built and advertised the presence of the fire brigade

[10] In Ballantyne's second fire brigade novel, his antagonist makes a living from alerting the fire brigade to fires. Ballantyne, *Life in the Red Brigade*.
[11] In 1844, the London Police Commissioner petitioned the LFEE to stop tipping constables who reported fires as it sometimes encouraged constables away from their actual police duties. "LFEE Committee Minute Book 1842-46," 129.
[12] Holloway, *Courage High!*, 85–86.

in that area making for a, hopefully, memorable reminder of where to go should one need to report a fire.

To these in-person reporting tactics were added new technological options as the nineteenth century progressed. The MFB broadly adopted telegraphic communication between their stations and with major at-risk buildings like the British Museum or the Houses of Parliament starting from the 1860s.[13] This provided extra security for those significant cultural institutions who also often employed former firemen as watchmen. Then in the 1880s London also introduced electric street fire alarms where anyone could call the fire brigade by pulling the handle without having to run all the way to a station or find a constable.[14] These fire alarm posts, eventually painted in such a way as to make them more easily visible to people from outside the neighborhood, made it much faster for the fire brigade to arrive at fires near these alarms. Removing in-person fire reporting had an unintended consequence, however, in that the London fire brigade saw a huge increase in false alarms. Between 1881 and 1891 the number of false fire alarms reported in London more than quadrupled and false alarms went from accounting for only eleven percent of all calls received by the MFB in 1881 to twenty-five percent of all calls in 1891.[15] In 1891 the fire brigade began prosecuting community members that tampered with the street alarms and in the early-twentieth century began prosecuting malicious false alarms, but it did little to

[13] "Fire Brigade Committee Minutes Vol. III" (Metropolitan Board of Works, 68 1867), 570, MBW/911, London Metropolitan Archive.
[14] "FB Annual Reports," 1888, 1880.
[15] "FB Annual Reports," 1888; Captain Eyre Massey Shaw, "Report by the Chief Officer, Metropolitan Fire Brigade on the State of the Brigade and the Fires in London 1889" (London County Council, 1890), LCC/PUB/01/006/0124, London Metropolitan Archive; Captain Eyre M. Shaw, "Report by the Chief Officer of the Fire Brigade on the Fires in London 1890" (London County Council, 1890), LCC/PUB/01/016/0279, London Metropolitan Archive; J. Sexton Simonds, "Report by the Chief Officer of the Fire Brigade on the Fires in London 1891" (London County Council, 1891), LCC/PUB/01/002/0011, London Metropolitan Archive.

bring the number of false alarms back to its pre-street fire alarms numbers.[16] To these options were added telephonic communication as that technology came into common usage, and by the early-twentieth century most fire calls were not made in-person at the fire brigade station.

These communication technologies allowed the London fire brigade to have a very centrally-directed response to any fire, but in Calcutta that centralization had already been achieved well beforehand. The small number of fires in nineteenth-century Calcutta did not warrant a large number of stations or apparatuses and instead Calcutta's municipal commissioners chose to concentrate their firefighting resources in the headquarters station in Lalbazar. To make this centralized system function, they required a multi-stage way of receiving fire calls. As part of the Calcutta Police, the fire brigade relied heavily on the Police communication systems and the vast majority of fires were reported to or by police constables who would then relay the call to the headquarters and call out the firefighters. The 1872 Jute Warehouse and Fire-Brigade Act included the option for paying gratuities for received fire calls, but only after some consternation from White members of the legislative Committee. [17] With reorganization in the 1910s, the Calcutta Fire Brigade began adding electric street fire alarms to their repertoire, with over fifteen new alarms placed in "exceptionally dangerous districts" during 1914–15 alone.[18] Even after reorganization fire calls still generally came through the police communication networks.

Yet, Calcutta's rapid urbanization and its often changing boundaries meant that the fire brigade's jurisdiction was often unclear. These evolving jurisdictions meant that the municipality and its component institutions had to judge for themselves how to demarcate

[16] Simonds, "MFB Annual Report 1891"; Hamilton, "MFB Annual Report 1905."
[17] *Proceedings of the Council...*, VI:66.
[18] Westbrook, "1915 CFB Report," 3.

the extent of their responsibilities. In the 1870s, lawmakers defined the borders of Calcutta's suburban municipality before splitting it into four different districts—Cossipore-Chitpore, Manicktollah, Garden Reach, and Tollygunge—and integrating it into the Calcutta corporation in 1889.[19] The addition of Howrah to municipal jurisdiction, on the opposite bank of the Hooghly, further complicated the distribution of municipal services, until the construction of the Hooghly Bridge in 1874.[20] As early as 1881, municipal commissioners saw the integration of the Calcutta suburbs as essential for improving Calcutta's sanitary conditions.[21] Even with the introduction of a dedicated fire brigade in 1872, the question remained whether the Hooghly and the Circular Canal, which marked the western and eastern sides of the city respectively, were hard or soft boundaries when it came to municipal services. If a fire were to occur beyond these boundaries, the reporting citizens would have to know where the closest police station could be found.

Both the London and Calcutta fire protection systems, then, required a degree of local knowledge. Londoners needed to know first how to find the local parish church, which could likely be identified by its architecture or steeple before the urban landscape overtook it, and then how to find the local fire station, which did not take on a distinct architectural style until well after municipalization. Similarly, in Calcutta citizens needed to know the location of their local police station in order to report a fire. As the nineteenth century progressed, however, this local knowledge became less reliable. As new citizens migrated into cities, or migrated within larger cities like London and Calcutta, they did not possess the local knowledge necessary for neighborhood fire protection responsibilities, nor did they necessarily accept the social responsibility for preventing fires that urban life placed on

[19] Goode, *Municipal Calcutta*, 7.
[20] The first bridge was constructed in 1873–4. Goode, 263.
[21] Datta, *Planning the City*, 179.

them.[22] With growing migrant populations, increasing urban complexity, and a potential estrangement from ones' neighbors, we return to the question: how did urban citizens know where to report fires when local knowledge broke down?

There were two ways of answering this question. First, was the method employed by the London Fire Engine Establishment and the Metropolitan Fire Brigade, which provided written accounts of the brigades' stations and jurisdictions. For example, an MFB drill book from 1898 still listed the stations and described the jurisdiction rather than map them. The drill book described the C district as "the eastern and north-eastern portions of the county, extending from the line described above to Bow-creek, which divides London from Essex."[23] Despite not mapping the jurisdiction for themselves, the MFB's drill book expected their recruits to know the geographic extent of the London County Council's purview. Furthermore, as stations were often named for the street or square they were on this provided at least a little geographical context for new Londoners barreling through the street shouting "Fire!"

The second method was to provide a map of resources or stations, which was then distributed to the public. This latter method was the one chosen by the Royal Society for the Protection of Life from Fire [RSPLF], a charitable organization which ran the wheeled fire escape ladders in London from 1835 to 1867.[24] As a charitable organization, the RSPLF required funding support from Londoners at large, which was part of the reason they mapped their fire escape watch-boxes for the general public. Whereas the LFEE declared their engines would attend fires anywhere in London, the RSPLF had to show Londoners

[22] Feldman points out that by the mid-nineteenth century almost two-thirds of citizens in major British cities were born elsewhere. David Feldman, "Migration," in *The Cambridge Urban History of Britain, 1840-1950*, vol. III, III vols., The Cambridge Urban History of Britain (Cambridge: Cambridge University Press, 2000), 185–206.
[23] Metropolitan Fire Brigade, "M.F.B. Drill Book," 48.
[24] Willoughby and Wilson, *Saved from the Flames*.

the actual extent of their coverage in order for them to feel covered and to get them to contribute to the cause. The undated map here [see Figure 10] shows the RSPLF escape placements in central London in the 1830s or 40s. The mapmakers used the dot map style reminiscent of disease maps, but rather than marking deaths, the RSPLF were marking the potential prevention of death.[25] Mapping central London also allowed the RSPLF to contrast themselves directly with the LFEE. Even in this small part of the city, the RSPLF had double the stations and therefore argued that they would arrive faster to a fire in order to save the inhabitants. By the 1860s, the RSPLF claimed that they had at least one wheeled fire escape within a half-mile of every Londoner in their jurisdiction and that their escapemen would attend any fire to which they were called.[26] Over time, the RSPLF used these maps to support their coverage claims. Indeed, the map they submitted to the 1862 Select Committee on Fires in the Metropolis showed their jurisdiction more than double that depicted in the map shown here.[27] Certainly, their intended jurisdiction far outstripped the coverage offered by the LFEE.

[25] *A Plan of London Showing the Relative Positions of the Fire Escape Stations of the Royal Society for the Protection of Life from Fire.*, Coloured Engraving (London: RSPLF, n.d.), Wellcome Library no. 29399i, Wellcome Collection, https://wellcomecollection.org/works/u5kyd33t.
[26] Willoughby and Wilson, *Saved from the Flames*.
[27] "SC on Fires in the Metropolis," opp. 206.

Figure 10 RSPLF Map of Central London showing fire escape stations, undated, held by the Wellcome Collection, CC BY.

The very ubiquity of RSPLF watch-boxes, and the fact that these watch-boxes were situated on street corners, made them easier to find than fire stations, yet they chose to map the locations of their watch-boxes even as the LFEE declined to do so. This difference resulted from two conditions. First, that the RSPLF was concerned explicitly with life-saving while the LFEE cared more about property-saving. This automatically raised the RSPLF's profile with many Londoners who valued their dedication to saving lives. Thus, even though the RSPLF relied on "passers by [sic], and messengers from the fire, and upon police" to receive calls to fires they often arrived around the same time as the LFEE's engines.[28]

[28] "SC on Fires in the Metropolis," 38.

Second, as a charitable organization, the RSPLF was much more directly accountable to the public than the fire insurance companies' LFEE, which was only accountable to the companies' boards of governors. In fact, while the LFEE refused to add stations at the behest of local parishes, the RSPLF instead expanded their stations primarily due to "local application" and without "any reference to the wealth of the neighborhood" in which the station was to be placed.[29] These two conditions encouraged the RSPLF to map both as a way of more effectively carrying out their mission by making citizens aware of where to find their stations, but also as an advertisement for the coverage and safety they provided to Londoners.

Both of these methods, verbal description and cartographic representation, provided non-locals with a sense of how to find the closest fire protection resources. As London and Calcutta grew in complexity over the nineteenth century, more and more municipal services and other institutions began to rely on mapping to make arguments about the urban environment as well as their place in it.[30] In the early-twentieth century, both the London and Calcutta fire brigades began to map both their stations and the occurrences of fires in their cities. The station maps showed urban citizens how to find the fire brigade or its street alarms, while the fire maps justified the brigades' existence. The following section will explore some of the mapping techniques that the brigades' built upon and proved that they were worth pursuing.

5.2 Mapping Urban Risks

[29] "LFEE Committee Minute Book 1842-46," 132; "LFEE Committee Minute Book 1851-54," 28–29; "LFEE Committee Minute Book 1854-58," 29; "SC on Fires in the Metropolis," 40.
[30] Gilbert, *Mapping the Victorian Social Body*, 16.

The Royal Society for the Protection of Life from Fire [RSPLF] were not the only urban institutions to map during the nineteenth century. A range of municipal maps used to represent the urban landscape were created by various groups—like urban missionaries, municipal departments, or public health officials—throughout the nineteenth century. While urban maps had existed for centuries, printing innovations in the eighteenth and nineteenth centuries made maps easier to make and of broader utility.[31] From the early-nineteenth to the early-twentieth century these maps transitioned from profiles to perspectives to plans, mirroring both the progression of urban growth and the increasing authorities of municipal governance in representing the urban environment.[32] One important set of early maps, urban planning maps, revealed both perceived risks and offered solutions to mitigate them. For example, Calcutta's 1857 Drainage Committee used maps and water level plans to argue that the city should direct its drainage toward the salt lakes southeast of the city rather than into the Hooghly River.[33] In these plans, the Drainage Committee represented both the current condition of the city's drainage and the aspirational perspective of what could be achieved with the new plan. These maps, in turn, helped educate the city's citizens and to hopefully invest them in the city's progress.

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[31] Keya Dasgupta, "A City Away from Home: The Mapping of Calcutta," in *Texts of Power*, ed. Partha Chatterjee, NED-New edition, Emerging Disciplines in Colonial Bengal (University of Minnesota Press, 1995), 145–66, https://www.jstor.org/stable/10.5749/j.ctttsttm.10; Gilbert, *Mapping the Victorian Social Body*; Vaughan, *Mapping Society*; Benjamin N. Vis, *Cities Made of Boundaries: Mapping Social Life in Urban Form* (London: UCL Press, 2018).

[32] Robert R. Churchill, "Urban Cartography and the Mapping of Chicago," Geographical Review 94, no. 1 (2004): 1–22.

[33] "Calcutta Drainage (Cowie) Committee 1856-57: Report and Appendices (Calcutta, 1857)," 1857, IOR/V/26/842/1, India Office Records; Burian and Edwards note that historically "climate, topography, geology, scientific knowledge, engineering and construction capabilities, societal values, religious beliefs, and other factors have influenced the local perspective of urban drainage," and many of these factors could be visually represented by maps. Steven J. Burian and Findlay G. Edwards, "Historical Perspectives of Urban Drainage," Global Solutions for Urban Drainage, Proceedings, 2002, 1–16, https://doi.org/10.1061/40644(2002)284.

The most significant precursors to fire brigades' maps were epidemic disease maps and fire insurance risk maps, which became two templates for the fire brigades to use. These maps constructed their risks as spatially-dependent, and provided fire brigade maps with a ready-made visual vocabulary. Epidemic disease maps, like John Snow's mid-nineteenth century London cholera maps, used burgeoning germ theory to place disease cases in physical relation to each other in order to track the spread of infection from person to person.[34] By representing the infection pattern visually and precisely, instead of as a single mass upon the city, Snow's maps depicted cholera's transmission at the social and individual levels. This perspective shift could also be applied to fire, which, as we have seen, was perceived by eighteenth-century urban citizens as random, uncontrollable, and broadly associated with the lower classes. Fire insurance maps, particularly Charles Goad's late-nineteenth century insurance surveys of British cities, attempted to make sense of fire as a kind of urban disease, and informed insurance companies and others about the relative fire dangers of the urban environment.[35] These maps turned the urban landscape into "an accumulation of fire hazards and visualized risk" in an effort to understand and control the fire problem.[36]

Nineteenth-century disease mapping developed a useful visual vocabulary to represent large-scale urban ills variously as individual instances, temporal trends, and spatially-dependent events.[37] As Vaughan tells, some of the earliest maps depicting urban

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[34] John Snow, *On the Mode of Communication of Cholera*, Second Edition (London: John Churchill, 1855).
[35] Charles E. Goad, "Charles E. Goad's Fire Insurance Maps and Plans," Database, accessed February 25, 2020, http://www.bl.uk/onlinegallery/onlineex/firemaps/fireinsurancemaps.html?_ga=2.190519528.2119837101.1582645314-1667036805.1569624252; Gwyn Rowley, *British Fire Insurance Plans* (Old Hatfield, Hertfordshire: C.E. Goad, 1984).
[36] Tebeau, *Eating Smoke*, 90.
[37] Gilbert, *Mapping the Victorian Social Body*, 19.

social ills were spatial representations of disease,—reflecting both miasmatic disease theories and problematizing urban space—and became the baseline and inspiration for many of the urban maps that followed.[38] Perhaps the most famous of the epidemiological maps were those published by John Snow in the 1855 edition of his book, *On the Mode of Communication of Cholera*, which famously argued that there was a human element to the transmission of cholera rather than simply a sanitary explanation.[39] [See Figure 11] Snow's maps showed the frequency of cholera deaths in a given area by building. Particularly with his map of Soho, Snow was able to show that there was a correlation between the water pump in Broad Street and the clustering of cholera deaths. This led Snow to conclude that something about the pump contributed to the transmission of cholera through the neighborhood. Ultimately, Snow's choice to map the transmission contributed to a new theory of disease and firmly established the epidemic map in Victorian social cartography.[40]

[38] Vaughan, *Mapping Society*, 25.
[39] Snow, *On the Mode of Communication of Cholera*.
[40] Vaughan argued that Snow's "importance lies first in his establishment of a clear spatial relationship between contaminated water and the disease, and second in his use of disease mapping to observe, communicate and analyse statistics." Vaughan, *Mapping Society*, 37.

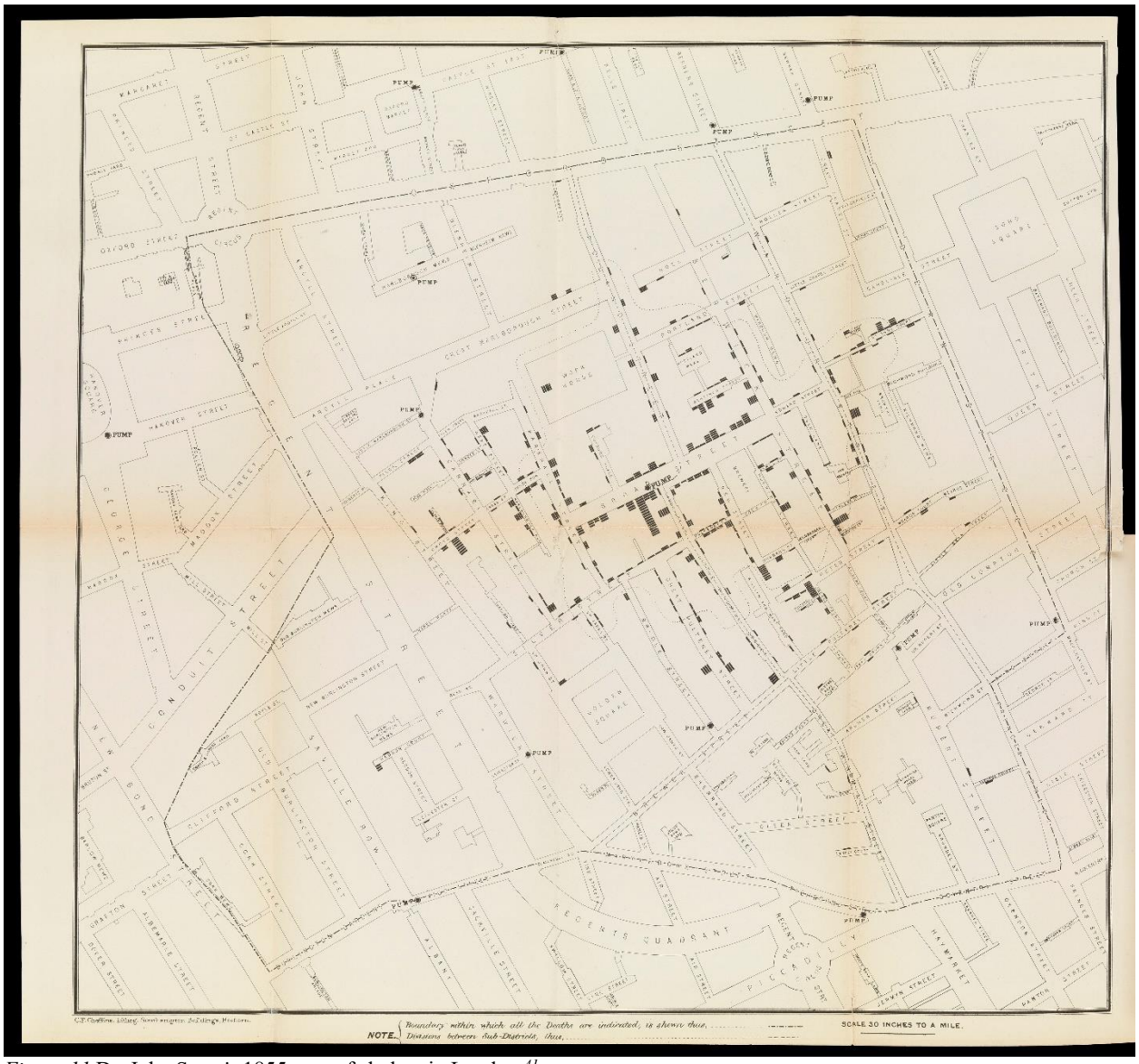

Figure 11 Dr. John Snow's 1855 map of cholera in London.[41]

Within social cartography, Snow's maps encouraged the rise of "dot" or "spot" maps that visually represented statistical occurrences in dot form on a geographic area. These maps were particularly used to represent deaths by disease, and, as seen later in this chapter, dots to represent fires. Calcutta's 1886 Health and Sanitation Report [see Figure 12] provides

[41] John Snow, *A Map Taken from a Report by Dr. John Snow* (London, 1855), Attribution 4.0 International (CC BY 4.0), Wellcome Collection, https://wellcomecollection.org/works/uxgfjt62.

an example of a dot map and its political implications.[42] This map depicted all of the cholera deaths in Calcutta during 1885, making the city appear like a child with measles. This map, like other epidemic spot maps, "depicts not only space but time. It depicts a span of time—the span of the entire epidemic—as being virtually simultaneous, and has a tendency to concretize, to indicate to the less informed observer that deadly environments are an immutable feature of the terrain depicted."[43] In other words, by compressing the time span, mapmakers made Calcutta appear even more pestilent and dangerous than it actually may have been. This would be critical for later fire brigade mapmakers who employed the same techniques to emphasize the fire problem.

[42] Calcutta Corporation, "Report on the Municipal Administration of Calcutta, 1886/87 2 Pts," 1886, IOR/V/24/2873, India Office Records.
[43] Gilbert, *Mapping the Victorian Social Body*, 46.

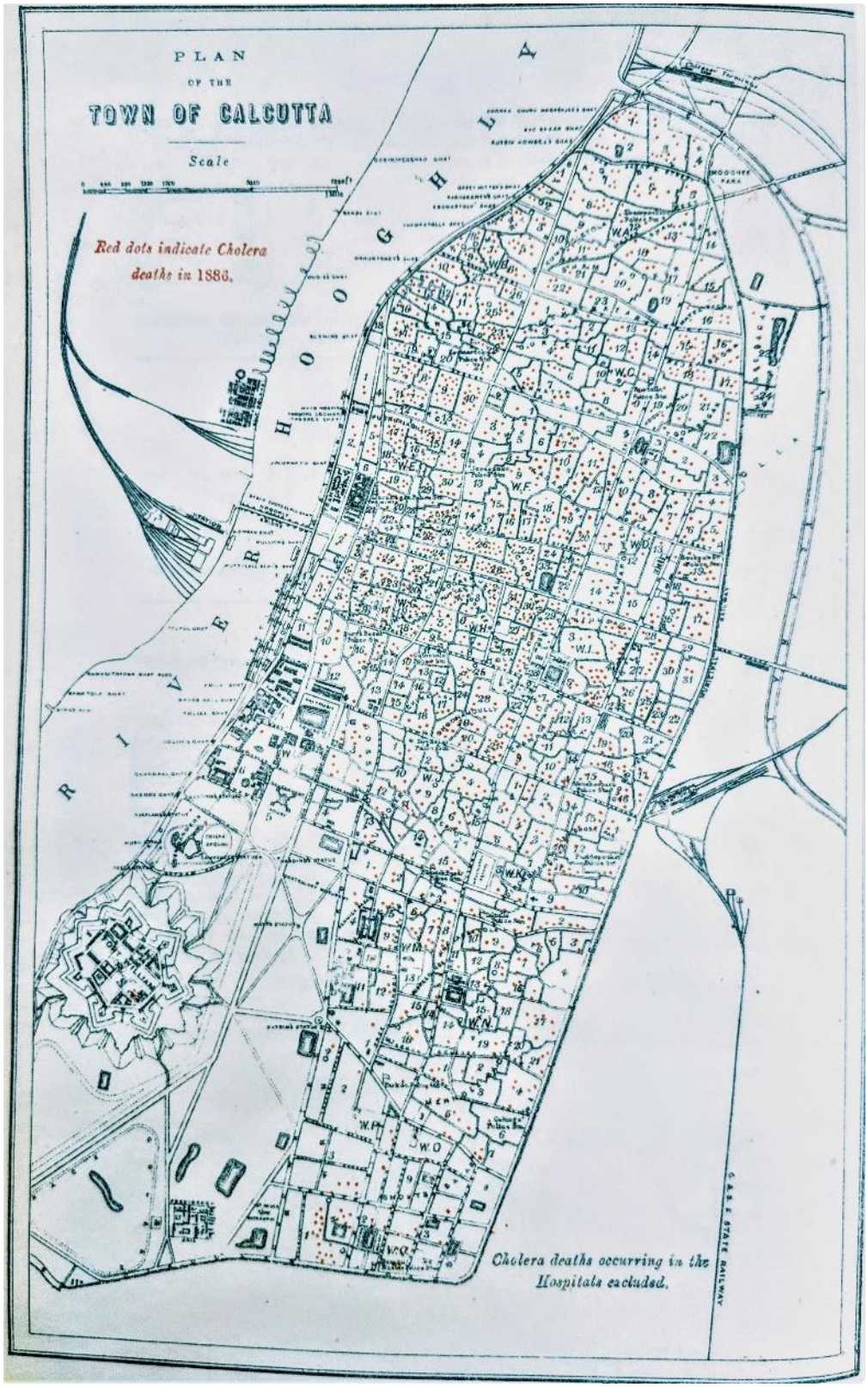

Figure 12 Map of Cholera Deaths in Calcutta during 1885. From 1886 Calcutta Municipal Report Appendix B.

The temporal compression of "dot" or "spot" maps was intentional. The arguments these maps were making was spatial, rather than temporal per se, and as such the municipal organizations chose maps as the medium for their argument in order to prioritize the spatial aspects of these urban social ills. Both the temporal compression and the spatial relationships of the disease became even more obvious in the other maps included in the 1886 Health and Sanitation Report. The other two maps showed the cholera deaths in Calcutta for 1876–80 and 1881–85, respectively.[44] Rather than going with the dot map, the mapmakers chose to demarcate each Calcutta ward and color it based on the cholera death-rate during its time frame [See Figures 13 and 14]. This colorized mapmaking method served two purposes. First, it was a logistically easier way of mapping the cholera deaths in Calcutta over such long periods of time. The Health and Sanitation Report noted that the average number of Cholera deaths alone was over 1,600 a year, second only to "Fevers" which averaged over 4,000 deaths annually.[45] Such high numbers would have made a spot map more difficult. Second, the map was meant to show at a glance what parts of Calcutta appeared more dangerous or prone to cholera. Several components of the map conspired to make this obvious. The mapmakers chose to compress the statistics for five years into a single map, which artificially made the death-rates appear larger, while reporting the specific statistics elsewhere in the report. Next, the mapmaker's color choices—yellow for the lowest death-rate and black for the highest—fit within expected tropes of social cartography, which often put the least desirable mapped statistics in the darkest color to make them more

[44] Calcutta Corporation, "Calcutta Mun. Admin. Report 1886."
[45] Calcutta Corporation, Appendix B, 5.

visible.[46] Ultimately, these two maps made a spatial argument that some parts of the city were simply more dangerous than others.

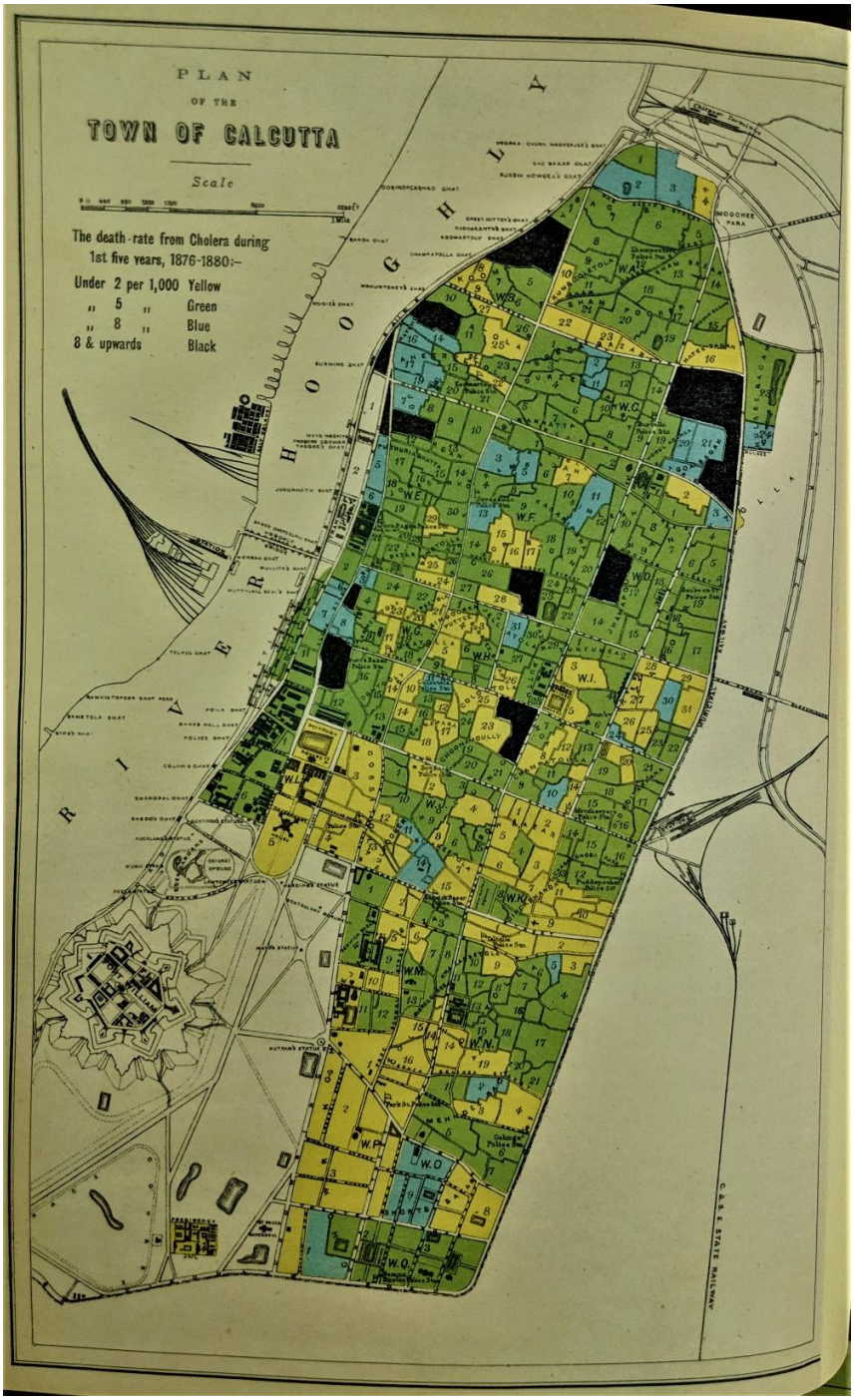

Figure 13 Cholera death-rate map for Calcutta 1876-1880, From 1886 Health and Sanitation Report.

[46] For example, Charles Booth's poverty maps went from "Black" which represented the most impoverished, the "loafers, and semi-criminals" to "yellow" which represented the "wealthy" class of London. Vaughan, *Mapping Society*, 70–71.

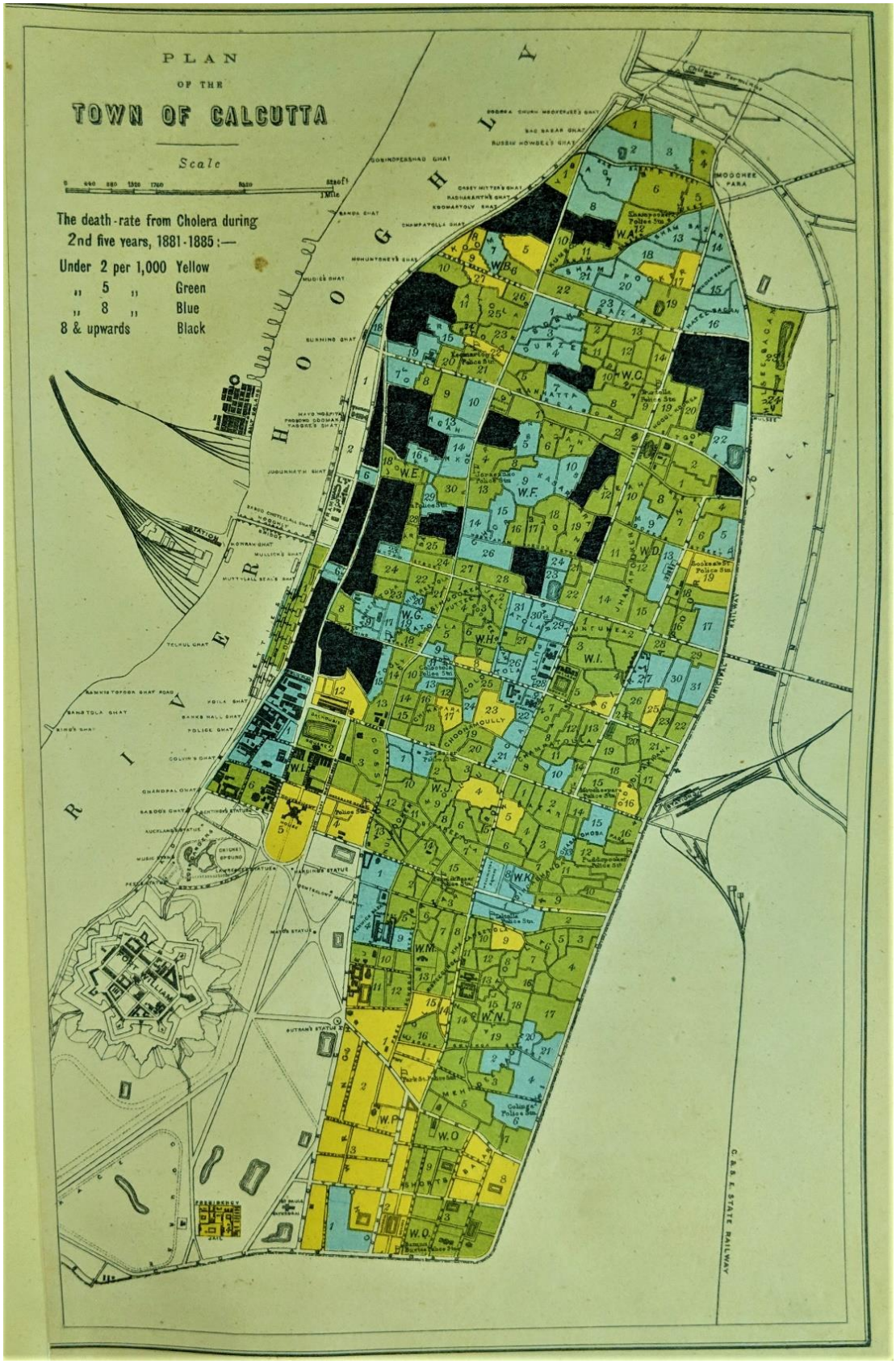

Figure 14 Cholera death-rate map for Calcutta 1876-1880, From 1886 Health and Sanitation Report.

Fire insurance companies, in particular, understood this connection between risk and locality. For instance, insuring a building next to a lumberyard, much less the lumberyard itself, was a very risky policy to offer given their flammability. The fire insurance companies thus had to understand not only how the buildings were constructed, but also where the properties they insured existed in space. To discover this information, the companies initially used their agents' firsthand property inspections and as the nineteenth century progressed they increasingly relied on maps produced by professional surveyors.[47] From the 1880s onward, the Charles E. Goad Company became the primary fire insurance surveying company for the British Isles and Canada. Goad published his first surveys of cities in the British Isles in 1886, the same year as the Calcutta cholera maps. Both sets of maps employed similar color schemes. The Calcutta map marked the highest death-rates in the darkest color, while the Goad maps reserved the darkest color for wood buildings, and painted brick, stone, and concrete buildings in the lightest color.[48] Whereas the Calcutta map took the ward as the unit of analysis, Goad's maps used the individual building. This mapping technique allowed for a more granular analysis, and benefitted the fire insurance companies that purchased Goad's maps by allowing them to see incredibly detailed depictions of places they may have never see in person.

Fire insurance maps were primarily concerned with building materials, location, and the trades that buildings housed [See Figure 15]. Goad's maps noted each of these traits, and added even more details as the nineteenth century progressed. By the twentieth century, Goad fire insurance maps also included the number of floors in a given building, the placement and number of windows, the location of steam boilers or chimneys, and

[47] Tebeau, *Eating Smoke*, 191.
[48] Gwyn Rowley, *British Fire Insurance Plans* (Old Hatfield, Hertfordshire: C.E. Goad, 1984), 25, 32.

eventually the position of fire alarms or hydrants.[49] These maps were designed to help insurance agents write and sell policies in distant towns and also allowed fire insurance companies to diversify so as to limit policies in a particularly dangerous or hazardous area.[50] While not depicting literal statistics, fire insurance maps came the closest to applying actuarial science to fire risk by illustrating an increasing number of factors and their relationships to each other in cartographic form.

[49] Rowley, 32.
[50] Tebeau, *Eating Smoke*, 169.

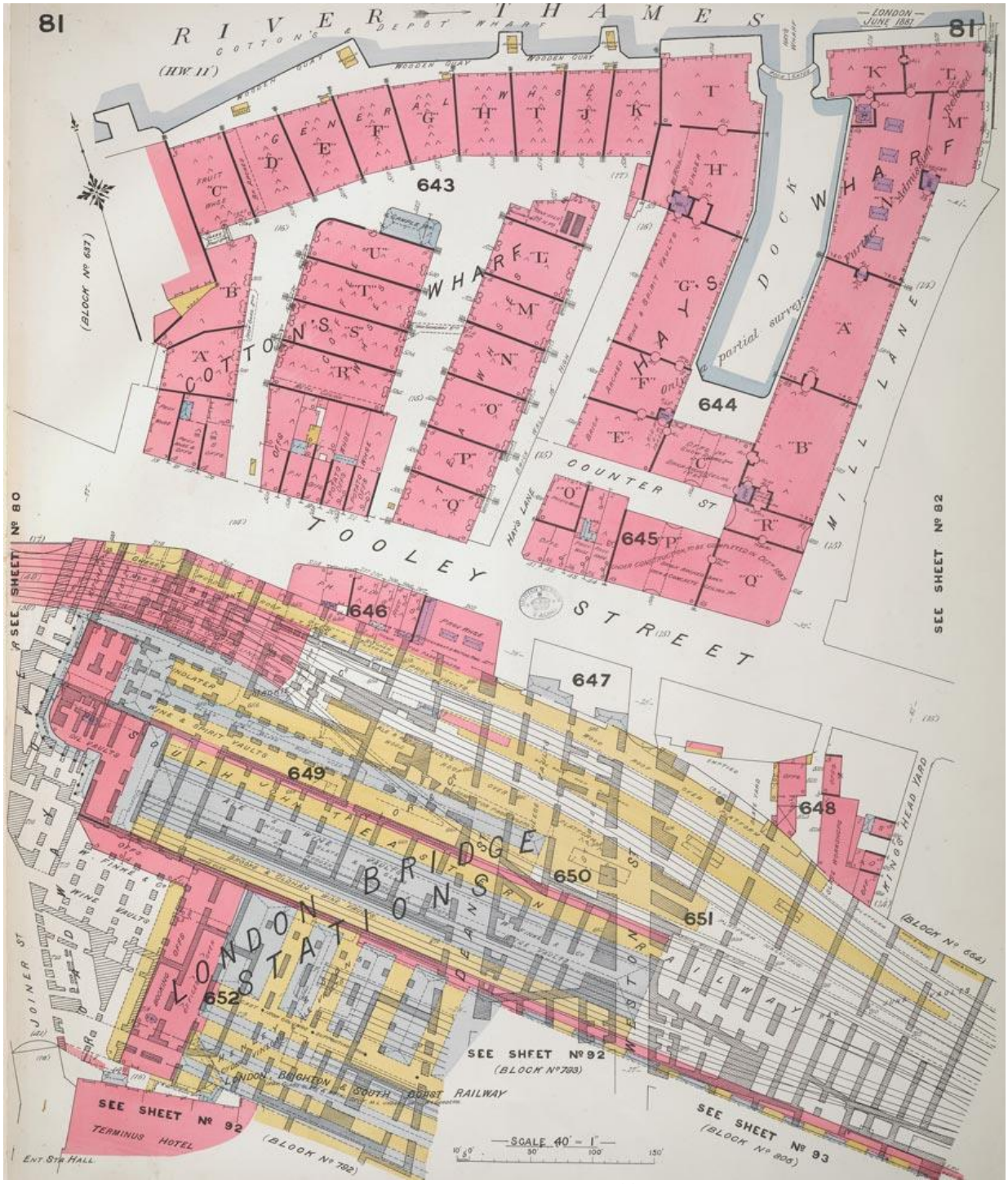

Figure 15 Detail of Goad Fire Insurance survey map for London, showing area of Tooley Street, from 1887 survey held by the British Library.

Taken together, disease and fire insurance maps provided a sense of the scope of urban risks, but they came at those risks from opposite directions. The cholera spot maps showed where deaths had occurred, leaving the reader to infer the correlations or

relationships between a given urban area and its death-rate. Fire insurance survey maps, in contrast, attempted to depict the potential for a given area or building to take fire. This predictive purpose required more extensive surveying, and made clear the factors involved in fire danger, while the cholera maps could only hint at them. The fire insurance maps did not show, however, where fires *actually* occurred. The fire insurance companies were concerned with the risk of fire, rather than the incidence, while the fire brigades held the opposite view. Still, both fire insurance and epidemic disease maps would provide the template for fire brigade mapping in the early-twentieth century. As we will see in Sections 3 and 4 the fire brigades used the preexisting tools from epidemic and fire insurance maps to construct their own maps.

5.3 Mapping London Fire Dangers and Resources

With municipalization in 1865, the Metropolitan Fire Brigade [MFB] were explicitly tasked with saving both lives and property from fire and in 1867 they took over the apparatuses and staff of the Royal Society for the Protection of Life from Fire [RSPLF] to fulfill the life-saving portion of that responsibility.[51] It was through life-saving in particular that firemen won their heroic statuses among the urban populace and the statistics around lives lost to fires were some of the most contested.[52] The 1902 Queen Victoria Street Fire, which killed ten young people, shook the city's confidence in the MFB, and this lack of trust continued through the remainder of the first decade of the 1900s.[53] One commentator,

[51] An Act for the Establishment of a Fire Brigade within the Metropolis, 818–20; "RSPLF Minutes Vol. 2."
[52] Starting in 1870 Captain Shaw included a whole section of his annual reports for explaining why lives were lost to fire and all of the exertions provided by firemen to prevent it from happening. Eyre Massey Shaw, "Report of the Chief Officer of the Metropolitan Fire Brigade on the State of the Brigade and the Fires in London during the Year 1870." (Metropolitan Board of Works, January 6, 1871), MBW/2322, London Metropolitan Archive.
[53] Phoenix, *Decay of London's Fire Brigade*.

Ernest Hamilton, even went so far as to say in a letter to the *Times*' editor that "one is reluctantly forced to the revolting conclusion that the objects of the Fire Brigade are not primarily humanitarian."[54] The debate over whether the fire brigade's purpose was primarily to protect property or lives had supposedly been settled by municipalization when the city's fire protection was taken out of the hands of the fire insurance companies whose vested interest was in protecting property. Yet, when so many lives were lost to a single fire, the question once again reared its head, and the almost reflexive trust in the fire brigade was shaken.

While the most evocative and damning image to come out of the Queen Victoria Street Fire was that of the fire brigade's ladder being too short to reach the young women trapped on the fourth floor, the blame was not entirely owed to the fire brigade. Much of the inquest into the fire devoted itself to the question of whether the Brigade's equipment was "efficient" or "sufficient" enough to save lives, but it also became clear that the MFB were not alerted to the fire as quickly as they should have been. The General Electric Company that ran the workshop in which the fire broke out had set up their own internal fire protection system and the "directions to send at once to the Metropolitan Fire Brigade had been cut out of the fire company's regulations…and as a matter of fact the news of the fire was delivered at Watling-Street [Station] by a casual stranger."[55] The MFB could not fight fires that they didn't know were happening, and the inquest jury agreed that "the call was a very late one, and in [their] opinion contributed to the lamentable loss of life."[56] Thus, the responsibility was shared between the brigade for extinguishing the blaze and Londoners for not alerting them sooner, but it was only the fire brigade that suffered public scrutiny

[54] "The Fatal Fire In The City," *The Times*, June 13, 1902, The Times Digital Archive.
[55] "The Fatal Fire In The City," July 30, 1902.
[56] "QVS Inquest v.2."

because they had raised Londoners expectations and then not met them. This breach of trust could not go unanswered.

In order to regain public trust after the Queen Victoria Street Fire, the Metropolitan Fire Brigade underwent several, largely cosmetic, changes. First, they replaced their chief fire officer from Captain Lionel de Latour Wells to another former Naval Officer, Rear Admiral James de Courcy Hamilton in 1903.[57] Neither officer had any firefighting experience prior to their appointments.[58] Second, in 1904, the brigade changed its name from the Metropolitan to the London Fire Brigade in an effort to appeal to Londoners and to rehabilitate the brigade's image.[59] Third, as discussed in the previous chapter, the brigade invested heavily in pompier ladders as one way of pushing back against Ernest Hamilton's comments and fostering further trust in the fire brigade through technological adoption.[60] Finally, in 1905 the fire brigade took one further step in regaining public trust and in educating Londoners and began appending maps to their annual reports.

In 1905, the London Fire Brigade [LFB] created their first two comprehensive maps and appended them to their annual report—one depicting all London's fires during the previous year and one showing the fire stations and alarms in the city. These maps illustrated the extent of the fire problem in London while reassuring Londoners that the fire brigade had it under control. Much of the London fire brigade's literature and reports worked to show "progress" in either coverage or capacity of the brigade to fight fires in order to rebuild public trust and to justify continued financial support. To achieve these goals,

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[57] Holloway, *Courage High!*, 117.
[58] Blackstone, *British Fire Service*, 296.
[59] Locals had already referred to the Brigade this way since the mid-nineteenth century, so it was not an immense shift. Horne, "The Fire Brigade of London"; Holloway, *Courage High!*, 113.
[60] By 1910 the LFB had put 319 pompier ladders into the standard fire engine's kit, whereas they had claimed none on the 1902 annual report. "LFB Annual Report 1910," 9.

London's chief fire officers used maps to demonstrate the brigade's essential role in metropolitan safety as the bearers of the social responsibility for extinguishing fires, and that they had the safety of all Londoners in their minds.

These maps served two purposes. First, the 1905 London Fire Brigade annual report simply described the fire map as one "upon which are marked the positions where fires occurred during the year"—the lack of explanation allowed the overall effect of the map to be greater than its mere depiction.[61] Indeed, by compressing the almost 5,000 calls for fires in 1905 onto a single map [excluding false alarms], it implied that fires were an omnipresent danger throughout the metropolis. For that effect, the mapmakers used the same temporal compression seen in the disease maps of the previous century.[62] The second purpose was to educate Londoners on where to find the closest fire station or street fire alarm. The 1906 LFB annual report drew particular attention to the station map as it hoped that it would "assist householders and others in becoming acquainted with the position of the nearest fire-station and fire-alarm."[63] London's complexity and skyline had reached such a point that it was no longer obvious where the fire brigade resided and so further education was required. In fact, the 1907 LFB annual report went even further stating that "It should be the duty of every citizen to know the position of the nearest fire-alarm or fire-station" and appended another map to show those stations and alarms.[64] The LFB, therefore, saw Londoners' social

[61] Hamilton, "MFB Annual Report 1905," 6.
[62] Gilbert, *Mapping the Victorian Social Body*, 46.
[63] James de Courcy Hamilton, "Report of the Fire Brigade Committee of the London County Council Submitting the Report of the Chief Officer of the Fire Brigade for the Year 1906" (London County Council, 1907), 6, LCC/PUB/01/091/1031, London Metropolitan Archive.
[64] James de Courcy Hamilton, "Report of the Fire Brigade Committee of the London County Council Submitting the Report of the Chief Officer of the Fire Brigade for the Year 1907" (London County Council, 1908), 6, LCC/PUB/01/104/1135, London Metropolitan Archive.

responsibility as not only preventing fires, but also in reporting fires quickly to the fire brigade.

The London Fire Brigade's fire maps highlight the need for citizens to take up this responsibility. The 1905 fire map [see Figure 16] depicted a detailed overlay of London with the entire jurisdiction of the London Fire Brigade forming a bright red border, the five fire brigade districts dividing the city with thinner red lines, and then blue dots for each fire. The scale of two inches to a mile allowed for more detailed street mapping and for the brigade's entire jurisdiction to be on one map. The choice of blue for depicting the fires followed from the social cartography tradition of shading the most immoral or dangerous items shown with the darkest colors.[65] Blue dots also helped to differentiate the fires from the black and white of the city map on which the dots were overlaid, even when the dots were placed in close proximity to each other as seen in the map detail [see Figure 17**Error! Reference source not found.**]. These cartographic choices characterized fire as endemic, requiring a strong fire brigade to combat them. Despite conveying the omnipresence of fire in London, the map also distorted the presence of fires in certain areas. The map implied that fires were more prevalent throughout the central part of the metropolis and grew less common toward the edges of the LFB's jurisdiction. Since the map does not include buildings, other than major public ones, it is difficult to tell the size of these fires, and social cartographers often had dots "drawn out of scale to emphasize the problem."[66] Any particular dot may have been a small fire contained to a single room, or a multi-building fire that gutted several properties. Unlike Calcutta's fire reports which noted an estimated

[65] See particularly Charles Booths' poverty maps or John Snow's cholera maps for other examples of this in London. Vaughan, *Mapping Society*.

[66] For example, the National Temperance League's map of pubs in London. In their 1884 map, pubs were indicated by pink spots on a black and white map, that were drawn out of scale. Vaughan, 179–81.

amount of property destroyed by fire, London's reports only divided fires based on "serious" or "slight" damage. Even this distinction was dropped on the 1905 map as the fire brigade's effort to depict the full number of metropolitan fires necessarily elided the significance of particular fires, thereby flattening Metropolitan fires in general.

Figure 16 Full map of London Fires in 1905, from 1905 *London Fire Brigade Report* held by London Metropolitan Archives, photo by author.

Figure 17 Detail from map of London fires in 1905 showing HQ and North-Central fire brigade districts, from 1905 *London Fire Brigade Report* held by London Metropolitan Archives, photo by author.

The fire map included with the 1910 annual report sought to remedy this by including separate red dots for "serious fires" as seen in the detail image from that map [see Figure 18].[67] This updated mapping technique allowed the fire brigade to show both the ubiquity of fires as well as the relative infrequency of serious fires—emphasized by the color distinction between the dots. This latter argument, that serious fires were significantly fewer, had already figured in the fire brigade's annual report statistics, but in 1910 they visually showed the difference. For example, in his 1900 annual report Captain Wells included a table on the first page comparing the serious to slight fires for the average of 1890-99 and for the single year 1900 to show a diminution in the rate of serious fires. While the annual average of 170 serious fires for the decade preceding 1900 and 115 serious fires reported for the year 1900 appears significant, it does not take into account the various definitional changes related to the reporting of such fires or the fact that comparing a multi-year average to a single year is statistically suspect. It served the argument Wells wanted to make, though, by suggesting that the rate of serious fire had gone down despite the fact that overall total fires had increased.[68] While the visual choices in the 1910 map allowed Londoners to see just how vast the gulf between "serious" and "slight" fires was, they continued to impress the overall fire danger upon Londoners.

[67] "LFB Annual Report 1910."
[68] Lionel de Latour Wells, "Report Made to the Fire Brigade Committee of the London County Council by the Chief Officer of the Fire Brigade on the Fires in London and the Work of the Brigade During the Year 1900" (London County Council, 1901), 2, LCC/PUB/01/040/0507, London Metropolitan Archive.

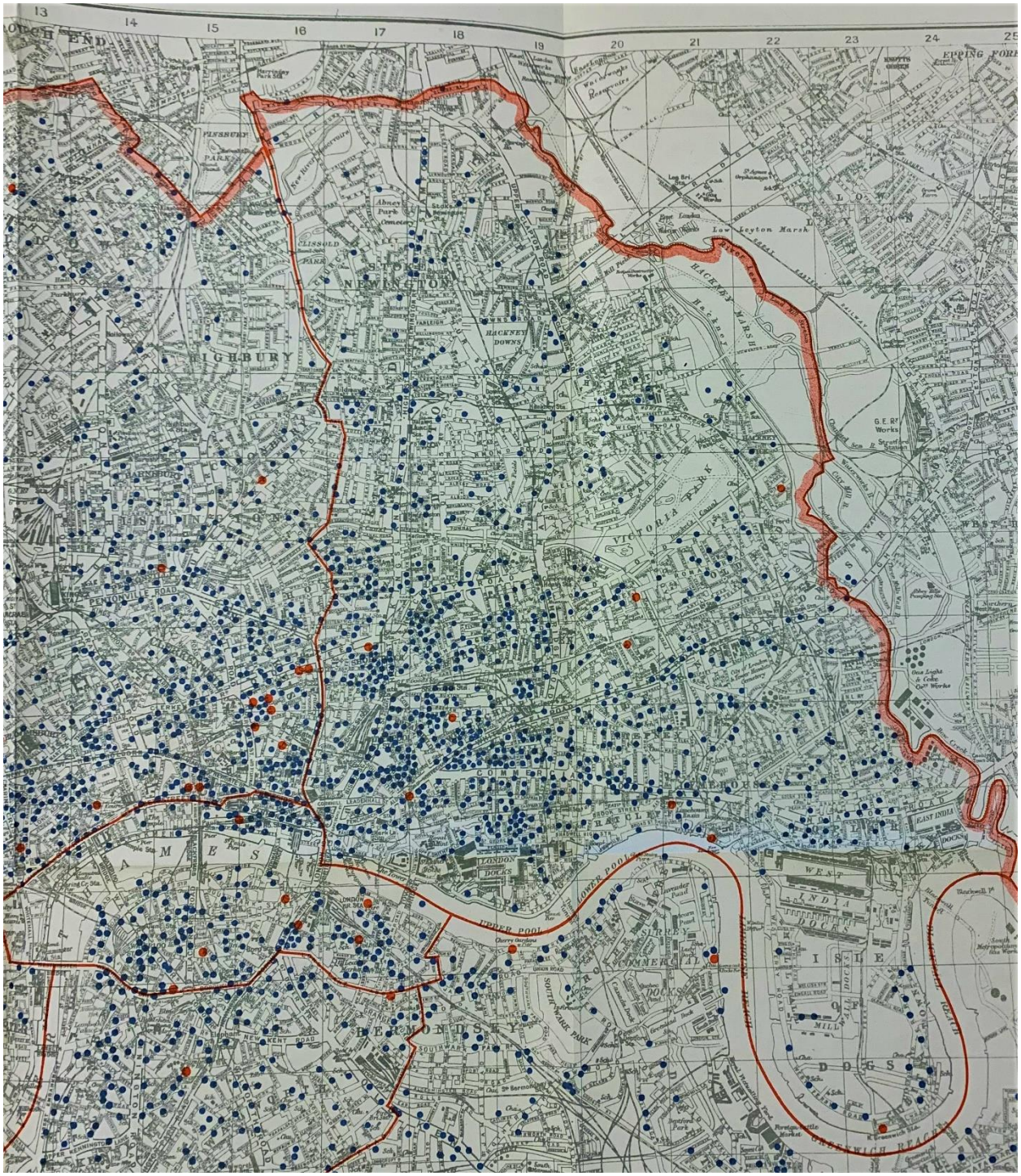

Figure 18 Detail from map of London fires in 1910 showing HQ and North-Central fire brigade districts, from 1910 *London Fire Brigade Report* held by London Metropolitan Archives, photo by author.

On the second map included in these annual reports [see Figure 19] the mapmakers used outsized symbols and out-of-scale lines to demarcate the technological reach of the London Fire Brigade. This map showed simultaneously the different types of stations and

communications systems while also revealing the brigade's planned expansions of each [see Figures 20 and 21]. This map was not simply reflective of current conditions, but also made progressive claims for the future. The map supports these claims by showing the stations' connections to the electric fire alarms around them, and the telephonic communications set up between the stations and specific buildings that desired them. Both of these were relatively new technologies and showed the fire brigade's willingness to incorporate new technologies into their repertoire. Finally, by mapping the alarm connections the map shows better just how the fire brigade's resources covered its jurisdiction. While there were no fire stations by the edges of the map, the extension of the alarm system toward the outer reach of the brigade's jurisdiction made a visual promise to Londoners that even fires at the outer bounds were a priority.

Figure 19 1905 Map of London Fire Brigade Stations with depictions of fire alarm, telegraphic, and telephonic communication systems. Held by London Metropolitan Archives, photograph by author.

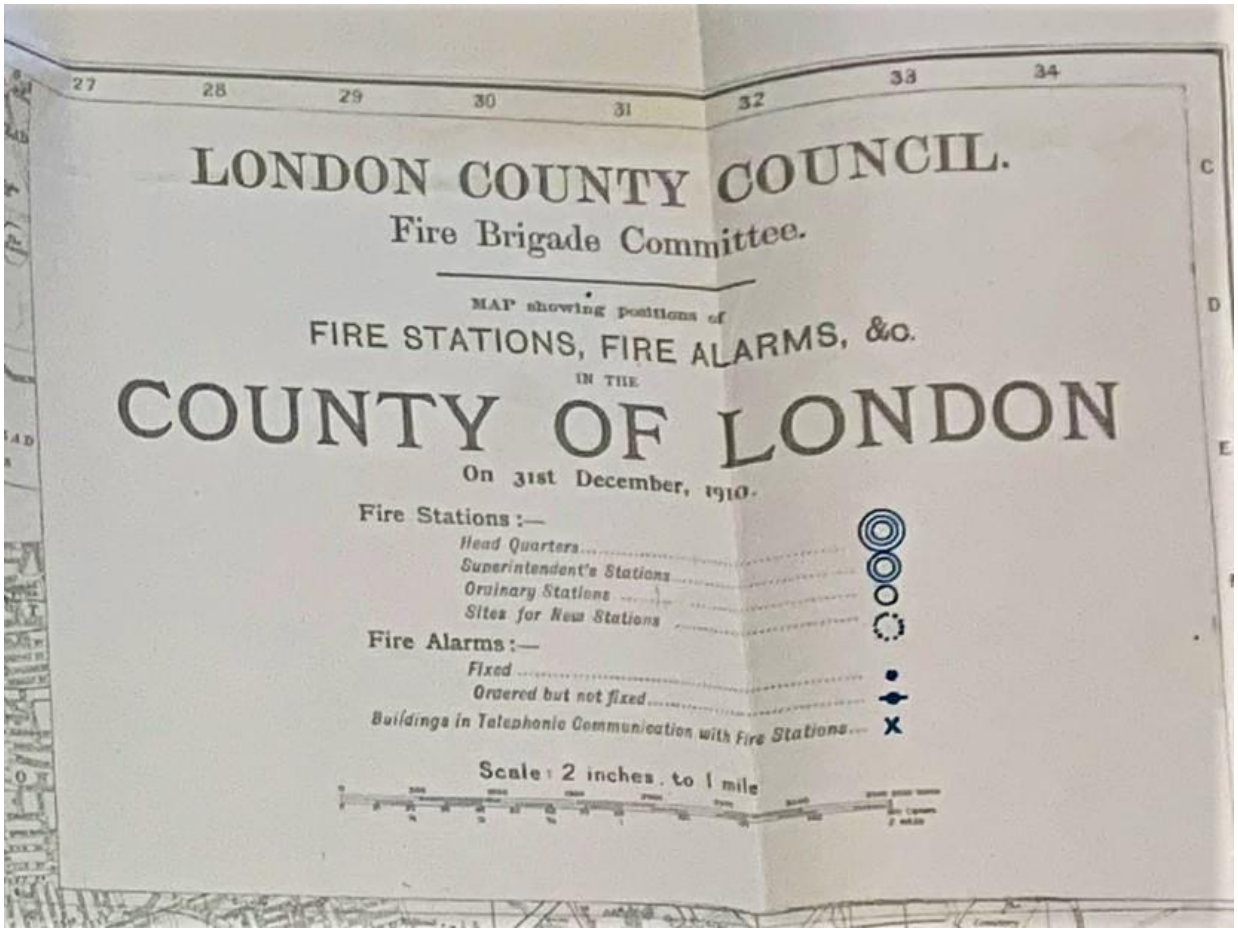

Figure 20 Key to LFB Fire Station Map from 1910, held by London Metropolitan Archives, photograph by author.

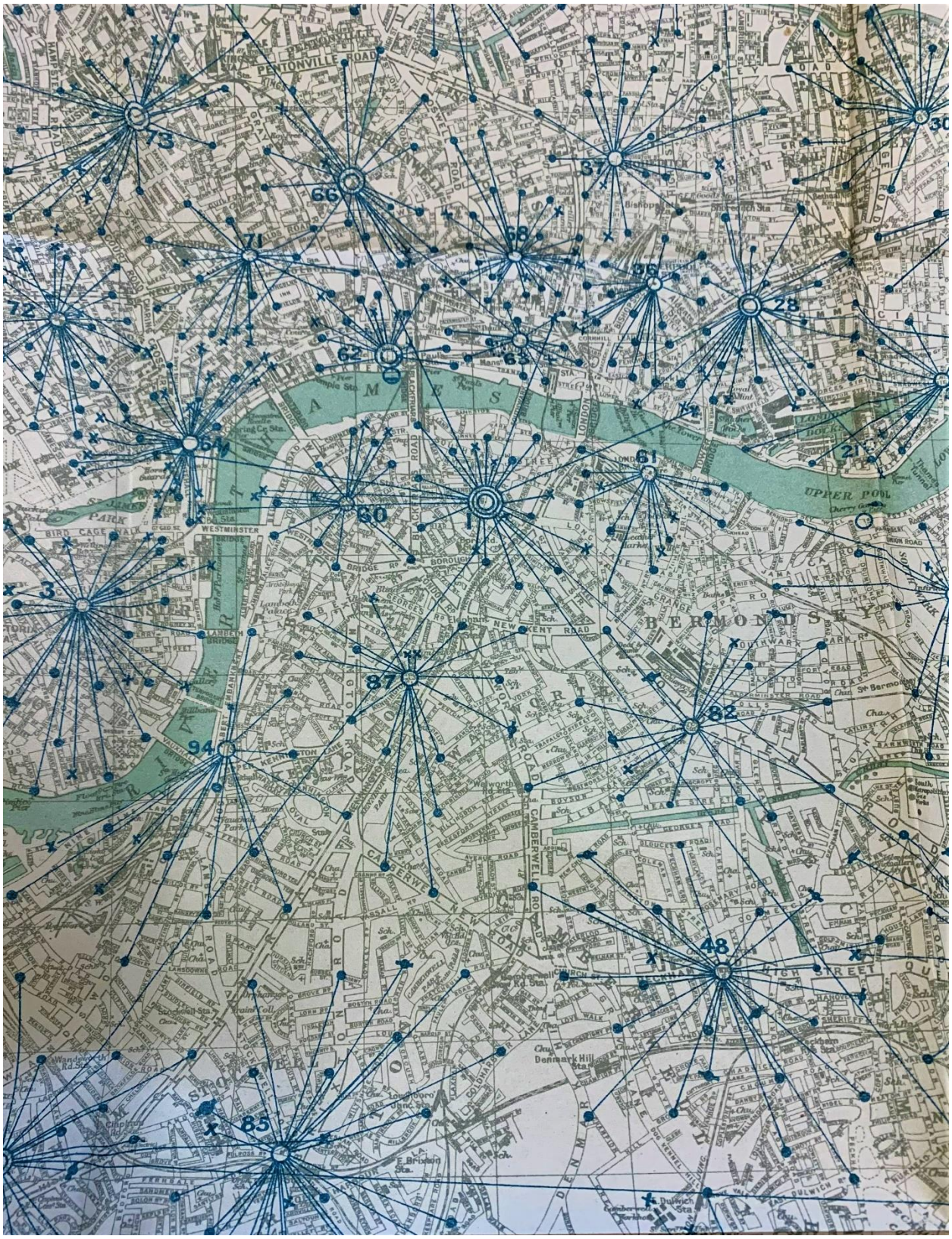

Figure 21 Detail of 1905 Fire Station and Alarms map. Held by London Metropolitan Archives, photograph by author.
[Note Station 82 has three proposed street fire alarms and two buildings in telephonic communication with it.]

These fire station/alarm maps revealed the London Fire Brigade's protection priorities and their own risk assessments for where fires were most likely to occur in the city. As seen in Figure 11, street fire alarms were generally placed along major streets close to concentrated fire dangers in order to allow Londoners easiest access to them. Running to a street alarm would likely have been faster than having to run all the way to a station as Ballantyne described.[69] Receiving a call quickly was a priority for the fire brigade, which helps explain why some buildings had direct telephonic connections to a fire station. These buildings often had particular cultural significance—such as the Houses of Parliament connected to Station 3 in Figure 11 or the Tower of London which had telephone lines to Stations 1 and 28—or were at particular risk of burning—such as the various Dockyards and riverside warehouses like the London Docks connected to Station 28. Furthermore, Figure 9 reveals where in the city stations and fire alarms were concentrated. A greater station density prevailed in central London, with stations growing farther apart out toward the edges of the brigade's jurisdiction. In terms of fire alarms, however, far greater numbers of connections existed to stations in the northern and western parts of the jurisdiction than in the southern or eastern parts. For example, Station 76 in northern Highbury had twenty-six fixed or ordered connections in 1905, whereas Station 56 near Eltham in Southeast London had five fixed and five ordered fire alarm connections.[70] This difference was partly a result of how London was expanding over time as well as class differences—Highbury was an older and richer suburb. Where the fire brigade placed their stations and their fire alarms showed what parts of the city they prioritized and the role played by class in this distribution.

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[69] Vaughan makes a compelling case for the use of spatial syntax analysis to uncover inequities in access within urban settings and to show the relative segregation of certain streets from others. This analysis would likely allow us to calculate the relative access of any given street fire alarm to its surrounding neighborhood. Such analysis is currently beyond my skillset. Vaughan, *Mapping Society*, 223–29.

[70] Hamilton, "MFB Annual Report 1905."

Ultimately, the goal of the London Fire Brigade's maps was to illustrate the city's pervasive fire problem, argue for the fire brigade as the solution to the problem, and to build up the citizens' trust for their fire brigade. By mapping both problem and solution, the LFB hoped to make explicit the need for a well-supported and broadly-stationed fire brigade. The brigade also marked out their own metropolitan reality, with its concomitant social ills, and endeavored to portray what their statistics had been arguing since municipalization—that the LFB had the fire problem well in hand.

5.4 Mapping Calcutta Fire Dangers and Resources

While the London Fire Brigade was arguing it had control over the fire problem in the 1900s, the Calcutta Fire Brigade sought to prove its own control in the 1910s. Following the Calcutta Fire Brigade's reorganization in 1912, they opted to map both the fires and their fire brigade resources on a single map, which argued in the brigade's favor for continued funding and support while obscuring some of the inequities in Calcutta's fire protection system. For Calcutta, the 1910s saw both brigade reorganization and a new British chief officer, Bernard Westbrook, who sought to justify the city's expenditure toward reorganization and to garner funding for the brigade's continued support. To achieve these goals, he used maps of Calcutta's fires to illustrate the danger that permeated the city.

The Calcutta fire brigade published its own fire maps along with their annual reports between 1913 and 1915. Rather than blue dots, the Calcutta map used red dots to demarcate fires, hearkening back to the cholera maps of a few decades before.[71] Despite having many fewer fires (in raw numbers) to depict than London, the map of Calcutta fires from 1913 [see Figure 22] was still able to convey similar arguments.[72] For example, the map showed

[71] See the 1886 cholera map discussed above. Calcutta Corporation, "Calcutta Mun. Admin. Report 1886."
[72] Westbrook, "1913 CFB Report."

greater geographical concentration of fires in the northern part of the city, close to the Hooghly, where a number of jute businesses were built alongside bustees [slums or shanty towns] and other impermanent buildings. Despite the 1872 Jute Warehouse and Fire-Brigade Act and its amendments in 1883 and 1893 adding increasingly strict regulations on jute storage and the workers who stored it, Calcutta's jute industry continued to be its most fire-dangerous commercial entity into the twentieth century.[73]

[73] Act no. II of 1872. "Bengal Acts, 1862-1876"; "Bengal Acts, 1881-1886," 1881, IOR/V/8/125, British Library, India Office Records; "Bengal Acts Reprinted as Modified, 1913-1915," 1913, IOR/V/8/139, British Library, India Office Records.

Figure 22 Map of Calcutta Fires in 1913, from 1913 Calcutta Fire Brigade Annual Report, held by the British Library, photograph by Robin Reich.

The Calcutta Fire Brigade's choice to map fires and fire brigade resources on the same map served to make explicit the connections between the two. The Calcutta Fire

Brigade had just begun its significant reorganization in 1911 and the 1913 annual report was the brigade's first major opportunity to justify their reorganization and to argue for continued support. For example, the reorganization report called for the addition of two full fire stations near Nimtolla Ghat Street in northwest and Sukea Street in northeast Calcutta.[74] The proposed Nimtolla station is in Figure 23 toward the top of the image, but was just a "sub fire station" as seen by reference to the key in Figure 24. This meant that while there was a fire brigade presence in the neighborhood, it was not as well-equipped or well-crewed as the more central stations. Yet, by mapping the city's fires alongside its stations the Calcutta brigade could show the worrying concentration of fires around the proposed station, thereby providing further justification for a full station expansion in that area. Captain Westbrook's reorganization report also called for introducing street fire alarms to place Calcutta on the same footing as "Bombay and Darjeeling, Rangoon and, further East, Penang and Singapore," which all had their own street alarms before Calcutta.[75] This 1913 map showed the fire brigade's first street fire alarms placement. Two can be seen in Figure 16, one just north of the headquarters station and the other in between the government buildings and Barabazar. Like on the London fire brigade maps, these street fire alarms marked "progress" as such and offered a method for how the fire brigade could and would make the whole city safer over time. As seen in the last chapter, incorporating new technology was seen as the way to prove progress and to garner public trust, and the addition of the proposed fire alarms bolstered the fire brigade's claims to progressiveness and forward-thinking.

[74] *Report on the Reorganization of the Calcutta Fire Brigade*, 2.
[75] *Report on the Reorganization of the Calcutta Fire Brigade*, 5.

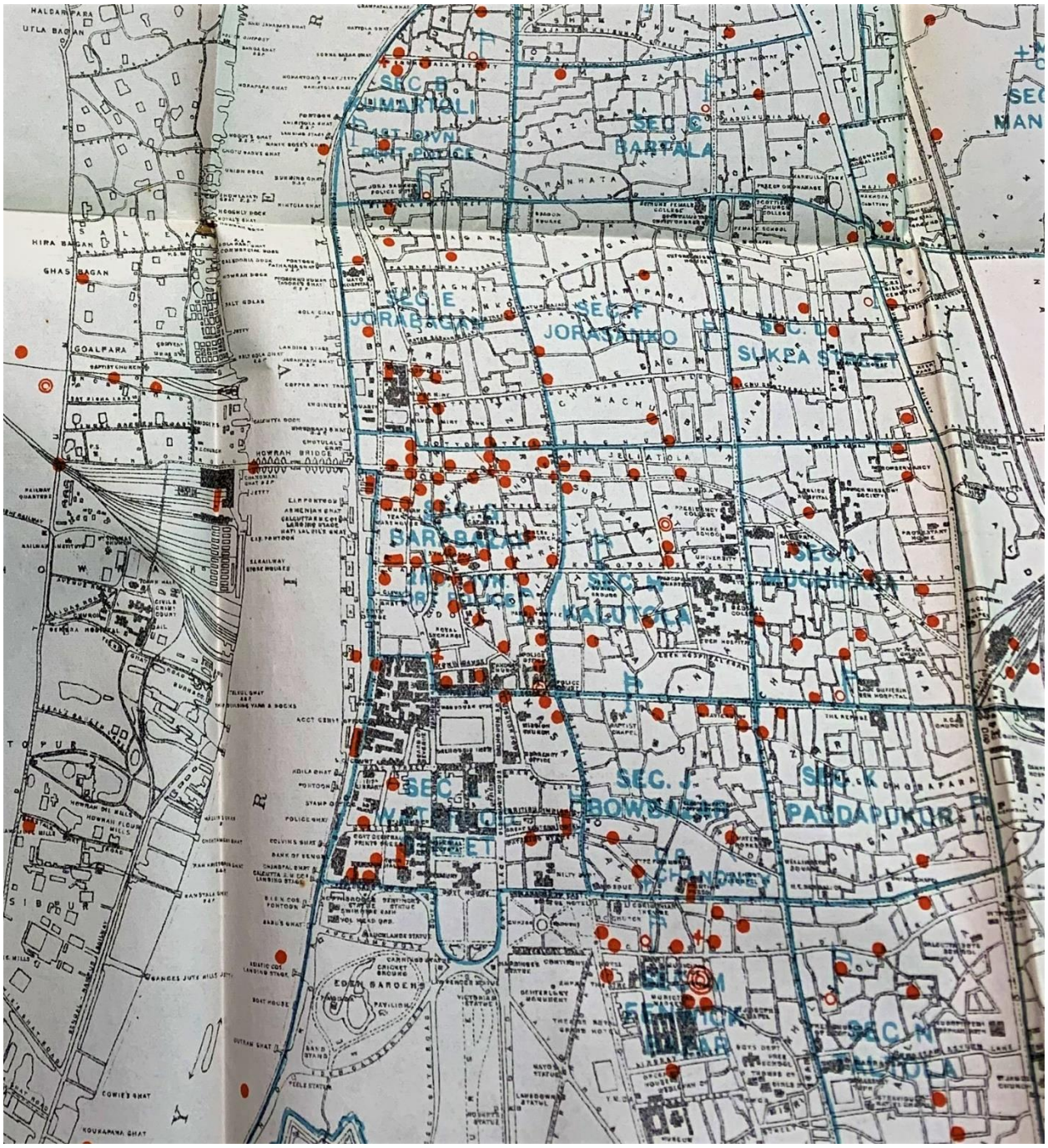

Figure 23 Detail for map of fires in Calcutta in the year up to March 1913, from the annual report of the Calcutta Fire Brigade, held by the British Library, photograph by the author.

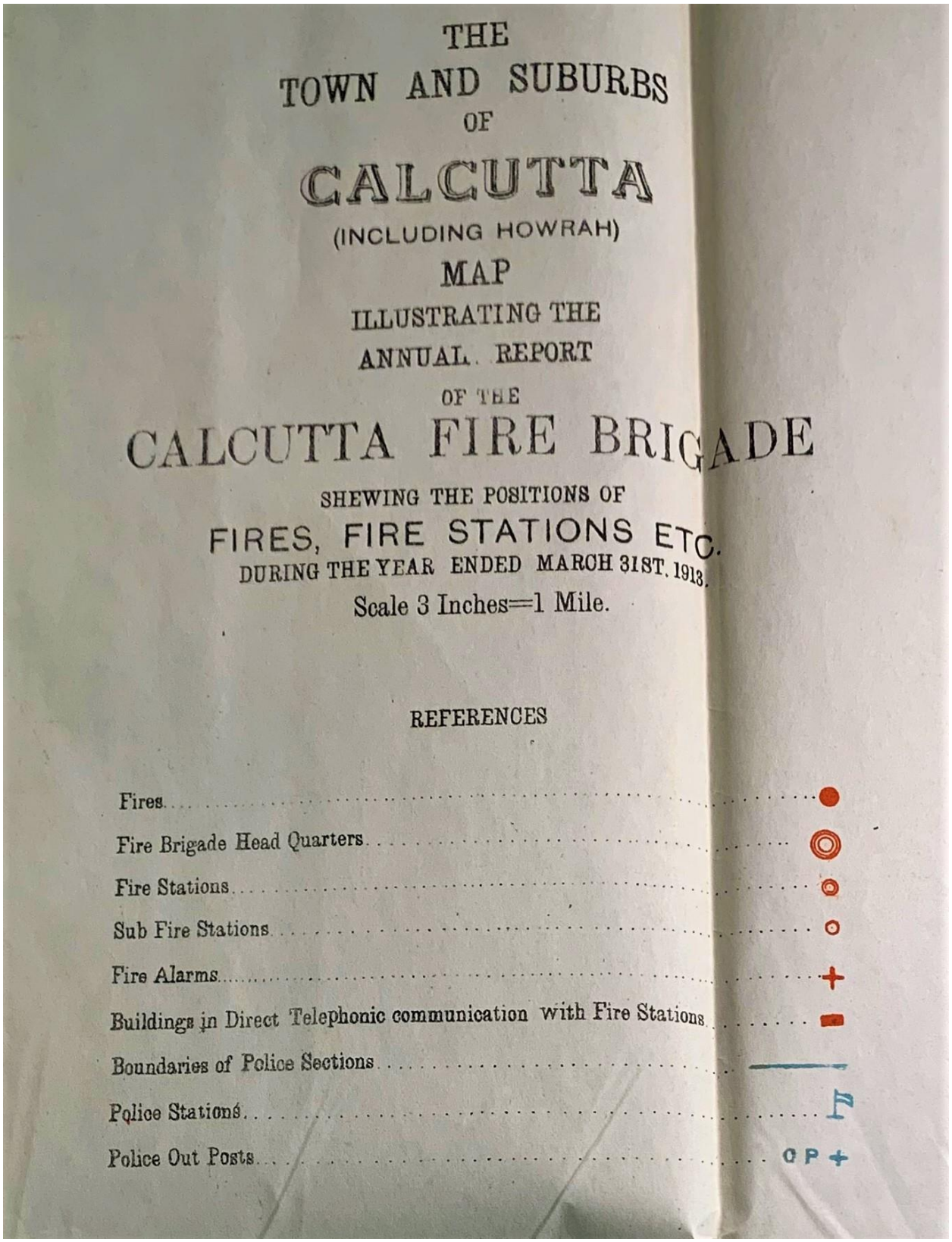

Figure 24 Key to the fires and fire stations map of the Calcutta Fire Brigade in the 1913 annual report, held by the British Library, photograph by the author.

While jute warehousing provided the most spectacular and costly fires in Calcutta, all of the city's trades contributed to its increasing susceptibility to fire. Figure 23 shows Barabazar, the Calcutta ward with the most fires in 1913. This ward was one of the busiest in the city and was filled with warehouses and traders as it fronted onto the Hooghly and several important trading Ghats [steps down to the river]. Barabazar's flammability derived from the variety of goods that it housed and traded, which included "Cotton, woollen and silk *alpac,* Indian cotton cloth, woollen cloth, cloth—Indian/foreign, silk shawl, diamond, pearl, brass, brass and bell metal utensils, copper, iron, iron plates, rods, etc., cement, wooden boxes, ghee, sugar, salt, tin, paints, [and] indigo."[76] These diverse and flammable goods, workers traveling in and out of the ward on a daily basis, and work conducted by lamp or torchlight late into the night, together created numerous opportunities for fires to break out, as we saw in the description of the Laprimaudaye fire in Chapter 1.[77] While many municipal by-laws limited the items and methods of street trades that could occur in Barabazar and Calcutta's other open markets, fire protection was sparse. The 1872 Jute Warehouse and Fire-brigade Act only offered a penalty for "introducing fire" into a cotton or jute warehouse through Lucifer matches or smoking.[78] Such prescriptions, even with a fine of up to 50 rupees, were likely not enough of a deterrent when there was money to be made. Thus, Barabazar burned.

The Calcutta fire map also shows the brigade's jurisdiction, including instances where the fire brigade even attended fires outside of the boundaries of Calcutta proper. Here,

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[76] Keya Dasgupta, "A City Away from Home: The Mapping of Calcutta," in *Texts of Power*, ed. Partha Chatterjee, NED-New edition, Emerging Disciplines in Colonial Bengal (University of Minnesota Press, 1995), 162, https://www.jstor.org/stable/10.5749/j.ctttsttm.10.
[77] "Papers Regarding a Fire..."
[78] Satakshi Sinha, "Planned Markets, Ordered Spaces: The 'By-Law-gical' Imagination of the Urban Environment," *Proceedings of the Indian History Congress* 75 (2014): 678–83; "Bengal Acts, 1862-1876," 10.

Westbrook argued that his fire brigade could have efficacy regionally, not just locally.[79] By choosing to map their resources (stations, alarms, etc.) onto the same map as the fires, the Calcutta fire brigade encouraged the viewer to judge the distances traveled between the fire stations and the fires, which could be significant. While a city-wide map of fires in Calcutta made the problem seem serious and widespread, a ward-by-ward map would potentially have undermined such a conclusion.[80] Still, the inclusion of Howrah and the suburban municipalities on Calcutta's fire brigade map firmly marked them as within the purview of Calcutta's municipal institutions despite varied governmental forms.

While the maps pointed toward the Calcutta fire brigade's progressiveness, the actual distribution of their resources did not necessarily carry that conclusion. Much like London, the CFB distributed their plant—fire engines, hose carts, ladders, etc.—and their personnel unevenly between their various stations. For example, in 1913 Calcutta's fire brigade headquarters had a petrol-motor engine attached for its use, a petrol-motor hose tender, three horse-drawn steam fire engines, and two hand-drawn manual fire engines. The stations at Howrah and Chitpur, one on the west side of the Hooghly and the other in the far northern edge of the suburbs, each had one horse-drawn steam fire engine, while the Garden Reach and Palmer's Bridge stations each had hand-drawn steam engines. Even smaller, the three stations at Bhowanipur, Watgunge, and Sibpur, each had only a single hand-drawn manual fire engine with which to fight fires. So much of the powerful firefighting apparatuses were kept at the headquarters station that it is likely many of these outstations served only to slow the fire down in its initial stages in order to allow for the larger engines to arrive from the city center. This trip was longest to Chitpur, Howrah, and

[79] *Report on the Reorganization of the Calcutta Fire Brigade*.
[80] Vaughan, *Mapping Society*, 180.

Garden Reach, which partially accounted for their slightly better equipment, the other part was the value of the people and goods in those neighborhoods.[81] Each of these stations' ability to fight a fire was drastically different based on their equipment and personnel, yet on the map the only distinction offered is that between the Headquarters and the outstations.

The way the Calcutta brigade mapped its stations obscured these differences and instead offered a holistic vision of the city's fire protection system. The mapmakers opted into this obfuscation for the same reason that they relied on temporal compression for their fire maps: to make a more compelling argument. For the CFB, depicting both fires and resources onto the same map allowed them to argue that their resources met the fire problem almost entirely. This argument allowed Chief Westbrook and the CFB to justify their reorganization a year before and elicit continued support for their fire protection scheme. However, as the next section will show, such a scheme did not benefit all of Calcutta's residents equally.

5.5 Mapping Social Inequity

Contrary to the fire brigades' intended arguments, the very act of mapping fire brigade statistics placed the service's role in the city in conversation with other urban realities. This section reads the maps discussed in the previous two sections against the grain, in conversation with other social cartography, to expose the logic behind the distribution of fire brigade resources and the brigades' construction of the fire problem. Or, as Laura Vaughan has argued, we can analyze social maps to illustrate the ways in which cities have developed to meet social needs or failed to do so with resulting social inequality.[82] The fire service itself had adapted to social needs over the course of the nineteenth century, and once

[81] Westbrook, "1913 CFB Report," vi.
[82] Vaughan, *Mapping Society*, 19.

it began earnestly mapping in the twentieth century it entered the social cartography conversation. Their maps, in turn, reveal how they understood their city's fire problem and their roles in solving it within an unequal society.

Despite Calcutta and London's inequality, their fire brigades' sought to provide fire protection coverage to all parts of their cities. Yet, placing fire stations all around a city could also cause some consternation among the local population, as the LFEE did in 1840. The LFEE committee received a letter "from Miss Clarke of Jeffries Square…complaining of the Children of the firemen belonging to that station playing in the square."[83] As most firemen and their families lived over or near their stations until 1920, this could bring their families into close contact with people of other classes and/or cultures.[84] In this particular instance, the Fire Brigade committee chose not to respond with any policy, but rather fell back on their tendency to focus on their own firemen's morality and discipline. The committee noted that "they cannot interfere with the Children of the Parish, but cautioned the firemen against using uncivil language."[85] In other words, the firemen were being told to mind their language where Miss Clarke might hear and that by virtue of being in the parish, the firemen's children were beyond the scope of the committee's control. So, despite Miss Clarke's dislike for the way the firemen's children played—or the fact that they were playing in her square at all—it was important for the fire brigade to have a station there and the committee needed its firemen to make the situation work.

By examining Charles Booth's 1899 London poverty maps it is clear that firemen were often at class-based odds with their stations' neighborhood. Booth's maps categorized street portions based on the relative poverty of the people who lived there dividing

[83] "LFEE Committee Minute Book 1837-41," 185.
[84] Segars, "Working for London's Fire Brigade," 167.
[85] "LFEE Committee Minute Book 1837-41," 186.

Londoners into seven different classes. Booth based these classes on "the state of the housing,…the size of the household and—importantly—the regularity of its income."[86] Regularity of income often put firemen ahead of some of their working-class neighbors, but the income amount was not enough to mark firemen as middle-class despite their professional status. Thus, Booth's maps revealed the intense intermixing of social classes across London including the fire brigade's firemen. For example, Figures 25 and 26 show two different London neighborhoods with their fire stations circled. Figure 25 shows the MFB's headquarters in Southwark colored pink, which marked it on Booth's map as denoting "Fairly comfortable. Good ordinary earnings." Yet, the HQ was surrounded by light blue streets— "Poor. 18s. to 21s. a week for a moderate family"—and dark blue streets— "Very poor, casual [laborers]. Chronic want." The wages firemen earned thus separated them from the casual laborers and working-class families that lived around them. Figure 26, in contrast, showed how close the firemen could be to the upper-classes, but still be denied coexistence. The fire station in Figure 26 faced onto Symons Street and Sloane Square and was marked on Booth's map as part of a red street meaning it was "Middle class. Well-to-do." Yet, just behind the Sloane Square Station, Sloane Street going north toward Hyde Park was marked out in gold coloring, meaning "Upper-middle and Upper classes. Wealthy." Thus, while the fire station could exist near to an upper-class neighborhood, by virtue of their labor the firemen could not fully integrate into that neighborhood.[87]

[86] Vaughan, *Mapping Society*, 71.
[87] Charles Booth, *Map Descriptive of London Poverty, 1898-9 (in 12 Sheets)*, 6 in to 1 mi (London, 1899), London School of Economics and Political Science, https://booth.lse.ac.uk/.

Figure 25 Detail of MFB Headquarters station in Southwark from Charles Booth's 1899 Map of Poverty in London, highlighting circle added by the author. Maps held by the LSE department of Economics and Political Science.

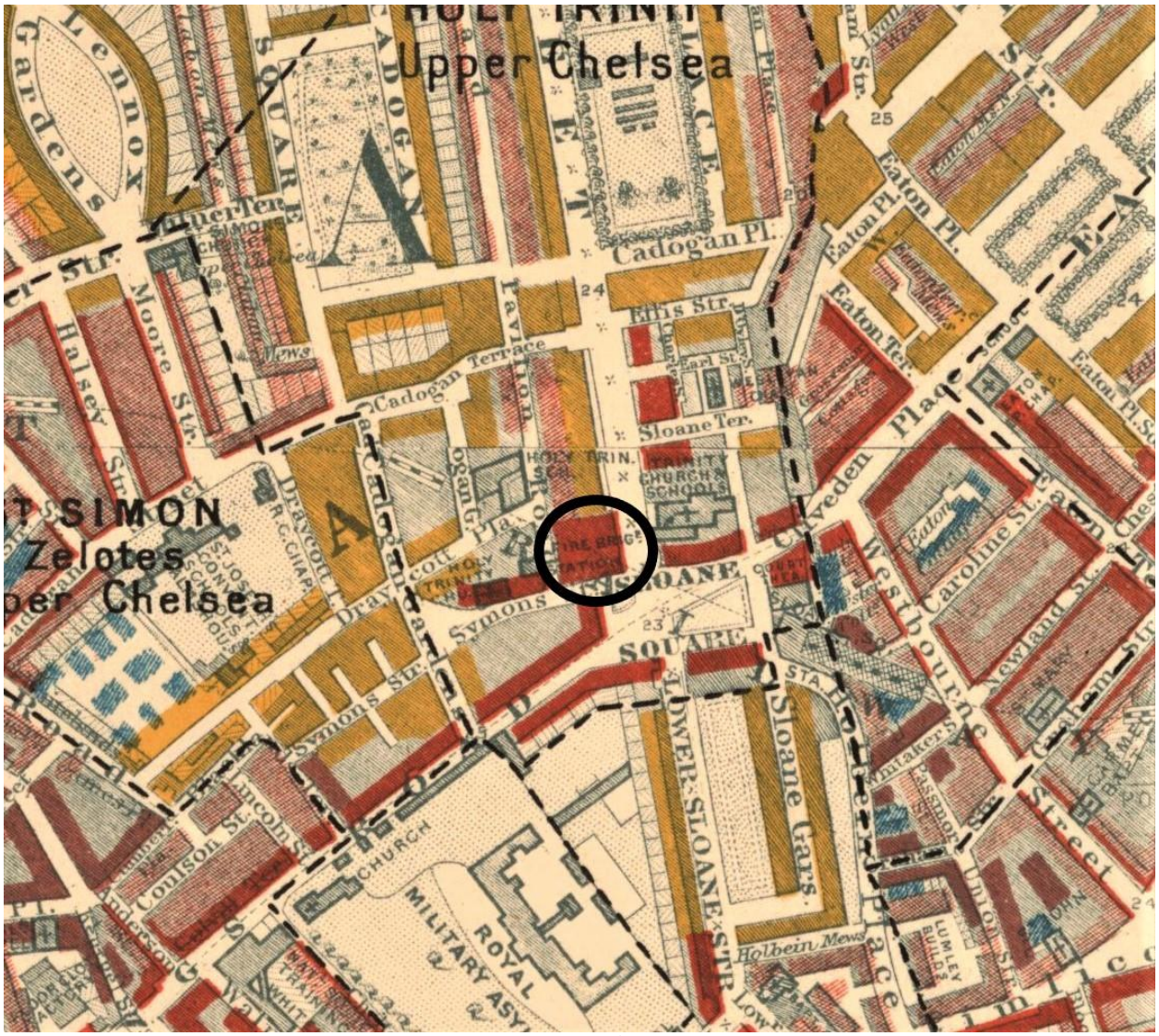

Figure 26 Detail of Sloane Square station in Chelsea from Charles Booth's 1899 Map of Poverty in London, , highlighting circle added by the author. Maps held by the LSE department of Economics and Political Science.

Despite being unable to fully integrate socially into their neighborhood communities, the municipalization of fire protection necessitated fire stations be placed throughout the Metropolis in order to save lives from fire. The integration of the RSPLF's fire escapes into the Metropolitan Fire Brigade cemented the latter's role in saving lives from fire as laid out in the Metropolitan Fire Brigade Act.[88] The Chelsea station on Sloane Square featured in

[88] An Act for the Establishment of a Fire Brigade within the Metropolis.

Figure 26 was one such station.[89] Chelsea did not contain a lot of industrial buildings or warehouses, but the neighborhood's growing population in the late-1890s made establishing a station there important to the MFB's life-saving agenda. This was in direct contrast to the LFEE, which had refused to make stations in the suburbs or other parts of London with greater concentrations of houses than industrial concerns. In fact, the Law Fire Office complained that the LFEE's "present defective system in placing the Engine Stations" left the houses in North London, which that office insured unprotected from fires.[90] This conflict around the purpose of a fire brigade led the Law Fire Office to leave the LFEE in 1860, and to look elsewhere for protection of their policyholders. Whatever the institution in charge of the fire brigade, the new emphasis on life-saving tied fire protection to the population.[91]

The Calcutta Fire Brigade made this connection between fire protection and population explicit on their 1913 map. In addition to mapping the previous year's fires and the city's fire stations, the map included a table with each Calcutta ward, its acreage, and its population [See Table 4].[92] By placing this table on the same map, the brigade invited statistical comparisons, while not explicitly making those comparisons themselves. Adding the number of fires in each ward, noting whether or not the ward had a fire station, and calculating the population density of each ward reveals some interesting correlations. First, there was a slightly negative correlation between population density and occurrence of fires in 1913 Calcutta. While the ward with the most fires, Barabazar, was middling in terms of

[89] Booth, "Booth's Poverty Map."
[90] "LFEE Committee Minute Book 1858-60," 158–61, 175.
[91] Not counting the number of people living over their shops, about thirty percent of the endangerments by fire reported in the 1870 MFB annual report were in private or lodging houses, which was by far the largest single category of locations. Shaw, "MFB Annual Report 1870."
[92] Westbrook, "1913 CFB Report."

both population and population density, the next two wards with the most fires—Cossipur-Chitpur and Howrah, both suburbs—had significantly lower population densities due to their high acreage. This unexpected finding is in part because the majority of Calcutta's fires occurred in industrial settings rather than domestic ones. In the CFB's 1913 report, Chief Westbrook listed 25 of the most damaging fires of the year. Of those 25, fifteen occurred in godowns, dock sheds, or ships while only four occurred in dwellings or huts.[93] Despite the relative efficacies of the Licensed Warehouse and Fire Brigade Act (Act I of 1893) in limiting the fire danger in Calcutta's godowns and docks, they remained the city's most fire-prone areas into the twentieth century.[94]

Ward	Name	Area (acres)	Population	Fires	Population Density (people per acre)	Fire Station?
1	Shampukur	409	53036	4	129.67	
2	Kumartoli	217	33073	9	152.41	
3	Bartala	403	54610	3	135.51	
4	Sukea St	320	48112	6	150.35	
5	Jorabagan	243	52114	12	214.46	
6	Jorasanko	262	59541	5	227.26	
7	Barabazar	217	30495	36	140.53	Y
8	Kalutola	224	57094	9	254.88	Y
9	Muchipara	460	63362	12	137.74	
10	Bowbazar	147	25014	7	170.16	
11	Paddapukur	166	29966	3	180.52	
12	Waterloo St	211	6284	10	29.78	
13	Fenwick Bazar	192	28436	11	148.10	Y
14	Taltola	198	32112	6	162.18	
15	Colinga	179	11385	4	63.60	
16	Park St	153	5294	2	34.60	
17	Bamun Bustee	128	3125	0	24.41	
18	Hastings	198	5550	1	28.03	
19	Entally	1111	45072	6	40.57	Y
20	Beniapukur	832	37881	3	45.53	

[93] Westbrook, iii–iv.
[94] "Bengal Acts Reprinted as Modified, 1913-1915."

21	Tollygunge, Ballygunge	2067	39952	4	19.33	
22	Bhawanipore	816	54569	9	66.87	Y
23	Alipore	1241	19749	6	15.91	
24	Ekbalpore	921	21869	9	23.74	
25	Watganj	729	43806	12	60.09	Y
26	Ultadanga	66	9662	4	146.39	
27	Manicktollah	124	13692	4	110.42	
28	Balliaghatta	84	13739	7	163.56	
29	Balliaghatta	197	6966	7	35.36	
Fort	Fort William	1283	4411	0	3.44	
Port	Port of Calcutta	7040	26390	9	3.75	
Suburbs 1	Cossipur Chitpur	2043	48178	20	23.58	Y
Suburbs 2	Manicktollah	2176	53767	4	24.71	
Suburbs 3	Garden Reach	2176	45295	5	20.82	Y
Howrah	Howrah	4480	190000	13	42.41	Y

Table 4 Table showing the population, area, and Fires in the various wards of Calcutta in the year ending March 31, 1913. Ward, Name, Area, and Population are all from the original table. Fires, Population Density, and Fire Stations added by the author.

Further analysis of Table 1 shows that Calcutta's fire station placement correlated more to the number of fires than to population or acreage, with the exception of the Garden Reach suburb. Of the ten wards with the most fires, seven had fire stations, while only four of the ten most populous and largest acreage wards had fire stations. The Garden Reach suburb on the southern part of Calcutta rested along the Hooghly and provided the first docks and impressions of Calcutta when traveling upriver.[95] Europeans built up this suburb with a number of "garden houses," which further impressed river travelers, and became one of Calcutta's principle White suburbs, composed primarily of Europeans and elite Indians.[96] The suburb's status likely explains why the Garden Reach representative was able to demand a petrol-motor engine for his station despite not having fires, population, or acreage on his side during brigade reorganization.[97] While much of Calcutta's segregation had been focused

[95] Murphey, "The City in the Swamp," 247.
[96] Marshall, "White Town of Calcutta," 317.
[97] *Report on the Reorganization of the Calcutta Fire Brigade*, 5.

on the isolating or destroying of slums, the exultation of the exclusive suburbs began to grow in the late-nineteenth century.[98] Garden Reach became one of those more exclusive suburbs and received its first fire station in 1894, to solidify its importance to the city's elites.[99] Thus, while the distribution of fire protection in Calcutta primarily correlated to the fire danger, ultimately it was set out to protect White Europeans and their investments first, Indians second. Much of Calcutta's population were covered by the fire brigade's protection, but neither stations nor equipment were distributed equally across the city. By simply providing the statistics in a table, rather than mapping them, the Calcutta Fire Brigade could hide the fact that their resources were distributed unevenly to the populace.

Unlike the Calcutta Fire Brigade's population statistics by ward, the London Fire Brigade only used population statistics for the whole city, rather than by spatially defined subsections. For example, the LFB compared the estimated population of London to the number of fires that had occurred throughout the Metropolis in a given year [see Table 5].[100] While the maps attached to the LFB's 1910 annual report made both the fire danger and the brigades' resources appear omnipresent across the Metropolis, this table argued that the brigade was diminishing the fire problem. All of the longitudinal data included in the report were designed to offer a sense that the brigade was lessening London's fire problem. Table 2 invited readers to assume that there was a correlation between fire danger and population, which there may have been. If increasing population should have caused increasing fires, the fact that the number of fires did not rise with population would be a significant statistic. In other words, despite London's population increasing almost exponentially from year to year, the absolute number of fires fluctuated up and down with only a slight annual average

[98] Nightingale, *Segregation*, 78–79.
[99] *Report on the Reorganization of the Calcutta Fire Brigade*, 2.
[100] "LFB Annual Report 1910," 10.

increase. The attached graphs [see Figures 27 and 28] show the moving averages for fires and population and make this argument even more clearly than the table format. Readers of the brigade's annual report were meant to attribute the *relative* decline or holding steady rate of fires (versus population) to the fire brigade and ignore the fact that the number of annual fires still generally increased. It would be wise, however, to extend Londoners the benefit of the doubt as the MFB's Captain Shaw showed that there did appear to be a strong correlation between London's population and number of fires between 1840 and 1865. It served to the MFB's benefit for citizens to assume that fires and population had a causal relationship, as it contributed to their overall arguments for funding, support, and greater public trust in the brigade's handling of its social responsibilities for fire.[101]

Year	Fires	Est. Population
1891	2,892	4,232,118
1892	3,146	4,271,556
1893	3,410	4,311,363
1894	3,061	4,351,539
1895	3,633	4,392,090
1896	3,616	4,433,018
1897	3,500	4,410,643
1898	3,585	4,441,786
1899	3,846	4,473,148
1900	3,385	4,504,733
1901	3,684	4,536,541
1902	3,574	4,568,572
1903	3,400	4,600,830
1904	3,616	4,633,317
1905	3,511	4,666,032
1906	3,843	4,698,978
1907	3,320	4,758,217
1908	3,238	4,795,798
1909	3,197	4,833,962

[101] The two data sets have a .94 correlation coefficient. The fact that half a century later, despite London's population doubling, the fire rate remained steady showed that while a higher population may increase the number of fires, the rate of fires did not increase in proportion to the population. Eyre Massey Shaw, *Records of the late London Fire Engine Establishment.* (London: James Truscott & Son, 1870), 24.

1910	3,208	4,872,710

Table 5 Comparison of fires and estimated population of London between 1891 and 1910. Compiled from 1910 London Fire Brigade Annual Report, held by the London Metropolitan Archives.

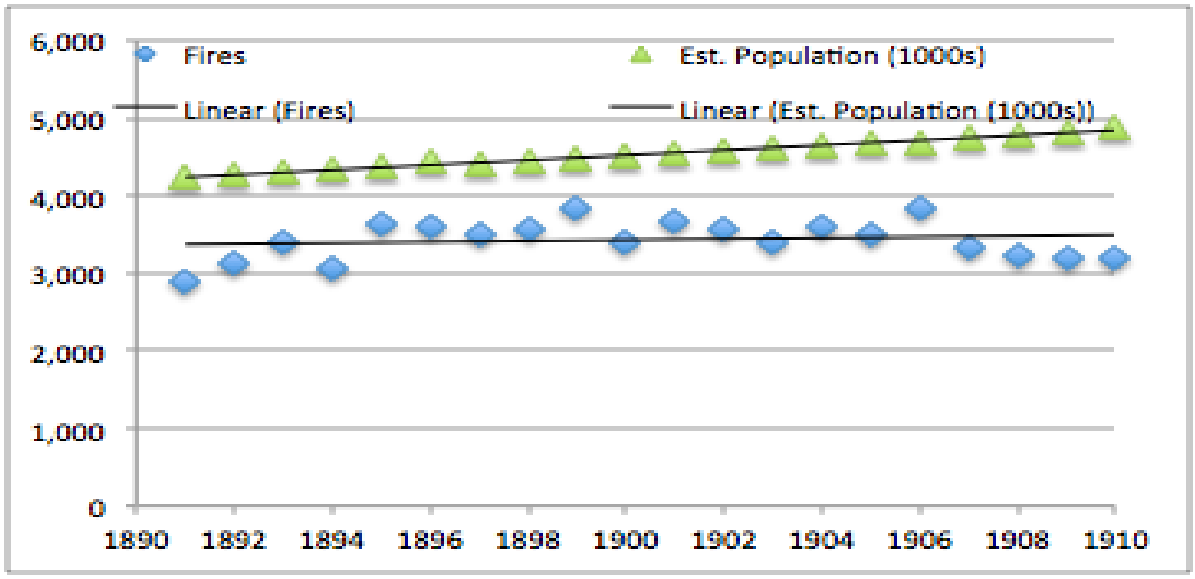

Figure 27 Graph of Fires versus population in London 1891–1910 with linear trend lines. Graph credit to Dr. Matthew Delvaux.

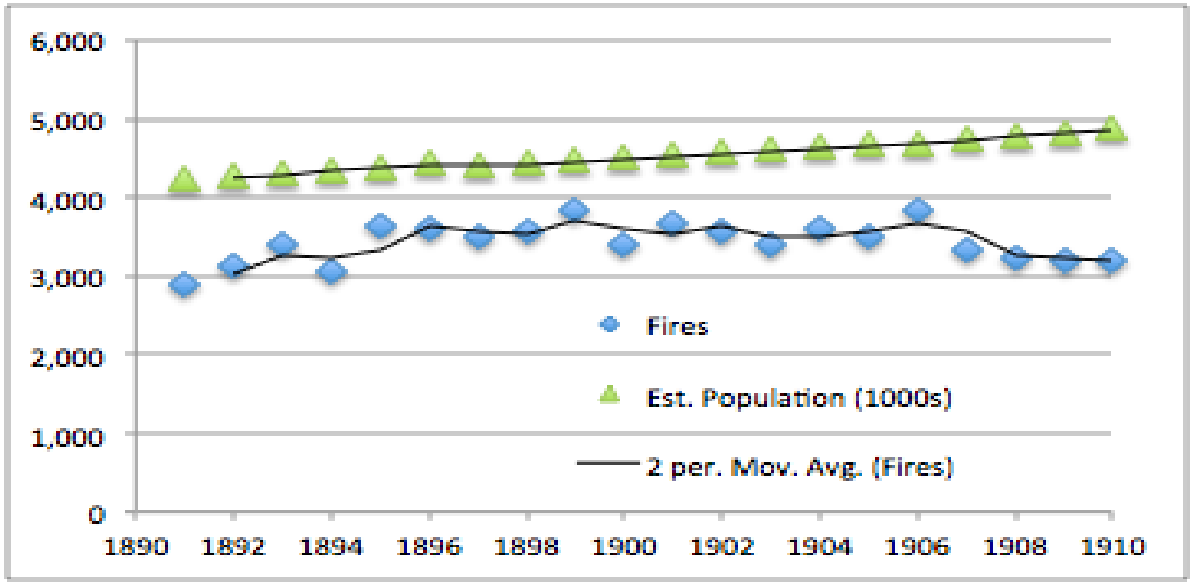

Figure 28 Graph of fires versus population in London 1891¬1910 with moving avg. trend lines. Graph credit to Dr. Matthew Delvaux.

Ultimately, fire protection resources could be distributed based on a number of different factors. First, they could be allocated based on perceived fire risk in an area. The

LFEE in the mid-nineteenth century placed its stations this way, focused on insured property and its potential to take fire. A similar logic prevailed in Calcutta in the early-twentieth century. Second, fire protection could be allotted by population in order to increase life-saving potential. This method would have been more useful in London where many more lives were endangered by fire, and did impact the placement of fire escapes across the Metropolis, but less so the situating of fire stations. The 1906 LFB Annual Report included a table comparing lives lost and endangered to the estimated London population for 1897 to 1906, and attempted to show that despite the record high numbers of lives lost and endangered when compared to the exponentially growing population the ratios were incredibly small. The brigade seemed to suggest that 100 lives lost to fire in a city of 4.5 million were good enough odds. Critics responded that it was still 100 too many.[102]

Third, fire brigade resources could be distributed geographically in order to better cover a greater area. Figures 11 and 13 showed how London's fire stations clustered more around central London and grew sparser the further out from the City. Thus, jurisdiction was larger for the suburban stations than their urban counterparts. Similarly, in Calcutta, fire engines were expected to cross ward boundaries, but the suburban stations had significantly more acreage to cover than the central stations. For Calcutta, though, the effect was mitigated by the concentration of petrol-motor engines at the central Headquarters. Finally, fire protection could be placed along socially stratified lines—i.e. by class or race. By comparing Booth's poverty maps with London's fire stations we saw that fire stations were installed in both affluent and impoverished neighborhoods.[103] Calcutta's North-South racial division—while nowhere near as complete as in many twentieth-century Western nations—

[102] Hamilton, "LFB Annual Report 1906," 10.
[103] Booth, "Booth's Poverty Map."

was not reflected in the distribution of fire stations, with four stations in the "Black Town" and five in the "White Town." Yet, the distribution of appliances and staff between those stations revealed a distinct preference for putting the newer appliances in the "White" stations at higher rates, as shown in the previous section. Three of the four stations in the "Black Town" had only a manual fire engine despite their decades-long obsolescence, while the stations in the "White Town" had petrol-motor or steam fire engines. These differences in equipment could mean the difference between an effective "stop" and the loss of entire buildings. In fact, fourteen of the twenty-four most serious fires in Calcutta in 1913 occurred in the suburbs rather than the city center despite there being twenty percent more fire calls from Calcutta proper than from the suburbs.[104] Thus, the distribution of resources and the speed with which calls were made had material impacts on the city's fire protection.

These four factors—fire risk, population density, area, and social status—all played a part in the distribution of fire protection in Calcutta and London, presenting political challenges for each municipal government to place a station in a particular location. In addition to these factors, the brigades had to contend with property markets, whether to build entirely new stations or retrofit existing buildings, and coordinating placement with the Police (especially in combined brigades like Calcutta's). Taken together, the placement of fire stations became an even more constrained choice.[105] Still, these maps showed how fire protection institutions were prioritizing the four factors to place their own stations.

While the brigades' mapping choices suggest they wanted to project a sense of fuller coverage and protection over their cities, from their reports we know that fire protection resources were distributed in biased or unequal ways. For example, the LFB's choices to

[104] Westbrook, "1913 CFB Report," 1, iii–vi.
[105] For more on the development of Britain's property market see: Desmond Fitz-Gibbon, *Marketable Values: Inventing the Property Market in Modern Britain* (Chicago: University of Chicago Press, 2018).

separate their fire and resource maps, oversize their stations icons, and draw lines for their alarms overstated the brigade's coverage by filling the map. The CFB, alternatively, used their combined maps with simplified station symbols to juxtapose fires and firefighting resources explicitly, while eliding the fact that those stations were equipped in drastically different ways. Both geographically and in terms of plant, both brigades tended to emphasize the whiter and wealthier parts of their cities for protection, and only deviated from that tendency for significant economic centers like the docks, warehouse districts, or trading areas. Despite these inconsistencies in coverage, it remained in the brigades' best interests to appear equitable and of the same utility to every urban citizen, as they sought to build public trust in their municipal institution. The maps that these two brigades made in the early-twentieth century helped them argue for just that.

Conclusion

According to Partho Datta, "often enough, class, race, and imperialist imperatives limited the spread and benefit of civic services in Calcutta," and I argue that this is true of fire protection services for both Calcutta and London, albeit in distinctly local ways.[106] The fire brigades in both cities had limited resources, faced a growing fire problem, and had to distribute those resources as they saw fit. The maps each brigade created in the early twentieth century served to mark the ideal form that their fire protection coverage took, with outsized fire stations reaching out their fire alarm tendrils to envelope the cities in safety and smother the red or blue dots pestilentially proliferating across the cities' cartographic representations. Thus, while their annual reports subtly disclosed the inequities of their coverage and attempted to minimize the extent of the fire problem, the fire brigades' maps offered an argument of equitable coverage that directly responded to the fire dangers. These

[106] Datta, *Planning the City*, xv.

maps became the basis of visual/spatial justifications for the brigades' continued utility to their cities.

The Calcutta and London fire brigades each had their own reasons for mapping in the early twentieth century. The London Fire Brigade's maps offered a cartographic depiction that benefitted their overall argument that the fire brigade thoroughly and completely protected Londoners from fire. It also helped mark the changes that the brigade underwent after the 1902 Queen Victoria Street Fire, which featured the delayed mobilization of necessary pieces of equipment and undermined Londoners' trust in their fire brigade. Similarly, the Calcutta Fire Brigade had to justify the expenditure of reorganization, employing cartographic arguments to support their claims. Their new chief officer, Bernard Westbrook, used the maps to visually represent the improvements that had already been made to the brigade and to illustrate the progress that they hoped to continue to make. In both cases, these maps were offered up as visual promise between the fire brigade and the citizens that the latter were thoroughly protected from fire, despite that not being true for all urban citizens. Fire protection's inherent inequalities could be ignored by anyone that did not, or could not, look beyond the maps.

These fire brigade maps represented the culmination of all the aspects of the fire problem discussed in this dissertation. First, they defined the fire problem as a spatial issue that could be visually represented—rather than in a careless/willful dichotomy, which focused more on *who* than on *where*. Second, they represented the solidification of the fire brigade as an essential municipal service, whereby the brigade could make claims to power and utility across the entire breadth of the city. Third, they displayed the professionalization of the fire service by presenting maps made or deeply informed by the firefighting force themselves and the statistics they identified as important. Finally, they depicted the brigades'

continued technological improvements through new fire alarms and petrol-motor engines that could cover greater swathes of their urban environments. Taken together, these different aspects of the maps sought to portray a fully-professional, technologically-proficient, municipally-funded fire brigade that had the fire problem well in hand. These maps were one more argument for continued public trust in the fire service as well as the financial and social benefits that went along with that trust.

Conclusion

The preceding chapters have traced the changing distribution of the social responsibility for fire in Calcutta and London across the nineteenth and early-twentieth centuries. These answers to the questions of social responsibility for fire included preventing fires through carefulness, legislated or otherwise, extinguishing fires, which became primarily the purview of fire brigades, and reporting fires to those very same brigades in order for them to extinguish the fire and save lives in a timely manner. These responsibilities, shared between citizens and firemen, were built on trust. As we have seen, in London the greatest changes in social responsibilities for fire or their distribution most often came as the result of a breakdown in trust, while in Calcutta where native Indians were routinely excluded from municipal calculus, public trust was primarily sought from the city's European citizens. Taken together, these examples show how the fire brigade could be a symbol of municipal protection and one of municipal authority, with the bodies of the firemen that made up the brigade forming the building blocks of either. These firemen, in turn, became markers of the trust between municipal governments and their citizens that was necessary for solving the fire problem.

The conclusions presented in this dissertation also suggest questions and avenues for future research. For instance, the very construction of social responsibility invites further research on the construction of the liberal individual in the British Empire. If a critical municipal service like fire protection required such obvious collaboration between citizens and the municipal government, what other services likely also required such collaboration, but have been unexplored? In terms of the fire service, further work on the history of the gendered and racialized expectations for firefighters would greatly improve our understandings of the systems that keep the fire service overwhelmingly white and male.

Further, urban history in general should be more cognizant of fire brigades' role in furthering municipal authority, protecting the city from fire, and in creating a space for the building of public trust in municipal governance. Social histories of urban life, in turn, should recognize the very pervasiveness of fire in the urban environment. While major conflagrations were often the only ones to make news, the threat of fire in the nineteenth century was near-omnipresent, and any study of everyday life would benefit from considering fire's role in ordering the daily lives of historical subjects. For example, Shane Ewen and Rebecca Wynter's Arts and Humanities Research Project, *Forged by Fire: Burns Injury and Identity in Britain, c.1800-2000*, is cataloguing the lived experience of burns in Britain and the social, physical, and cultural impacts of being a burn victim.[1] Extending their research methods to comparative examples outside of Britain would be a very fruitful avenue of future research. Ultimately, this dissertation provided new avenues for comprehending the construction of urban life in the modern period, and by centering fire in the discussion deepens our understanding of its role in forging the modern city.

While this study ends in the early-twentieth century, the social responsibility for fire continued to be negotiated, mediated, and amended over time. Sometimes external political situations necessitated shifts in thinking. In the 1940s, both London and Calcutta saw significant changes to their fire protection regimes. In 1941, the London Fire Brigade [LFB] was combined with other fire brigades across Britain into a national fire service, disrupting many of the unique cultural aspects of the LFB and breaking some of the close relationships between firefighters and the neighborhoods they protected.[2] For Calcutta, independence in 1947 prompted further reorganization of the fire brigade away from the racialized version

[1] "Forged by Fire: Burns Injury and Identity in Britain, c.1800-2000," Forged by Fire, 2018, https://forgedbyfiresite.wordpress.com/.
[2] Holloway, *Courage High!*, 185–98; Ewen, *Fighting Fires*, 129–49.

perpetuated under the Raj. These moments of upheaval required new conversations around whose responsibility it was to prevent fires, to extinguish fires, and to save lives from fire.

Yet, even into the twenty-first century, urban citizens' expectations set for the brigades in the nineteenth and early-twentieth centuries remain. The responses to two different fires in the 2010s illustrate this point. In 2011, a fire broke out in the basement of the AMRI Hospital in Kolkata where the hospital's owners had been illegally storing inflammable materials against the advice of the fire service.[3] Both the fire and the ensuing carbon monoxide-caused asphyxiation claimed between seventy and ninety victims, most of them patients unable to escape.[4] While the majority of the anger after the fire was directed at the hospital administrators whose incompetence had created the disordered environment in which a fire could break out, only minor critiques were directed at the fire brigade. Similar to the 1902 Queen Victoria Street Fire in London, the main complaint leveled at the Kolkata fire brigade was that they brought the wrong ladders initially—opting for manual ladders and ropes rather than the hydraulic lift which arrived later.[5] There were no real suggestions that the fire brigade could have saved more people given their later arrival, and the expectations of the Kolkata Fire Brigade as primarily concerned with property-saving, rather than life-saving, were reaffirmed, though a full inquiry is still outstanding.

Almost the direct opposite happened with London's 2017 Grenfell Tower Fire. The fire occurred in a 23-story block of council flats and resulted in the deaths of 72 people and

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[3] "Kolkata: 89 Killed in AMRI Hospital Fire; Six Board Members Arrested," NDTV.com, December 10, 2011, https://www.ndtv.com/india-news/kolkata-89-killed-in-amri-hospital-fire-six-board-members-arrested-566913.

[4] "AMRI Hospital Fire: 73 Killed, Several Injured | Kolkata News - Times of India," The Times of India, December 9, 2011, https://timesofindia.indiatimes.com/city/kolkata/AMRI-hospital-fire-73-killed-several-injured/articleshow/11044875.cms.

[5] "7 Years Since Kolkata's AMRI Hospital Fire, Victims' Families Still Await Justice | Outlook India Magazine," https://www.outlookindia.com/, December 24, 2018, https://www.outlookindia.com/magazine/story/7-years-since-kolkatas-amri-hospital-fire-victims-families-still-await-justice/300981.

injuries to 74 more.[6] To beautify Grenfell Tower, the Council had previously ordered new cladding (siding) to cover the Tower's exterior, and they accepted the lowest bid from the contractors undertaking the new siding. The new cladding was supposed to be completely fireproof, in adherence with London's building codes, but the contractors opted to use a less fire-safe cladding. So, when a fire broke out in one of the Grenfell flats it became impossible to prevent it spreading to others, because as soon as it reached the cladding the fire easily engulfed the entire side of the building. This made it impossible for the fire brigade to quickly extinguish the fire, while the height of the Tower and the heat of the blaze in part prevented firefighters from saving all of the residents from the fire.[7]

Much like the 1902 Queen Victoria Street Fire discussed in chapters 4 and 5, the Grenfell Tower Fire shook the Londoners' trust in their fire brigade, and much of the public's ire was directed at the brigade. As with Queen Victoria Street, questions arose as to the suitability for the brigade's apparatuses to deal with fires in buildings of that size. Despite many protestations of admiration for the brigade's firefighters, the public's eye fell on the London Fire Brigade's Commissioner, who was also the Brigade's first female commissioner: Dany Cotton.[8] In 2017, the issue revolved around the Brigade's issuing a "stay put" strategy for the residents of Grenfell Tower in order to prevent the residents stampeding, or bunching up in the halls, or otherwise preventing the LFB firefighters from doing their jobs.

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[6] This significantly outstripped the average of 65 lives lost a year to fire between 1870 and 1910, though that average was on the rise toward the end of this period. "FB Annual Reports," 1888; "LFB Annual Report 1910."

[7] "What Happened at Grenfell Tower?," *BBC News*, October 29, 2019, sec. UK, https://www.bbc.com/news/uk-40301289.

[8] For more on some of the sexism Dany Cotton has faced, see: Robert Booth, "London Fire Chief Dany Cotton Resigns after Grenfell Criticism," the Guardian, December 6, 2019, http://www.theguardian.com/uk-news/2019/dec/06/london-fire-chief-dany-cotton-resigns-after-grenfell-criticism; Sophia Sleigh, "London Fire Chief Sent Death Threats over Call to Rename Fireman Sam," Evening Standard, July 2, 2019, https://www.standard.co.uk/news/london/grenfell-fire-chief-was-sent-death-threats-after-gender-equality-bid-to-rename-fireman-sam-a4180081.html.

Unfortunately, the blaze encircled the building far faster than anyone had expected and experts claimed the building had become a "death trap" far before the stay put order was rescinded.[9] Similarly, after Queen Victoria Street, observers and pundits lambasted the fire brigade for slowness and inaction and in both fires those commenting after the fact all agreed that the fire brigade should have acted faster.[10] The expectation in London was that the fire brigade *should* have been able to save almost everyone. Unlike Kolkata where the fire brigade continues to have low expectations and limited trust put upon it by the citizenry, Londoners continued to buy into the fire services' heroic imaging and set their expectations accordingly.[11] The LFB will be trying to rebuild the trust lost after Grenfell Tower for many more years, though they have already changed leadership, started to make technological improvements, and lobbied for funding increases—all tactics pioneered over a century before.[12]

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[9] "'Systemic Failures' in 999 Grenfell Response," *BBC News*, October 29, 2019, sec. UK, https://www.bbc.com/news/uk-50216606; For more on the systemic racism that contributed to the conditions for the Grenfell Fire, see: Kieran Yates, "The Twinned Injustices of Race and Class Lie at the Heart of the Grenfell Tragedy," *The Guardian*, August 1, 2020, sec. Opinion, http://www.theguardian.com/commentisfree/2020/aug/01/the-twinned-injustices-of-race-and-class-lie-at-the-heart-of-the-grenfell-tragedy.

[10] Hamilton and Buszard, "The City Fire."

[11] Jonathan Owen, "Exclusive: Reputation of London Fire Brigade Undiminished by Grenfell Inquiry Report, Survey Shows," PR Week, November 6, 2019, http://www.prweek.com/article/1664750?utm_source=website&utm_medium=social.

[12] For more on the policy fallout from the Grenfell Tower Fire, check out: Shane Ewen, "Lessons from the Grenfell Tower Disaster: The Historic Failures of the State in Fire Safety," *History & Policy* (blog), June 21, 2017, http://www.historyandpolicy.org/index.php/opinion-articles/article/lessons-from-the-grenfell-tower-disaster-the-historic-failures-of-the-state; Sam Wetherell, "The Grenfell Fire and the Destruction of the British Council Estate," *History & Policy* (blog), June 16, 2017, http://www.historyandpolicy.org/index.php/opinion-articles/article/the-grenfell-fire-and-the-destruction-of-the-british-council-estate; David Ellis, "After Grenfell, What Can We Learn from the Housing Policies of the 1970s?," *History & Policy* (blog), June 27, 2017, http://www.historyandpolicy.org/index.php/opinion-articles/article/after-grenfell-what-can-we-learn-from-the-housing-policies-of-the-1970s.

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