

**Conflict and Identity in the Social Life of
Electricity in Colonial Calcutta
c. 1880—1925**

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Submitted in accordance with the requirements for the degree of
Doctor of Philosophy

University of Leeds
Leeds Trinity University
School of Arts and Communications
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April 2020

The candidate confirms that the work submitted is his own, except where work that has formed part of publications has been included. The contribution of the author to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others.

Animesh Chatterjee, “‘New wine in new bottles’: class politics and the “uneven electrification” of colonial India’, *History of Retailing and Consumption*, 4:1 (2018): 94-108

The article is based on my research and contains a mixture of ideas that appear separately throughout the thesis. The section on “New wine in new bottles” in the paper has been adapted from Chapter 4: The Domestic Servant and the Visualisation of “Electrical Calcutta” in this thesis. Ideas and theories presented in the section on “The middle-class project” in the article, especially a mention of Bengali nationalist drama and audiences, are informed by research in Chapter 3 “Electricity and modernity in anticolonial and traditionalist bhadralok social commentaries” of this thesis. In addition, discussion on middle-class identity and consumption of electrical technologies in the same section of the paper has been adapted from Chapter 6: “The Social Identities of Electrical Consumers” of this thesis.

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Acknowledgements

This thesis has benefited greatly from the guidance and support of my supervisors Professor Karen Sayer and Professor Graeme Gooday. Their generosity with their time and advice has been instrumental in developing not just the research but also the researcher. Both Professors Sayer and Gooday have also been very accommodating, understanding and patient when personal issues made progress in research and writing difficult. I owe special thanks to Dr Di Drummond for her supervision in the early stages of this research project. Professor Abigail Harrison Moore also deserves special thanks for her helpful insights and comments that helped shape this thesis. For their general interest in my work and for useful exchanges of ideas, I am grateful to Professor Ute Hasenöhl, Professor Ruth Sandwell, Michael Kay, Daniel Zapico, and Paul Coleman. My research was helped generously by the staff at the British Library (London and Boston Spa); Jon Cable at the Institution of Engineering and Technology (London) archives; Kamalika Mukherjee and Abhijit Bhattacharya at the archives of the Centre for Studies in Social Sciences Calcutta; and the staff at the West Bengal State Archives and the National Library, Kolkata.

This research has been funded by Leeds Trinity University through their doctoral scholarship. I am grateful to the Research Office at Leeds Trinity University for their financial, academic and administrative support that enabled me to attend training workshops and present at conferences. In the course of researching this thesis, I also received funding from the Royal Historical Society, the British Society for the History of Science, and the History of Science Society. The chapters in this thesis were presented as papers at several conferences and workshops. I thank all those who invited me to conferences and workshops, and also those who gave me critical feedback at those events. I am grateful to panel and conference organisers who invited me to present my research at the History of Science Society Annual Conference (2014, 2017 and 2018); the Three Societies Conference (2016); the Women's History Network Conference (2016); the British Society for Literature and Science Annual Conference (2017); the Royal Historical Society Postgraduate Speakers' Series at the History Department, University of Bristol (2018); the Colonial/Postcolonial Researchers' Workshop at the Institute of Historical Research (2018); "Narrative Science in Techno-Environments" workshop (London School of Economics, 2019); and the Society for the History of

Technology Annual Meeting (2019). Thanks are also due to the organisers who invited me to present my research at following workshops and panels that I could not attend due to time and health concerns: “Contours of the Future” workshop (Peter the Great Saint-Petersburg Polytechnic University, 2017); “Decolonising Science Narratives” workshop (Science Museum London, 2019); and a panel on “The History of Physics in India” (American Physical Society Meeting, Denver, 2020).

I owe profound thanks to Ann-Marie Hayes, Hannah-Freya Blake, and Lauren Padgett for their friendship, warmth, generosity and support. Uncle Samir and aunt Nibedita Chakrabarti welcomed me to stay with them in Kolkata and, through their hospitality and love, made archival research much less strenuous than it might otherwise have been. The encouragement of my in-laws and extended family has also been a great source of inspiration.

I am deeply indebted to my mother Madhumita Chatterjee, father Rishikesh Chatterjee, and brother-in-law Shashank Mishra for their love, affection and belief in my abilities. As personal issues sometimes transformed the joys of writing the thesis into continuing struggles, it was my sister Banani Mishra’s advice to “write the hell out of that thesis” that kept my strengths up. My deepest gratitude goes to my wife, Mansee, who has been a source of strength, love and support. She has intellectually, emotionally and materially sustained me and my work through everything.

It will be a source of unending sadness and grief that neither my grandfather Dinataran Chatterjee nor my uncle Professor Ashutosh Roy could read this thesis. Their scholarly and academic influences, nevertheless, extend throughout this work in ways that are ineffable.

Abstract

This thesis examines the multiple and multifaceted political and cultural meanings of electric supply and electric technologies such as lighting and fans in colonial Calcutta, as reflected in a range of English and Bengali newspapers, electrical trade journals, transcripts of public lectures, printed travel and domestic guide books, short-lived Bengali illustrated periodicals, scripts of Bengali satire, pamphlets, and legal and official documents. The thesis investigates from several different textual, cultural and political angles how diverse meanings of electricity emerged, and how such viewpoints were never confined to technological or scientific matters, but were deployed, often polemically, in discussions and debates between promoters, the colonial state, and varied sections of Anglo-Indian, and Bengali middle-class gentlemanly or *bhadralok* (gentlefolk) societies. Bringing into conversation strands from histories of technologies, science and technology studies, colonial and postcolonial studies, and urban histories, this thesis examines how much was made of the connections between electricity, colonialism, and Western conceptions of technological modernity. Revealing electricity as a site for ideological contestations, this thesis will examine how such connections brought to the fore the internal conflicts between and within Anglo-Indian and *bhadralok* intelligentsia on varied perceptions of identity, domesticity, and nationalism. The thesis will then demonstrate how advertisements of electric lighting and fans, and writings of promoters presented electricity as a rhetorical and technological solution to social, moral and political issues in urban and domestic spheres. Finally this study asks what responses were provoked in contemporary Anglo-Indian and *bhadralok* householders, and the extent to which electric supply, lighting and fans were perceived by them to have material and social value within the domestic sphere. This critical history of electricity challenges and extends current historiography on electrification in the colonial context and, in essence, contributes to larger scholarship on histories of technologies.

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Terms and Abbreviations used in this Thesis

Terms

Anna: One-sixteenth of a Rupee

Babu: A term commonly used in Bengal as a way of attaching respect to a name, like Master or Mister.¹ Anindita Ghosh has shown in her works how, from the late-nineteenth century onwards, *babu* was also used a derogatory term for the *bhadralok*.²

Bhadralok: Well-mannered, polite and educated individual belonging to the elite or middle-class strata

Punkah: Cloth or feather fan used in India before the advent of the electric fan. These fans were either hand-held or attached to a frame suspended from the ceiling. While hand-held punkahs had handles, larger punkahs, such as those suspended from ceilings, were usually moved backwards and forwards by pulling on a cord.

Punkah-wallah or Punkah coolie: Servant, usually male, employed to pull the punkah.³

Mussauk: While the term originally meant a torch made of rags wrapped around a rod, it later came to be used for the servant, usually male, whose duty included lighting and feeding oil lamps in the houses of the Indian and British elite.⁴

Sahib or *Shahab*: a term commonly attached to Europeans, but also used sometimes to refer to Europeanised or Anglicised Bengalis as “Shaheb Bangali”

Abbreviations

CESC: Calcutta Electric Supply Corporation

IACS: Indian Association for the Cultivation of Science

¹ Henry Yule and A.C. Burnell, *Hobson-Jobson: The Anglo-Indian Dictionary* (Ware, Hertfordshire: Wordsworth Reference, 1996, originally published in 1886), p.44

² Anindita Ghosh, “Singing in a New World: Street Songs and Urban Experience in Colonial Calcutta”, *History Workshop Journal*, 76 (2013), pp.111-136 (p.119)

³ Yule and Burnell, *Hobson-Jobson*, p.742-743

⁴ *ibid*, p.601

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Chapter I

Introduction

The Social Life of Electricity in Colonial Calcutta

On 28 September 1911, British-owned newspapers *The Statesman* (Calcutta) and *The Bombay Gazette* (Bombay) reported the introduction of electric lighting in the Hindu temple of Kalighat in Calcutta. The new lighting installation, planned by the Calcutta Electric Supply Corporation, was financially supported by “two Hindu gentlemen who [did] not want their names to be disclosed.”⁵ The installation of electric lighting in the temple was presented by the aforementioned newspapers, and electrical trade journals *The Electrical Review* (London), *Popular Electricity* (Chicago) and the *Journal of Electricity and Power* (San Francisco) — that widely reported the news in the following weeks — as a mix of technology and religion, and of progress and tradition. As *Popular Electricity* put it:

This is looked upon as one of the greatest victories modern electrical progress has won in India, for up to a very short time ago, no one believed it possible to obtain permission to use such a modern appliance as the electric light in one of the old temples.⁶

In presenting electric lighting as a “modern appliance” bringing light into the dark recesses of an “old temple,” the journalistic transcript lade electric lighting with cultural and ideological tropes heavy with colonial significance. The metaphysical implications of light and the role of technologies of illumination in setting an ideological agenda require careful assessment in this regard. In her study of the metaphors of light and darkness in visual representations and descriptions of late-eighteenth and early nineteenth century India, Niharika Dinkar notes that in the context of empire, light and darkness feature significantly within colonial discourses of subjection.⁷ The journalistic transcript on electric lighting in Kalighat temple mirrored imperial narratives that combined Enlightenment thought — where light is a persistent metaphor for knowledge, truth and reason — with the industrialisation of light and its circulation across the imperial economy through the nineteenth century to reproduce triumphalist narratives of Western modernity that equated light with material and civilisational progress in the imperial centre, and

⁵ *The Bombay Gazette*, 28 September 1911

⁶ “Lights in a Hindu Temple”, *Popular Electricity*, 4:8 (December 1911), p.791

⁷ Niharika Dinkar, *Empires of Light: Vision, Visibility and Power in Colonial India* (Manchester: Manchester University Press, 2019), p.4

darkness with the colonies and colonised subjects. “Through the course of the nineteenth century,” Dinkar writes, “light and darkness had evolved into persistent metaphors endorsing an ideology of progress between an imperial centre that dazzled with the lights of civilisation and the primitive darkness of the peripheral colony.”⁸ As Karen Sayer and Ute Hasenöhl also recognise in their respective studies, discursive constructs of the imperial “civilising mission”, principally envisioned as introducing rationality, and political and cultural progress into the “dark” colonies were supported and enabled by material infrastructure and technologies of illumination.⁹

It would not be hard to demonstrate from a wide range of other literary and historical sources how the practices of Hindu worship at Kalighat, and the temple’s association with Hindu religious revivalist and revolutionary nationalist movements were discussed, often very negatively, by colonial officials.¹⁰ As such, the illumination of the temple by electric lighting, according to the journalist narratives, not only made navigating the physical spaces of the temple much easier, but was also a passage to modernity and freedom for the “orthodox Hindus”.¹¹ According to *The Bombay Gazette*, electric lighting in Kalighat temple was not just a boon for pilgrims who “used to be very much inconvenienced owing to defective lights in the temple,” but also an example of the “Hindoo...getting more emancipated every day.”¹² Cultivating a specific image of the “orthodox Hindus” and members of the Sebait Samiti (Shivaist Committee) that managed the temple as being

⁸ *ibid.*

⁹ Citing the example of advertisements of the London-based electrical company Woodhouse and Rawson, Sayer and Hasenöhl show in their respective studies how, in the colonial context, the advertisements not only celebrated the success of the company as lighting manufacturers, but also cultivated a fairly specific and strong description of electric lighting as a means of bringing “light,” and subsequently civilisation, in “darkest Africa”.

See: Karen Sayer, “Atkinson Grimshaw, Reflections on the Thames (1880): Explorations in the Cultural History of Light and Illumination”, *Annali di Ca’ Foscari Serie occidentale*, 51 (2017): 129-147 (p.131); Ute Hasenöhl, “Rural Electrification in the British Empire”, *History of Retailing and Consumption*, 4:1 (2018), pp.10-27 (pp.14-15)

¹⁰ In several histories of India written by British colonial officials, the image of Kali — the mother-goddess worshipped at Kalighat — as one thirsty for blood and satisfied by animal sacrifices captured the colonial imagination. In a multi-volume *A Comprehensive History of India* (published in 1862), Henry Beveridge, a Scottish civil servant posted in India between 1858 and 1893 (also President of The Asiatic Society of Bengal between 1890 and 1893), citing the animal sacrifices at Kalighat temple describes Kali as a goddess that “receives a worship of the most disgusting and atrocious description.” See: Henry Beveridge, *A Comprehensive History of India Volume II* (London: Blackie and Son, 1862), p.33

For an examination of the ways in which the “deathly and violent connotations of Kali” extend to descriptions and imaginations of Calcutta, see: Erica Barbiani, “Kalighat, the Home of Goddess Kali: the Place Where Calcutta is Imagined Twice: a Visual Investigation into the Dark Metropolis”, *Sociological Research Online*, 10: 1 (2005)

¹¹ “Lights in a Hindu Temple”, *Popular Electricity*, p.791. The term “orthodox Hindus” appears in the article.

¹² *The Bombay Gazette*, 28 September 1911

“bitterly opposed” to electric lighting and, consequently, to introducing “anything modern into their religion,” the journalistic narratives shaped electric lighting’s hegemonic and civilisational agency by presenting a triumphalist narrative of technological modernity’s victory over the traditional and religious beliefs and practices of the Hindus.¹³ Initial opposition to electric lighting, the journalistic transcript tells us, resulted in extensive discussions between “pundits [priests] and scientists” that concluded with “complete unanimity that the ions will carry with them no contaminating influence,”¹⁴ and “that there was nothing objectionable in electrical wires.”¹⁵

At a glance, the above account exemplifies a colonial and teleological history of electric lighting. In order to write a critical history of electric lighting in Kalighat temple, however, we must also scrutinise the cultural or technical reservations that “orthodox Hindus” had about electric lighting in the temple, and the dialogue they prompted with electrical engineers and promoters. Additionally, we must also investigate the kind of shared or discordant frameworks through which priests and electrical engineers comprehended electric lighting and “modern electrical progress”.¹⁶ Our ability to uncover the voices of silent actors is, however, severely limited by the fragmented nature and contents of the archive.¹⁷ The absence of reportage in local Bengali newspapers and the silence of the vernacular and administrative archives means that accounts of the perspectives of priests, visitors and consumers in the temple are obviously missing.

Yet, this brief and sketchy but telling history of the introduction of electric lighting in Kalighat temple sheds a light on imaginations and discursive articulations of electric lighting as they emerged from the political and cultural ideologies of different individuals and groups. The incomplete narrative also prompts questions like the following: What were some of the varied, sometimes incompatible conceptions of electricity as a symbol of Western technological modernity that coexisted in the cultural and political imaginations of vastly different commentators and audiences? How, and to what extent, did different individuals and social groups in colonial Calcutta contextualise electricity, and electrical lighting and fans within their social, cultural and political conceptions of everyday life? How were the representations, promotion, and use of electricity supply and

¹³ *The Bombay Gazette*, 28 September 1911

¹⁴ *The Electrical Review*, 69: 1770 (27 October 1911), p.706

¹⁵ *The Bombay Gazette*, 28 September 1911

¹⁶ “Lights in a Hindu Temple”, *Popular Electricity*, p.791

¹⁷ Mi Gyung Kim describes archives as “the collection of documents carefully selected and preserved for posterity”. See: Mi Gyung Kim, *The Imagined Empire: Balloon Enlightenment in Revolutionary Europe* (Pittsburgh: University of Pittsburgh Press, 2016), p.9

electrical technologies entangled with wider cultural and political realities in late-nineteenth and early twentieth century Calcutta? It is the exploration of such questions and, thereby, uncovering the multifarious convergences of electrical discourses with the plurality of views on urban and domestic spheres, colonialism, nationalism(s), social groups, individuals, and language that forms the substance of this thesis.

This thesis examines the political and cultural meanings of electricity that historical actors — colonial officials, engineers, promoters, sections of Anglo-Indian and *bhadralok* societies — produced through their engagements with the material of politics — British colonialism, Anglo-Indian and *bhadralok* identities, and nationalist and class politics — and the politics of material — oil and gas lamps, punkahs, electric lighting and fans, and electric meters. It is informed throughout by an interest in the shifting patterns of discussions and debates around quotidian aspects of colonial and anticolonial politics, nationalism(s), class identity, morality and domesticity as they were echoed in the political and cultural meanings inscribed in the introduction and use of electric supply, lighting and fans. In doing so, it follows David Edgerton's proposal that histories of technology must not be restricted to being studies of technological change, but must delve into "questions about the place of technology in wider historical processes."¹⁸

A small caveat is in order here. While the thesis most evidently is a history of electric supply and domestic electrical technologies, it is, however, more interested in gaining deeper insights into the underlying political, cultural and urban experiences that shaped varied cultural representations of electricity. Actual technological and social practices emerging from such cultural representations, while no doubt elements essential to a comprehensive history of electricity in colonial Calcutta are secondary level arguments. Though the simultaneous consideration of cultural representations and their engagement with social and technological practices might provide a comprehensive history of electricity in colonial Calcutta, such an analysis, as I will discuss further in Section 1.3, is limited by gaps in the archives, and the historical boundaries of the current study. Nevertheless, the methodological and analytical approaches adopted in the thesis have the advantage of being inclusive and flexible enough to present a more textured history than has been available, not only of electricity in colonial Calcutta, but also of the place of technologies in the cultural, social, political and technological imaginations and articulations of contemporary historical actors. In doing so, this thesis questions certain fundamental assumptions in extant histories of Indian electrification. Primarily, it distances itself from *electrification* — a term under which histories of electricity are squarely

¹⁸ David Edgerton, *The Shock of the Old: Technology and Global History Since 1900* (Oxford: Oxford University Press, 2007), p.211

bracketed. While emergent scholarship on histories of electrification in colonial India have mapped the various practices of colonial governance and Indian nationalism in their studies of the politics and economics of introducing electric supply, a common theme that unites them is that they are all concerned with the “development” and “growth” of, and resulting from electrical supply systems. Such linear historical narratives of the spread and adoption of electricity, or *electrification*, and the consequent modernisation of industries and institutions have resulted from historians’ focus on technocratic (governmental and technical) archives. By utilising archival sources that historians of Indian electrification have either overlooked or ignored — transcripts of public lectures, printed travel and domestic guidebooks, short-lived Bengali illustrated periodicals, scripts of Bengali satire, pamphlets, and legal documents — this thesis, however, uncovers a complex history of electricity that technocratic archives render largely invisible.

Additionally, in contrast to histories of electrification, which study only the period after the introduction of large-scale public electric supply in the early twentieth century, I begin my history of electricity in Calcutta in the late-nineteenth century, also taking into consideration small-scale battery and generator-operated electric supply and lighting. This thesis explores through a series of case studies the period from the introduction of battery-operated electric lighting in Calcutta as part of the decorations welcoming the Prince of Wales in December 1875 to the mid-1920s when questions of the use of electric supply, lighting and fans in *bhadralok* and Anglo-Indian homes became intertwined with questions of class and social identities based on income, expenditure and consumption.¹⁹ While the date range of this study may appear to suggest a simple narrative of technological progress — from introduction of electric lighting to the adoption of domestic electric supply — that is not the case. My approach to the history of electricity examines electric supply, lighting and fans within the multilayered and interconnected social and political environments of late-nineteenth and early twentieth century Calcutta. The introduction of electric supply and technologies in a period when class, cultural and social identities of both the colonisers and the colonised were contested, revised, and reinterpreted in relation to each other, I argue, offers an understanding of the literary, linguistic, administrative, domestic, nationalist and imperialist practices through which

¹⁹ This period is roughly what Ute Hasenöhl has termed as the period of “enclave electrification” (1880s to 1920s) in the colonised world or the “global south”. This period, according to Hasenöhl, represents the start of electrification in the 1880s with small-scale public and private electric lighting and supply to the introduction of large-scale electric supply systems from the twentieth century onwards. Ute Hasenöhl, “Rural electrification in the British Empire”, pp.16-17

electrical technologies were adopted, assimilated and rejected.²⁰

In the chapters that follow, I will explore the underlying political, cultural and urban experiences that shaped varied cultural representations of electricity and domestic electrical technologies. In Chapter 2, we will see the ways in which visual allegories of imperial discourse, similar to what we have discussed in the opening of this thesis, were appended to electric supply and lighting. Electricity, according to promoters and scientific-minded *bhadralok* elite was a symbol of Western cultural progress. In Chapter 3, we will see how such imperial inscriptions into electricity were used by anticolonial and traditionalist *bhadralok* nationalists as metaphors for the ills of Western modernity in Bengali society. Following this, in Chapter 4, I will show the manner in which the promotion of the domestic use of electric lighting and fans depended on promoters borrowing from negative Anglo-Indian and *bhadralok* representations of their domestic servants. Here, I will also discuss how promoters presented electric fans as the technological solution to the complex moral and political issue of interracial violence inflicted on domestic servants. In Chapters 5 and 6 I will follow the trajectories of public and domestic electric supply in the first two and a half decades after the establishment of Calcutta Electric Supply Corporation in 1899. Chapter 5 examines the urban, financial, environmental and governmental dynamics involved in the introduction and use of public electric supply. Finally, Chapter 6 studies issues of class identity and economic thrift that were embedded in the ways Anglo-Indian and *bhadralok* householders used, and in some cases “misused” according to suppliers, domestic electric supply.

In this introductory chapter I critique the several strands within histories of Indian electrification and discuss the ways in which this thesis contributes to historical scholarship on electricity and technologies in the colonial context and also, in a wider sense, to histories of culture and politics. The electrification of colonial India has only in recent years gained the attention of historians. While the books and articles that have been produced so far study the histories of electrification in colonial Madras Presidency from

²⁰ Anindita, Ghosh, *Claiming the City: Protests, Crime, and Scandals in Colonial Calcutta, c. 1860—1920* (New Delhi: Oxford University Press, 2016); and *Power in Print: Popular Publishing and the Politics of Language and Culture in a Colonial Society* (New Delhi: Oxford University Press, 2006)

Swapna M. Banerjee, “DownMemory Lane: Representation of Domestic Workers in Middle-Class Personal Narratives of Colonial Bengal”, *The Journal of Social History*, 37:3 (Spring 2004), pp.681-708

Sudipta Kaviraj, *The Invention of Private Life: Literature and Ideas* (New York: Columbia University Press, 2015)

Swati Chattopadhyay, *Representing Calcutta: Modernity, Nationalism, and the Colonial Uncanny* (London and New York: Routledge, 2005)

Dipesh Chakrabarty, *Provincialising Europe: Postcolonial Thought and Historical Difference* (Princeton, NJ: Princeton University Press, 2000)

1900 to 1947 (Y. Srinivasa Rao)²¹; colonial Calcutta in the first four decades of the twentieth century (Suvobrata Sarkar)²²; colonial and postcolonial Delhi (Leo Coleman)²³; and late colonial and postcolonial India (Sunila S. Kale)²⁴, I will refer to the combined historiography as “Indian electrification.” In the next two sections of this chapter, I will present the three key themes and theoretical frameworks that define this historiography. In Section 1.1, I will detail the ways in which Y. Srinivasa Rao and Sunila S. Kale equate electrical power to political power. Both Rao and Kale, in their respective studies, proffer complex political and social narratives of electrification. However, as we will see, such narratives extend notions of technological determinism — the idea that technology is autonomous with the ability to “determine” societal change.²⁵ An examination of the ways in which electrification introduces and constitutes societal, institutional and industrial change is central to the works of Rao, Kale and Suvobrata Sarkar. In Section 1.2, we will see how the three historians equate electrification with modernisation and, consequently, electricity to modernity. The *electrification* analytical framework helps to stage electrical history as one of technological universalism — the notion that a technology has a set of normative uses that are universal. The major consequence of such a framework, as we will discuss in Section 1.2, has been historians’ arguments that electricity’s modernity and universal application were defining features that resulted in the growing demand for electric supply in the early twentieth century.

Within each of the next two sections of this chapter I identify useful points of departure for the historiographical and methodological interventions this thesis seeks to undertake. Finally, in Section 1.3 I present an overview of the structure of the thesis, and the aims and contents of the chapters.

²¹ Yenda Srinivasa Rao, “Electricity, Politics and Regional Economic Imbalance in Madras Presidency, 1900-1947”, *Economic & Political Weekly*, 14: 23 (5 June 2010), pp.59-66

Srinivasa Rao and John Lourdusamy, “Colonialism and the Development of Electricity: The Case of Madras Presidency, 1900-47,” *Science, Technology and Society*, 15:27 (2010), pp.27-54

²² Suvobrata Sarkar, “Electrification of Colonial Calcutta: A Social Perspective”, *Indian Journal of History of Science*, 53:4 (2018), pp.211-216

— “Domesticating electric power: Growth of industry, utilities and research in colonial Calcutta”, *The Indian Economic and Social History Review*, 52: 3 (2015), pp.357-389

²³ Leo Coleman, *A Moral Technology: Electrification as Political Ritual in New Delhi* (Ithaca and London: Cornell University Press, 2017)

²⁴ Sunila Kale, *Electrifying India: Regional Political Economies of Development* (Stanford: Stanford University Press, 2014)

— “Structures of Power: Electrification in Colonial India,” *Comparative Studies of South Asia, Africa and the Middle East*, 34:3 (2014), pp.454-475

²⁵ For critical discussions on technological determinism and universalism, see: M. Roe Smith and L. Marx (eds.), *Does Technology Drive History?: The dilemma of technological determinism* (Cambridge, MA and London: MIT Press, 1994)

David Edgerton, “Tilting at Paper Tigers”, *British Journal for the History of Science*, 26 (1993), pp.67-75

I.I. Electrical and Political Power

“Power” in the scholarship of electrification, especially in the colonial context, assumes an analytical significance. Drawing on Daniel Headrick’s “tools of empire” thesis, according to which the introduction of technological systems — railways, telegraph, irrigation — into the colonies was defined by colonial agenda and policies, Y. Srinivasa Rao studies the ways in which the introduction of electricity supply systems in colonial Madras Presidency served the political and economic interests of the colonisers.²⁶ In examining how the colonial government utilised electricity supply to power industrial and agricultural production, transport and printing, he places electricity at the centre of what Gyan Prakash has termed as the “technology grid” that served the colonial project.²⁷ Rao remarks that the advent of electricity supply and the subsequent electrification of technological and industrial projects “played an invaluable role in the sustenance of British power in India.”²⁸

While presenting electricity projects in colonial Madras Presidency as “the choice of the colonial government and not those of its subjects,” Rao also examines the history of electricity supply as an evolving symbiosis of colonial policies, local contexts and technological systems or, in his own words, “the character of the colonial state and the nuances in its negotiation with the colony.”²⁹ He shows that despite being introduced by the colonial government and implemented through colonial policies, electrical supply systems were nevertheless shaped by local political, economic and environmental contexts. Here, Rao extends Thomas P. Hughes’s classic exploration of “large technological systems” to the colonial context. In *Networks of Power* (1983) Hughes explores the social, political and institutional forces guiding the electrification of American, German and British cities. The historical concern for Hughes was the varied rate of technological change between societies and, therefore, the history of innovation had to take into consideration the legal and social politics of developing and implementing technological systems, and the roles that system builders — scientists, politicians, technicians — played

²⁶ Daniel Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century* (New York: Oxford University Press, 1981)

²⁷ For the theory of the ‘technology grid’, see: Gyan Prakash, *Another Reason: Science and the Imagination of Modern India* (Princeton: Princeton University Press, 1999), p.3

²⁸ Rao and Lourdasamy, “Colonialism and the Development of Electricity”, p.30

²⁹ *ibid.*, p.35; p.50

in these processes.³⁰

Proceeding with Hughes's approach, Rao complicates the notion that the colonial imposition and implementation of electrical supply systems was a straightforward process. More importantly, he shows that while the colonised did not have much say in the imposition of electricity supply, they were nevertheless important in determining the manner in which electrical supply systems developed in the Presidency. Rao draws our attention to the multitude of opinions on the purposes that electricity supply could serve in the Presidency. Different groups of politicians and engineers had differing opinions based on their environmental, legal and economic concerns. Rao, however, groups these conflicts as those between the political ideologies of the colonial state and Indian nationalists; between supporters of Western technologies and those who either favoured appropriating Western technologies for Indian conditions, or favoured rejuvenating traditional technologies; and between representatives of different communities and regions.³¹ The underlying theme of electricity supply as a colonial tool, however, postulates a reductive view of the Indian nationalist viewpoint which, while as Rao claims were crucial to "determining the trajectory of electricity development," provided mere constructive criticism to what largely was a colonial project:

Though the subjects of the empire could not oppose the development of specific technologies, they nevertheless critiqued the various science and technology projects. Their rejection or reception of western science and technology, or aspects of it, was backed by well-articulated reasons. The same was the case with regard to electricity, too.³²

Structures of electrical and governmental "power" are also central to Sunila S. Kale's works on the evolution of regionally diverse electricity systems in India. While outlining an approach that, contrary to Rao's, complicates the notion of electricity supply as imprinted with colonial ideas of technological and economic development Kale, nevertheless, like Rao, extends Thomas Hughes's "large technological systems" approach to examine the ways in which debates about the role of the state in matters of economic and industrial

³⁰ Thomas P. Hughes, *Networks of Power: Electrification in Western Society, 1880-1930* (Baltimore: Johns Hopkins University Press, 1983)

Thomas P. Hughes, "The Evolution of Large Technological Systems", in Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch, eds., *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology* (Cambridge, M.A and London, England: The MIT Press, 2012), p.45-76

³¹ Rao, "Electricity, Politics"

³² Rao and Lourdasamy, "Colonialism and the Development of Electricity", p.35

transformations were central to the development of electrical supply systems.³³ Studying the electrification of Mysore, Bombay, and Madras Province, Kale's analyses reveal two interrelated implications for the history of electrification in India. Firstly, Kale argues for a rethinking of the relations between colonial governance and the introduction of new technologies in the first half of the twentieth century. Arguing against views such as those of Rao's, where new technologies are studied simply as impositions of, and determined by colonial power, Kale shows "a heterogeneity of relations between state power and technology."³⁴ In addition to the commercial interests of the colonial government, other factors such as the involvement of Indian capitalists, and provincial and princely states resulted in different forms of governance being imprinted in, or in some cases constrained by electrical systems.³⁵ Secondly, on Kale's account, the comparative analysis allows us to see the inconsistencies in infrastructural development that colonial governance intersected by multiple other interests introduced into colonial and postcolonial India. Kale asserts that the ways in which electrical systems developed differently in different provinces and regions in colonial India are reflected in the vastly different electrical systems across post-independence India. Despite the introduction of uniform policies post independence, regional variations in the development of and access to electricity are, according to Kale, consequences of "colonial legacies [leaving] Indian states with substantially varied bases from which to begin the process of infrastructural development."³⁶

Insofar as both Rao and Kale proffer complex political narratives of electrification, they present two interpretations of the same phenomenon — colonial governance and the implementation of large technological systems. In Rao's case, electricity supply systems in colonial Madras Presidency developed in accordance with the policies of the colonial government despite resistance from different social and political groups, while Kale argues that electricity supply systems developed in varied ways in different regions because of colonial governance interacting with varied political and capitalists interests. Yet, in all their complexities, both Rao's and Kale's analyses, like that of Hughes, are technocratic accounts with a limited focus on the contributions of scientists, engineers and politicians; the general public of users and non-users have not been given a voice. It is also easy to interpret their accounts as narrating the linear history of inevitable progressive introduction and use of electricity.

³³ Kale, "Structures of Power", p.455

³⁴ *ibid.*, p.472

³⁵ *ibid.*

³⁶ *ibid.*, p.473

Far from constructing a narrative of electrical development influenced by and a consequence of colonialism, this thesis explores the portrayals, receptions and uses of electricity as situated within the complex and plural cultural and political environments of late-nineteenth and early twentieth century Calcutta. In doing so, it presents a history of electricity written from outside the analytical frameworks of both the diffusionist model of technology transfer from the West to the colonies, and the large technological systems approach. David Arnold's "everyday technology" thesis is in many ways the model that this thesis applies to the history of electricity. In *Everyday Technology: Machines and the Making of India's Modernity* (2013), Arnold draws on the Social Construction of Technology (SCOT) approach developed by Wiebe Bijker and others, which sought to examine histories of technological design as aligned with sociopolitical interests, David Edgerton's critiques of histories of innovation, and Arjun Appadurai's exploration of the "social life of things" to create an analytical framework that studies the histories of technologies in the colonial context from outside the boundaries of technology transfer. Arnold focuses on the ways in which technological objects were adapted in terms of design and operation, but also in terms of the societies and cultures in which they were used. Such an approach demonstrates that the key to understanding the history of technology is examining technologies and the societies within which they are used as mutually constructive.³⁷

There are two elements of Arnold's framework that are of importance to this thesis. First, that the diffusionist model of technology transfer from West to the colonies "does not have to be the only model of technological modernity or the only kind of instrumentality assigned to technology within wider processes of social, economic and political change."³⁸ Instead, Arnold argues, historians must study the "social life" or "cultural biography" of technologies. Here, Arnold borrows from anthropological works that have studied material objects as means to introduce nuances to historical examinations of class, gender, identity and power. The first is *The Social Life of Things* (1986) edited by Arjun Appadurai, which focuses on the meanings of commodities — or things with economic value — as being situated in the societies and cultures within which they circulate. As Appadurai writes: "we have to follow the things themselves, for the meanings are inscribed in their forms, their

³⁷ David Arnold, *Everyday Technology: Machines and the Making of India's Modernity* (Chicago and London: The University of Chicago Press, 2013), p.5

For Arnold's theoretical framework, see: Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch, eds., *The Social Construction of Technological Systems*
Edgerton, *The Shock of the Old*
Appadurai, ed., *The Social Life of Things*

³⁸ *ibid.*, p.6

uses and their trajectories.”³⁹ Igor Kopytoff’s essay “The cultural biography of things: commoditisation as process” in the same volume argues for studying things as having a biography. The biography does not present a linear trajectory of an object from its conception to deterioration, but studies it as a “culturally constructed entity, endowed with culturally specific meanings and classified and reclassified into culturally constituted categories.”⁴⁰ Arnold’s insistence on studying the “social life” or “cultural biography” of technological objects recognises the historically and culturally contingent nature of the ways in which technologies are assimilated, interpreted and used:

Identical technologies can take on vastly different meanings between one society and another, even when that technology shares a single point of origin and its physical form remains fundamentally the same. In other words, the “social life” or “cultural biography” of mechanical objects needs to be understood in context and cannot be presumed to be uniform and universal.”⁴¹

This thesis speaks to these historiographical interventions in mapping the multiple and multifaceted political and cultural meanings of electric supply, lighting and fans in colonial Calcutta. It explores the manner in which electrical technologies were interpreted and appropriated, and the ways in which electrical technologies reconfigured the relationships between class and social identities, colonialism, and different conceptions of nationalisms. In order to write such a history, however, this thesis distances itself from histories that follow the large technological systems approach and present linear narratives of the development of electrical systems, which brings us to the second element of Arnold’s “everyday technology” thesis that shapes this thesis.

Arnold’s insistence on studying the “social life” of technological objects recognises the historically contingent nature of technological use. Unfortunately, much of the historiography of technologies in colonial India fails to recognise this historical

³⁹ Appadurai, “Introduction: commodities and the politics of value”, in Arjun Appadurai, ed., *The Social Life of Things* (Cambridge: Cambridge University Press, 1986), p.5

⁴⁰ I. Kopytoff, “The cultural biography of things: commoditisation and the politics of value”, in Appadurai, ed. *The Social Life of Things*, p.68

⁴¹ Arnold, p.5

contingency.⁴² A sole focus on large technological projects and the ways in which they were implemented by the colonial government impedes the historiography from more insightful examinations of technologies-in-use, and the cultural, social, economic and political choices involved in technological use. “Much of the scholarship on the history of technology in colonial India”, Gyan Prakash states, “has focused on large projects — the textile industry, railways, telegraphs, bridges, dams, and modern manufacturing.”⁴³ Instead of focusing on the industry and the state, Arnold’s approach examines the ways in which technological objects relate to the everyday lives of their consumers: the best way to understand the rise of technological modernity is by engaging with the realm of everyday perception and experiences.”⁴⁴ In order to do so, however, Arnold suggests a dichotomy between what he terms “everyday” technologies, such as bicycles, sewing machines and typewriters, and “big” technologies, such as railroads, telegraphs and electrification schemes. In Arnold’s view, the latter, due to the large-scale capital investments, and political and environmental complexities they entailed, exemplify one-way technology transfer between the West and the colonies, and therefore, lacked “a companionable association with family life and domestic experience.”⁴⁵

As we have seen in our discussions above, histories of Indian electrification are associated with an industrial narrative along political and economic lines, reinforcing the status of electrification as, in Arnold’s terms, a “big” technology. As I have discussed elsewhere, histories of Indian electrification might help explain how electric supply came to India *when* and *how* it did. They might also reveal the differentiated responses to colonial plans for electrification.⁴⁶ They do not, however, explain the multiple understandings and experiences of electric supply, lighting and fans. This is also the reason why, despite my commitment to Arnold’s analytical framework, I break with his categorisation of technologies based on their economic and physical scale.

⁴² Histories of technology in colonial India follow what is called the Headrick-Adas model, based on the works of Daniel Headrick and Michael Adas, and focused on studying the ways in which technologies transferred from the West to the colonies transformed India.

See: Michael Adas, *Machines as the Measure of Men: Science, Technology and Ideologies of Western Dominance* (Ithaca: Cornell University Press, 1990)

Daniel R. Headrick, *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850-1940* (New York: Oxford University Press, 1988)

— *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century* (New York: Oxford University Press, 1981)

⁴³ Gyan Prakash, “Review of David Arnold’s *Everyday Technology*”, *Isis*, 105:2 (2014), p.445

⁴⁴ Arnold, *Everyday Technology*, p.11

⁴⁵ *ibid.*

⁴⁶ In “‘New wine in new bottles’: class politics and the ‘uneven electrification’ of colonial India”, *History of Retailing and Consumption*, 4:1 (2018), pp.94-108, I discuss the place of class and urban politics in determining why certain consumers had access to electricity while others did not.

The purpose of this thesis is to unsettle the rigidly separated domains of “everyday” technologies and “big” technologies by investigating electricity similarly to how Arnold suggests we must study “everyday” technologies, as a “history of material objects and physical processes [and]... an inquiry into the exercise of the human imagination.”⁴⁷ Through the chapters in this thesis, we will see that electricity was both an “everyday” and a “big” technology at the same time. Electrical technologies used within the home depended on large electric supply systems outside, and the large supply systems in turn depended on domestic technologies to sustain them. In addition, we will see how the supply and use of electrical technologies such as lighting and fans, though introduced into Calcutta by traders and engineers working outside the colonial government, depended on patronage and promotion that involved the colonial government’s decisions. Another aspect this thesis focuses on is the ways in which electric supply, lighting and fans were moulded by how different individuals and social groups identified with them, or conversely sought to distance themselves depending on their cultural, political and social outlook.

Recent works on the history of railways in colonial India by scholars such as Ritika Prasad and Aparajita Mukhopadhyay have provided further proof of histories of “big” technologies studied as “everyday” technologies. In *Tracks of Change: Railways and Everyday Life in Colonial India* (2015), Prasad has shown how the railways steadily became entangled with the everyday lives of millions of Indians from the mid-nineteenth century onwards, and the ways in which Indians adapted to the changes introduced by the railways while at the same time shaping railway systems. Deviating from scholarship that had until then studied the history of railways in India as — using Daniel Headrick’s term — a “tool of empire”, and from historiographical narratives of technology transfer from the West to India and the impact of railway systems on Indian economy, she focuses instead on the historical actors and objects that had been ignored within the historiography — passengers, saboteurs, railway timetables, and railway embankments — to present a narrative from the perspectives of the everyday lives of both railway technologies and the human actors involved.⁴⁸ Mukhopadhyay’s *Imperial Technology and “Native” Agency* (2018) in many ways extends Prasad’s analytical framework and, using travelogues written by Indian railway travellers in Bengali and Hindi, studies the heterogeneous and mediated processes through which travellers and railway officials experienced and impacted the railways at the

⁴⁷ Arnold, *Everyday Technology*, p.15

⁴⁸ Ritika Prasad, *Tracks of Change: Railways and Everyday Life in India* (Delhi: Cambridge University Press, 2015)
Also see: Ritika Prasad, “‘Time-Sense’: Railways and Temporality in Colonial India”, *Modern Asian Studies*, 47: 4 (2013), pp.1252-1282

everyday level.⁴⁹ Together what these works prove for the history of technology is that the boundaries between the categories of “everyday” and “big” technologies are permeable.

These insights convince me that to understand the “everyday” experiences of electricity in colonial Calcutta, I must follow Arnold’s framework for investigating the “social life” of electricity, but to do so without the dichotomy of “everyday” and “big” technologies. However, in order to achieve this, I raise two further issues within the historiography on Indian electrification; firstly, the idea of “electrification,” and the notion that the spread of electric supply and electrical technologies was a historical inevitability; and secondly, the ways in which historians relate electrification to modernisation and, therefore, electricity to “modernity.”

1.2. Electrification and Modernisation

The history of electrification in colonial India has hitherto been told as a history of modernity and modernisation. Within current historiography, the use of “modernity” has two axes to it. First and most obvious is in historians’ positing of electricity and electrification as marked by a break with existing forms and sources of lighting and energy. Secondly, works on Indian electrification are underlined with the assumption that since industrialisation, urbanisation, and the modernisation of systems of production, communication and transportation — all central to (post-)industrial and post-colonial societies — can be traced to the introduction of public electricity supply in India in the early twentieth century, electricity and electrification are synonymous with modernity and modernisation. In what follows I will show the limitations of this teleology and instead make a case for considering the heterogenous and contingent associations between electricity and “modernity” (Chapters 2 and 3).

Asserting electricity’s close links with “modernity” — both as an inherent property, and a consequence of electrification — Sunila Kale opens her book *Electrifying India* (2014) by writing: “Since electricity’s invention in the late nineteenth century, the spread of electric utilities has come to signify the advance of modernity.”⁵⁰ Citing the kinds of productive activities — from power looms in textile industries to industrial production and information technology — that the electrification of India enabled, Kale asserts that a

⁴⁹ Aparajita Mukhopadhyay, *Imperial Technology and ‘Native’ Agency: A Social History of Railways in Colonial India, 1850–1920* (London and New York: Routledge, 2018)

⁵⁰ Kale, *Electrifying India*, p.1

“dimension of electricity and twentieth-century projects of electrification is their symbolic association with modernisation, as an illuminated sign of modernity.”⁵¹ What has, in Kale’s account, reinforced the connections between “modernity” and electricity is the belief that electricity and electrical technologies were central to dramatic technological, economic and political transformations and, therefore, modernisation.

Srinivasa Rao provides another instance of this line of historical inquiry by presenting electrification of colonial Madras Presidency, despite resistance from Indian nationalists, as driven by colonial policies that presented the use of electricity as a stage of succession to becoming modernised from traditional stages. On Rao’s account, electricity was inherently a “modern” technology because “the tag of universal applicability...projected [electricity] as the hallmark of modern science and technology.”⁵² The only challenge for politicians and engineers — both colonial and nationalist — according to Rao, was how they dealt with issues of unemployment and economic inequality that arose from the eventual modernisation of industries resulting from electrification.

Suvobrata Sarkar’s works on the growth of electricity in Calcutta from 1899 onwards makes a cognate appeal to electricity as “an agent of social change and industrial development.”⁵³ In contrast to Rao’s and Kale’s focus on large technological systems, Sarkar rightly argues that the introduction and adoption of electricity in Indian industries and homes cannot be explained by studying electrical supply systems alone but by how consumers responded to technological change. That being said, Sarkar is characteristically modernist in studying the growth of electrical supply as a consequence of what he claims to be the superiority and modernity of electricity. He presents the growth of electricity as a result of electricity’s abilities to help establish businesses such as the Bengal Electric Lamp Works (1932); introduce modern machineries in factories such as those of the Bengal Soap Factory and Bengal Silk Mills; and introduce new institutional facilities such as the electrical engineering courses and laboratories in Jadavpur College. Sarkar then traces the state of industrial development in present-day Calcutta back to the institutional and socio-economic development introduced in the early twentieth century as a result of electrification, noting: “looking at the busy industrial complex on both sides of the River Hooghly today, it is difficult to imagine how the modern wizard of electricity acted as an agent of development.”⁵⁴

⁵¹ *ibid.*, p.9

⁵² Rao and Lourdasamy, “Colonialism and the Development of Electricity”, p.35

⁵³ Sarkar, “Domesticating electric power”, p.385

⁵⁴ Sarkar, “Electrification of Colonial Calcutta”, p.T213

On Sarkar's account, the modernity of electricity over existing methods of lighting is enough to explain consumer *demand* for electricity. He claims that the modernity of electricity as compared to gas supply resulted in the displacement of gas lamps on the streets and in houses and shops by cheaper and more efficient electric lamps. The favourable reception of electric lighting, Sarkar claims, resulted in greater demand for electricity as a source of lighting and energy in government establishments, industries and homes. While recognising the local government's initial hesitation in replacing gas supply with electricity, stating that "electricity had to compete tooth and nail with gas," he nevertheless asserts that superior electric lighting inevitably outmoded gas lighting and supply: "In the conflict between gas and electricity, the victory of the latter was inevitable. Being a superior technology, as an illumine electric light stood ahead of gas."⁵⁵ Sarkar's explanations of how public electric supply came to be widely accepted in early twentieth century Calcutta focus on consumers' "impetus for modern technology"⁵⁶; his account of consumers' views is thus simply:

When the Electric Supply Company first started their business, they were apprehensive about the acceptance of electricity by the Indians. However, all their fears proved groundless and electricity was gradually very successful. Although there were apprehensions about this new technology among the general public, a good number of them welcomed it enthusiastically.⁵⁷

Notwithstanding the issues with Rao's and Kale's historical narratives we discussed in Section 1.1, such linear histories of *electrification* have a major limitation — the term *electrification* itself. In *Domesticating Electricity* (2008), Graeme Gooday has warned us of the deterministic and teleological connotations of the term and the kinds of historical narratives they entail. Histories of electrification, Gooday argues, are simplistic histories of modernisation and industrialisation resulting straightforwardly from the introduction and adoption of electricity. "Furthermore," he writes, "it can sometimes seem that presumptive natural endpoint of electrification is the comprehensive utilisation of electricity."⁵⁸ Suggesting an approach which "suspend[s] the assumption that electrification was historically inevitable,"⁵⁹ Gooday maintains that the historian, instead of assuming

⁵⁵ Sarkar, "Domesticating electric power", p.365

⁵⁶ *ibid.*, p.359

⁵⁷ *ibid.*, p.361

⁵⁸ Graeme Gooday, *Domesticating Electricity: Technology, Uncertainty and Gender, 1880-1914* [2008], pp. 9-10

⁵⁹ *ibid.*, p.1

electrification, modernity and modernisation as “integral features of the same phenomenon,”⁶⁰ must examine the complex dynamics between electrical technologies, social groups and individuals.

There is now a wealth of literature, especially in the British and North American context, explicitly demonstrating what is implicit in Gooday’s framework of studying electrical histories, namely that the concept of “modern” linked to electricity is an actors’ category.⁶¹ This approach presents two interrelated analytical points that are useful to this thesis. Firstly, this approach helps present histories of technologies and electricity as complex and rich articulations of the notion of “being modern”, particularly as consumers, promoters and non-users created their own versions of “modernity” depending on their experiences of electricity, rather than electricity in itself being “modern”.⁶² As I will show throughout this thesis, the association between electricity and modernity was not as natural or obvious as it might seem from the teleological perspectives of historiographical accounts. This correlation, as we will see, evolved over decades as historical actors “braided” electricity and electrical technologies, and political, cultural and economic beliefs into regimes of constantly changing values and meanings.⁶³ I support this argument with the insights of the contributors to the *Handbook of Modernity in South Asia* (2011), who argue that instead of studying “modernity” and “modern” from “particular positions of intellectual persuasions,” histories must examine the processes and networks through which conceptions of “modernity” were enabled or expressed.”⁶⁴ My argument here is slightly different to that of Arnold’s in *Everyday Technology*. As I have discussed before, Arnold studies the ways in which Indians culturally assimilated “modern” technologies produced in the West and became “modern” themselves. While the book is appropriate in looking at the meanings Indians created while using these technologies, it falters in assuming that “modernity” was an inherent property of said technologies, and that using these technologies was the only means to, as the book’s subtitle suggests “the making of India’s modernity”.⁶⁵ My argument in this thesis then is simply that instead of equating

⁶⁰ *ibid*, p.15

⁶¹ For a summary, see the contributions to the special volume Sandwell, R. W., and Abigail Harrison Moore, eds., “Off-grid empire: rural energy consumption in Britain and the British Empire, 1850–1960”, *History of Retailing and Consumption*, 4 (2018), Issue 1

⁶² *ibid.*, pp.1-9

⁶³ I borrow the term “braiding” from Projit Bihari Mukharji, *Doctoring Traditions: Ayurveda, Small Technologies, and Braided Sciences* (Chicago and London: The University of Chicago Press, 2016). I explain my use of the term in relation to electricity in Chapter 2.

⁶⁴ Saurabh Dube, ed., *Handbook of Modernity in South Asia: Modern Makeovers* (New Delhi: Oxford University Press, 2011), p.2 and p.3

⁶⁵ Arnold, *Everyday Technology*

electrification with modernisation, we must consider the heterogenous and contingent associations between electricity and “modernity,” and consider how different historical actors in colonial Calcutta were engaged in braiding conceptions of modernity around electricity from their nationalist, imperialist, elitist, cultural, or religious perspectives.

Secondly, in demonstrating energy demand and transitions as contested fields of discontinuous ideas, institutions and objects rather than an imposition of “modernity”, the framework allows us to see the history of electricity as highly variable and non-linear. My narrative in this thesis will emphasise continuity over radical change, a method unusual in histories of electrification and technologies in colonial India. Narratives of electrification, where electricity is shown to replace all existing technologies and radically modify ways of living in a straightforward path to “modernity” and “modernisation” will be fundamentally disrupted in the chapters that follow. In Chapter 4, we will see how promoters sought to create demand for electric supply and electrical technologies by constructing images of an “electrical Calcutta” without domestic servants, gas lamps, oil lamps or manual punkahs in Anglo-Indian and *bhadralok* homes. However, I will show how the trajectories of public (Chapter 5) and domestic (Chapter 6) electric supply were not as linear as electric promoters and suppliers had imagined or would have liked them to be. I will demonstrate specifically in Chapter 6, the ways in which householders’ decisions to use electric supply, lighting and fans within their homes were dependent on the construction of middle-class identities based on consumption, and in some cases thrift, resulting in existing methods of lighting — oil and gas lamps — and ventilation — manual punkahs — being used often in close proximity to electric lighting and fans.

1.3. Towards a Social Life of Electricity in Colonial Calcutta

While this thesis is certainly intended primarily as a study of electrical history, it is also an attempt to account for the plurality of views and cultures in late-nineteenth and early twentieth century Calcutta. Accounts of *electrification*, as discussed in the previous sections of this chapter, present a static image of electric supply and domestic electrical technologies spreading and unfolding towards a path determined by an inevitable modernity. The preoccupation of historians of Indian electrification, and technologies in general, with linear narratives of *electrification* and technological diffusion can be attributed to the abundance of data and written documents available from governmental and technocratic archives. The use of predominantly governmental and technocratic sources

raises the obvious problem of silencing all voices and opinions except those of government officials, engineers and promoters, and only highlighting the technical and administrative structures of interests that determined the introduction and use of electricity. In order to write a critical history of electricity, therefore, I scrutinise the “archive” that has perpetuated linear histories of *electrification* and unearth a diverse range of literary, journalistic, personal and visual sources that shaped varied cultural representations of electricity.

Through an analysis of governmental and technocratic archives and juxtaposing them with other “alternative” sources, my research reveals the complex structures of social, cultural and political discussions and debates that manifested themselves in the spaces and ways in which historical actors discussed, installed and used electricity.⁶⁶ The sources offer a glimpse of the varied views on colonialism, nationalisms, domesticity, middle class identities, the literary arena, the place of women and servants in the household, and urban planning that engendered diverse cultural representations of electricity. Through a careful scrutiny of the lectures, personal writings, visual sources, and anticolonial Bengali satire by *bhadralok* nationalists, I pay close attention to their representations of electricity as a symbol of Western material culture and cultural progress. More importantly, I examine the nature of such discourses, and the ways in which the varied allusions to electricity reveal the differences of opinion and ideologies within *bhadralok* society. Drawing from newspaper reports supplemented with advertisements in short-lived Bengali periodicals, and domestic guidebooks, I attempt to examine both what they say about Anglo-Indian and *bhadralok* self-identities, as well as electrical promoters’ notions of the place of electric supply, lighting and fans within urban and domestic spaces. I also rely on electrical trade journals, and the documents of the Calcutta Electric Supply Corporation and the Calcutta Municipal Corporation for their varied and ambiguous accounts of the introduction and use of electric supply and lighting in public buildings and spaces.

The narrative of “conflict and identity in the social life of electricity” begins in late-nineteenth century before the introduction of public electric supply, when battery and generator-operated electric lighting were being introduced, installed and displayed in public spaces. Chapter 2: **Braiding “Modern” Around Electricity** introduces the diversity of threads that braided conceptions of cultural and civilisational modernity into electricity. Here, I begin with a lecture on electricity by the historian archaeologist and linguist Rajendralal Mitra at the Family Literary Club in 1876. An analysis of the contents and the

⁶⁶ Abhijit Bhattacharya, “Archives of the Nation in Making: Public Institutions in the 19th Century and the Beginning of Modern Alternative Archives within a Contemporary Institutional Framework” (2009) http://crossasia-repository.ub.uni-heidelberg.de/1108/1/Abhijit_Bhattacharya_Nation_and_Archive.pdf

setting of the lecture reveals the ways in which the scientific-minded Bengali elite, in their attempts to institute a bourgeois civil society based on nurturing a public culture of Western reason and science, propagated analogies between electricity and “European” civilisational progress. Here, I build on Gyan Prakash’s discussion of the scientific endeavours of the Indian elite in *Another Reason*.⁶⁷ I also refer to Matthew Edney’s study of cartography in late-eighteenth and early nineteenth century British India, and Pallavi Das’s work on railways and the environment in late-nineteenth century India to discuss how Rajendralal Mitra’s rhetoric of the human mastery of the natural forces of electricity in the form of machinery and lighting followed contemporary colonial discourses on the dominion over the Indian landscape.⁶⁸ From this vantage I then look at the distinct sites in the public sphere to foreground the different, sometimes contrary ways in which conceptions of “modern” were braided into electricity. I first discuss the ways in which promoters, especially P. W. Fleury — an engineer and builder — used the Prince of Wales’s arrival in Calcutta in 1875 to promote electric lighting to an elite Anglo-Indian and *bhadralok* audience. Following newspaper accounts of Fleury’s exhibitions, and the ways in which the elite public reacted to electric lighting, I chart the gradual drift of an ideological formation of electricity, especially electric lighting, as an inherently “modern” and “elite” source of energy. In addition, while discussing the ways in which the Bengali elite began using electric lighting in weddings and ceremonies as lavish displays of their wealth, I discuss Rochona Majumdar’s study of marriage practices in Bengal in the late colonial period, and discussions of money, display and pomp in Bengali society.⁶⁹ In the latter sections of the chapter, I return to the public sphere of lectures. Here, I examine two different lectures on electricity — one by the scientific nationalist Mahendralal Sircar and the other by John Willoughby Meares, the Electrical Adviser to the Government of India. Both these lectures show, in addressing electricity from different points of view, how radically different viewpoints on electricity converge on building connections between electricity and civilisational modernity. In discussing Sircar’s lecture, I start with a background of his nationalist and scientific views, borrowing from the works of Sumathi

⁶⁷ Prakash, *Another Reason*

⁶⁸ Matthew Henry Edney, *Mapping and Empire: The Geographical Construction of British India, 1765-1843* (Chicago and London: University of Chicago Press, 1997)
Pallavi V. Das, *Colonialism, Development, and the Environment: Railways and Deforestation in British India, 1860-1884* (New York: Palgrave Macmillan, 2015), p.97

⁶⁹ Rochona Majumdar, *Marriage and Modernity: Family Values in Colonial Bengal* (Durham and London: Duke University Press, 2009)

Ramnath, Pratik Chakrabarti, John Bosco Lourdusamy, and Deepak Kumar.⁷⁰ In my dissuasions of Meares's lecture, I show how his comparisons of electrical usage in Britain and India positioned Britain as the model that Indian traditional order and ways of living needed to match. Dipesh Chakrabarty's concept of the "hyperreal" Europe will be used here to reflect on Meares's lecture.⁷¹

Chapter 3: **Electricity and "Modernity" in Anticolonial and Traditionalist *Bhadralok* Social Commentaries** pays attention to diverse and hitherto unexplored vernacular archives to attest to a subversive thread that utilised periodicals, public theatre and satire to use the parallels established by public spectacles and lectures between electricity and particular associations with conceptions of a Westernised modernity to make allusions to electricity as a symbol of Western cultural modernity harmful to the Bengali individual, family and society. In studying portrayals of electricity as an extension of colonial rule capable of disrupting traditional and cultural values and schemes in the domestic and public spheres, this chapter also shows the ways in which such representations were also a means for the *bhadralok* commentator to comment on the different forms of nationalisms and ideas of modernity within *bhadralok* society. In describing the importance of the Bengali satirical drama and Bengali periodicals I use in this chapter, I discuss Sudipto Chatterjee's work on Bengali theatre in colonial Calcutta, Rosinka Chaudhuri's analysis of the "literary arena" consisting of print literature and drama, Swati Chattopadhyay's discussions on the notion of community in *bhadralok* discussions of Calcutta in the late-nineteenth century.⁷² This chapter shows how anticolonial and traditionalist *bhadralok* literature discussed electricity as a symbol of Western culture dangerous to the mind and the body of the symbol of Bengali cultural values and nationalism — the Bengali woman. The works of Partha Chatterjee, Judith E. Walsh, and Tanika Sarkar, discussing from

⁷⁰ Sumathi Ramnath, *Indian Association for the Cultivation of Science: Mahendralal Sircar and his Science, Morality, and Nationalism*, unpublished PhD thesis (The University of Texas at Dallas, 2018)
Pratik Chakrabarti, "Science, Morality, and Nationalism: The Multifaceted Project of Mahendra Lal Sircar", *Studies in History*, 17:2 (2001), pp.245-274
John Bosco Lourdusamy, "The Indian Association for the Cultivation of Science: A Tortuous Tryst with Modern Science", *Journal of Science Education and Technology*, 12: 4 (December 2003), pp.381-397
Deepak Kumar, "Reconstructing India: Disunity in the Science and Technology for Development Discourse, 00-1947", *Osiris 2nd series*, 15 Nature and Empire (2000), 241-257

⁷¹ Chakrabarty, *Provincialising Europe*

⁷² Sudipto Chatterjee, *The Colonial Staged: Theatre in Colonial Calcutta* (Calcutta: Seagull Books, 2007)
Rosinka Chaudhuri, *The Literary Thing: History, Poetry, and the Making of a Modern Cultural Sphere* (New Delhi: Oxford University Press, 2014)
Chattopadhyay, *Representing Calcutta*

different aspects the place of Indian women in the nationalist ideology centred on domesticity and the home, are important to the analyses in this chapter.⁷³

Questions concerning the imagined use of electric supply, lighting and fans structure Chapter 4: **The Domestic Servant and the Visualisation of “Electrical Calcutta”**. Although extant historiography on Indian electrification, as we have seen in Section 1.2, resolve the question of electrical *demand* as a straightforward given due to electricity’s apparent and evident “modernity,” this chapter considers electric supply, lighting and fans from the perspectives of engineers and promoters as technologies that had to be promoted. This chapter shows the ways in which electrical promoters borrowed from discourses regarding the place, responsibilities and behaviours of domestic servants widely discussed in late-nineteenth and early twentieth century literary, public and social circles in Calcutta to promote electrical technologies as rhetorical and technological solutions to social and moral issues of servants within Anglo-Indian and *bhadralok* domestic spheres. Here, I discuss the works of Robin D. Jones, Swati Chattopadhyay, and Nupur Chaudhuri to examine the place of the Indian servant in Anglo-Indian discussions of imperial domesticity — the idea that the management of the household for the Anglo-Indian woman was similar to the governance of an empire.⁷⁴ I then move on to explore the ways in which *bhadralok* nationalist and reformist discourses centred around the housewife and the domestic servant, discussing the works of Swapna M. Banerjee, Tanika Sarkar and

⁷³ Judith E. Walsh, *Domesticity in Colonial India: What Women Learned when Men Gave Them Advice* (Maryland: Rowman & Littlefield, 2004)

Partha Chatterjee, *The Nation and its Fragments* (Princeton, NJ: Princeton University Press, 1993)

— “The Nationalist Resolution of the Women’s Question”, in Kumkum Sangari and Sudesh Vaid, eds., *Recasting Women: Essays in Indian Colonial History* (New Brunswick, NJ: Rutgers University Press, 1990)

Tanika Sarkar, *Hindu Wife, Hindu Nation: Community, Religion and Cultural Nationalism* (Bloomington: Indiana University Press, 2002)

⁷⁴ Robin D. Jones, *Interiors of Empire: Objects, Space and Identity Within the Indian Subcontinent, c. 1800-1947* (Manchester: Manchester University Press, 2007)

Nupur Chaudhuri, “Memsahibs and Motherhood in Nineteenth-Century Colonial India”, *Victorian Studies*, 31:4 (1988), pp.517-535

Swati Chattopadhyay, *Representing Calcutta: Modernity, Nationalism, and the Colonial Uncanny* (London and New York: Routledge, 2005)

Partha Chatterjee in the process.⁷⁵ It was in the context of the growing centrality of servant to Anglo-Indian and *bhadralok* identities that electric suppliers and promoters found a language highlighting cases of servants' dishonesty and laziness to promote electrical technologies. I build this narrative using domestic guidebooks, newspaper reports, official documents, writings and interviews of electrical engineers and promoters, and advertisements of domestic electric technologies. The latter half of the chapter utilises public and journalistic discussions of interracial violence inflicted on domestic servants by their European employers, and the ways in which such cases became important points for promoters to suggest the electric fan as a replacement of the servant. Subsequently, the colonial government, much concerned about nationalist outrage over the lenient sentences granted to Europeans in such cases by European judges and juries, sought to replace the punkah-wallah in government offices and barracks with electric punkahs and fans. Electric punkahs and fans were, as we will see, a technological solution to a moral and political issue.

In Chapter 5: **From Public to Private: The Long Drawn-Out Journey of Electric Supply**, I study the complex trajectories of public electric supply in the years following the establishment of the Calcutta Electric Supply Corporation in 1899. Here, I show that the introduction of public electric supply in Calcutta, due to the involvement of infrastructure, capital investments, government authorities and private enterprise, was a complex process of financial, technological and political negotiations. In the early years of public electric supply, the colonial government sought to create a visual separation between the coloniser and the colonised by including electric lighting in public spaces and buildings, and electric trams in the colonial centre in their plans for "improving" Calcutta. I refer to Partho Datta's and Sudipto Basu's works on urban planning and spatial imagination in colonial

⁷⁵ Swapna M. Banerjee, "Debates on Domesticity and the Position of Women in Late Colonial India", *History Compass*, 8:6 (2010), pp.455-473

Swapna M. Banerjee, "Subverting the Moral Universe: 'Narratives of Transgression' in the Construction of Middle-class Identity in Colonial Bengal", in Crispin Bates, ed., *Beyond Representation: Colonial and Postcolonial Construction of Indian Identity* (New Delhi: Oxford University Press, 2006), pp.77-99

Swapna M. Banerjee, *Men, Women, and Domesticity: Articulating Middle-Class Identity in Colonial Bengal* (New York: Oxford University Press, 2004)

In her studies, Banerjee emphasises the ways in which servants were crucial to the refashioning of middle-class identity and the middle-class self in colonial Bengal.

Also see: Swati Chattopadhyay, "Blurring Boundaries: The Limits of 'White Town' in Colonial Calcutta", *Journal of the Society of Architectural Historians*, 59: 2 (June 2000), pp.154-179

Partha Chatterjee, "The Nationalist Resolution of the Women Question", in Kumkum Sangari and Sudesh Vaid, ed., *Recasting Women: Essays in Colonial History* (Delhi: Kali for Women, 1989), pp.233-253

Tanika Sarkar, "The Hindu Wife and the Hindu Nation: Domesticity and Nationalism in Nineteenth Century Bengal", *Studies in History*, 8:2 (1992), pp.213-235

Calcutta, and Prashant Kidambi's work on administrative planning in colonial Bombay.⁷⁶ The chapter, based on an analysis of contemporary official documents, electrical trade journals, maps, and newspapers, attempts to discern both "change" and "continuities" in the urban environment with the introduction of public electric supply.

The paucity of alternative sources that directly discuss electric supply, lighting and fans, however, add a level of complexity to writing a comprehensive history of electricity in colonial Calcutta. The fragmentary nature of the archives and the time period within which this study is set pose a challenge in identifying actual social practices emerging from cultural representations of electricity. As the domestic and public use of electric supply was only beginning to be accepted by the populace towards the end of the period under consideration in this thesis, there is, therefore, a lack of archival material on the ways in which domestic consumers interacted with electrical supply and technologies within their households. Such a gap is evident in Chapter 6: **The Social Identities of Electrical Consumers**, which delves into the social lives of electrical consumers and examines the ways in which they interpret their consumption of electric lighting and fans through notions of class and social identities. While it is not possible to recover direct evidences of the spaces and manner in which domestic consumers installed and used electric supply, we can gauge how questions of middle-class identity based on economic thrift and consumption influenced the ways in which domestic consumers interacted with electrical technologies through legal case reports and newspaper accounts of electrical theft. This chapter brings into conversation strands from "user studies" — defined in the works of Ronald Kline, and Nelly Oudshoorn and Trevor Pinch — and studies on middle-class identities and consumption in colonial India — by Abigail McGowan and Douglas E. Haynes, and Prashant Kidambi — to make electrical consumers more visible as historical subjects. In this chapter, I will focus on how Anglo-Indian and *bhadralok* middle-class consumers sought electric supply, lighting and fans in their homes as a means of defining

⁷⁶ Partho Datta, *Planning the City: Urbanisation and Reform in Calcutta, c.1800—c.1940* (New Delhi: Tulika Books, 2012)

Sudipto Basu, "Spatial Imagination and Development in Colonial Calcutta, c 1850-1900", *History and Sociology of South Asia*, 10:1 (2016), pp.35-52

Prashant Kidambi, *The Making of an Indian Metropolis: Colonial Governance and Public Culture in Bombay, 1890-1920* (Aldershot, England, and Burlington, USA, 2007)

their class and social identities.⁷⁷ However, the expense of installing and using electric supply, especially in the financially precarious times of the early twentieth century, forced several consumers to steal electric supply by bypassing meters and other means. Here, I study “theft” and “thrift” to provide new perspectives on how consumers, suppliers and promoters of electricity interacted during the early days of public and domestic electric supply in colonial Calcutta.

Taken as a whole the different sources reveal a complicated history of electricity. Unlike works on Indian electrification which focus primarily on the development of electrical supply systems, my thesis is premised on an understanding of colonial Calcutta as simultaneously multilayered and interconnected, and divided and dichotomous. Each chapter in this thesis seeks to build on, and add to works that study Calcutta in the period from the late-nineteenth century onwards as one of constant flux, in which the political and cultural identities of both the *bhadralok* and Anglo-Indian classes were contested, revised, and reinterpreted in relation to each other, and the intercalated field of meanings not confined to the simplistic oppositions of the colonisers and colonised.⁷⁸ What I aim becomes clear by the end of this thesis, therefore, is that it is historiographically more constructive to study the “social life” — to borrow Arjun Appadurai’s phrase — of electricity that examines the ways in which social and material practices of energy consumption were historically contingent on the translations and representations of promoters, governmental officials, consumers, and non-users.⁷⁹

⁷⁷ Nelly Oudshoorn and Trevor Pinch, eds., *How users matter: The co-construction of users and technologies* (Cambridge, MA: MIT Press, 2003)

Ronald R. Kline, “Resisting Consumer Technology in Rural America: The Telephone and Electrification”, in Nelly Oudshoorn and Trevor Pinch, eds., *How users matter: The co-construction of users and technologies*, pp.51-66

Douglas Haynes, Abigail McGowan, Tirthankar Roy and Haruka Yanagisawa, eds., *Towards a History of Consumption in South Asia* (New Delhi: Oxford University Press, 2010)

Prashant Kidambi, “Consumption, Domesticity and the Idea of the ‘Middle Class’ in Late Colonial Bombay”, in Sanjay Joshi, ed., *The Middle Class in Colonial India* (Delhi: Oxford University Press, 2011), pp.132-155

⁷⁸ Anindita, Ghosh, *Claiming the City: Protests, Crime, and Scandals in Colonial Calcutta, c. 1860—1920* (New Delhi: Oxford University Press, 2016); and *Power in Print: Popular Publishing and the Politics of Language and Culture in a Colonial Society* (New Delhi: Oxford University Press, 2006)

Swapna M. Banerjee, “DownMemory Lane: Representation of Domestic Workers in Middle-Class Personal Narratives of Colonial Bengal”, *The Journal of Social History*, 37:3 (Spring 2004), pp.681-708

Sudipta Kaviraj, *The Invention of Private Life: Literature and Ideas* (New York: Columbia University Press, 2015)

Swati Chattopadhyay, *Representing Calcutta: Modernity, Nationalism, and the Colonial Uncanny* (London and New York: Routledge, 2005)

Dipesh Chakrabarty, *Provincialising Europe: Postcolonial Thought and Historical Difference* (Princeton, NJ: Princeton University Press, 2000)

⁷⁹ Appadurai, ed., *The Social Life of Things*

Chapter 2

Braiding “Modern” Around Electricity

In a lecture at the meeting of the Family Literary Club on 20 May 1876, the historian, archaeologist and linguist Rajendralal Mitra (1822–1891) pointed to the potential, scope and purposes of harnessing the mystical yet pervasive natural phenomenon of electricity:

Electricity was the grandest, the most awe-inspiring, and all-pervading power in nature. As it is manifested in thunder and lightning, we cannot behold it except in fear and trembling. Seen in the magnetic needle, it is curious and puzzling. Spread over the face of the universe, it is mysterious and inscrutable. What has European civilisation of modern days done with it? Why, it has forced that form of electricity called the magnetic to serve as our most trusted guide in the trackless ocean. It has obliged that subtle fluid to become the most rapid carrier of messages, girdling the earth as our carriers. It has converted it into the burnisher of our domestic vessels, coating our pots and pans, cups and saucers, with gold or silver, according to our wishes it has employed the magnetic current to ring our call-bells, and forge our platinum vessels, to give us light at our command, and to blow up obstructions in the beds of rivers and seas. Instead of cowering under the dread of the awful lightening, we can now make it come down at our beck, and oblige it to follow any course we choose, so that what was an irresistible evil has now become a faithful and obedient servant.⁸⁰

The location and content of the lecture are important on many levels. Evidently, Mitra was speaking at the Family Literary Club, also known as the Burrabazar Family Literary Club, an organisation established in 1857 by scientific-minded Bengali elite including Mitra himself.⁸¹ Established and operated through complex networks of Bengali and Anglo-Indian patronage and personal liaisons, clubs like the Family Literary Club were means for the Bengali elite to fashion trust and civility based on an intellectual orientation with mainstream preoccupations of nineteenth-century science. Science with its promise of social and cultural transformations helped both the Bengali elite and the colonial administration's efforts to engineer civic consciousness by what Gyan Prakash has termed the “restaging” of British colonial rule in India as a source of new knowledge. Such “restaging”, on Prakash's account, was based on the idea of “scientific knowledge and scientific attitude as signs of enlightenment and education.”⁸² The Family Literary Club,

⁸⁰ *The Hindoo Patriot*, 22 May 1876

⁸¹ Mitra, a populariser of the sciences and himself a founding member of the club, invited several speakers to deliver scientific lectures at the club. Arun Kumar Biswas, *Science in India* (Calcutta: Firma K.L. Mukhopadhyay, 1969)

⁸² Prakash, *Another Reason*, p.55; p.70

often supported by the colonial administration, offered a mélange of lectures on natural history, chemistry and experimental physics to a mixed audience ranging from Governor-Generals to Bengali and Anglo-Indian elites who were not scientists themselves.⁸³

Placed within this setting, Mitra's lecture on electricity meant more than a mere account of industrial and mechanical development. Electricity was inextricably interwoven with the civilisational modernity of Europe. The imagery of electricity packed with terms like "fear" and "mystery", and described as a powerful and frightening "evil" that had been essentially "forced", "obliged", "converted" and "employed" into and as a "faithful and obedient servant" in measuring instruments, machinery, techniques and quotidian living signified a triumph of "European civilisation of modern days" over nature through human consciousness and action.⁸⁴ The rhetoric of the human mastery of nature reflected those regularly invoked by British scientists, engineers and thinkers in triumphalist narratives of the domination of "natives" who viewed nature in mythical and superstitious terms. This idea of the conquering and domestication of nature in the colonies with science and machinery as an imposition of imperial rule is echoed in several post-colonial histories of science and technologies concerning the Indian subcontinent. To take a few examples, Matthew Edney, in his study of cartography and surveying in late-eighteenth and early nineteenth century British India, states that surveying was a means for the British to articulate their domination over the Indian landscape or, as Edney writes, reconfigure the "mystical, religious, Hindu space of India to a rational, scientific, imperial structure of space."⁸⁵ British engineers, conservationists and officials also believed in the abilities of Western science to help them utilise their mastery over the Indian landscape for economic ends, as Pallavi Das has shown in her study of railway construction and forest conservation in late-nineteenth century India: "European science could be used not only to conquer nature but also develop the natural resources in the colony (i.e. India), so that economic benefit could be extracted from them."⁸⁶

⁸³ *ibid.*

⁸⁴ In his study of Enlightenment historians and their attitudes towards nature, Nathaniel Wolloch has chronicled how Enlightenment thinkers equated human cultural civilisation to human ability to control and cultivate nature. See: Nathaniel Wolloch, *History and Nature in the Enlightenment* (Farnham: Ashgate, 2010)

As Graeme Gooday has shown in *Domesticating Electricity*, popular representations of electric technologies in late-nineteenth century Britain and America described them as forms of "tamed", "captured" or "trained" lightning. See: Graeme Gooday, *Domesticating Electricity: Technology, Uncertainty and Gender, 1880-1914* (London: Pickering & Chatto, 2008), pp.19-30

⁸⁵ Matthew Henry Edney, *Mapping and Empire: The Geographical Construction of British India, 1765-1843* (Chicago and London: University of Chicago Press, 1997), p.32

⁸⁶ Pallavi V. Das, *Colonialism, Development, and the Environment: Railways and Deforestation in British India, 1860-1884* (New York: Palgrave Macmillan, 2015), p.97

Correspondingly, the transformative power of electricity to, as Mitra put it “become the most rapid carrier of messages,” “to ring our call-bells, and forge our platinum vessels, to give us light at our command, and to blow up obstructions in the beds of rivers and seas,” shaped progressive social visions of civilisational modernity.⁸⁷ The relationship between electricity and civilisational progress was not just limited to Mitra’s valorisation of Europe, but also, as we saw in the opening to this thesis in Chapter 1, materialised the British civilising mission by propagating analogies between artificial illumination, especially electric lighting, and modern civilisation principally envisioned through Western economic, technological, political and cultural development. In order to appreciate the imagined civilisational and cultural tropes interwoven in electricity and electrical technologies in colonial Calcutta, we must, however, broaden the range of historical actors and material artefacts.

This chapter sheds light on several wider questions about connections between electricity and different conceptions of technological and cultural modernity. Here, I dwell on distinct sites and braids — imperialism, elite culture, journalistic transcripts, and *bhadralok* nationalisms — so as to foreground the different, even contrary ways in which the conception of “modern” was self-consciously braided into electricity and electrical technologies. Here, I apply the metaphor of braiding to the historical situations discussed in this chapter. I borrow the metaphor from Projit Mukharji’s discussions of the “braiding” of material cultures and intellectual traditions in the modernisation of Ayurveda in late-nineteenth and early twentieth century Bengal. Mukharji advocates the use of “braiding” as a process through which to think of historical configurations where objects and ideas are simultaneously defined and transformed. He cites certain advantages in applying this concept. The concept of “braiding” allows historians to envisage the interactions between objects and ideas as entanglements of diverse threads rather than, as histories of global circulation of object suggest, merely tracing the movement of an idea or object from one culture or society to another.⁸⁸

In Section 2.1, I examine public displays of electricity in the years following the Prince of Wales’s trip to Calcutta in 1875. Here, we will see how, following the introduction of electric lighting as a minuscule part of the decorations welcoming the Prince to Calcutta, promoters and journalistic transcripts began forging the identity of electricity and electric lighting as a symbol of elite culture. Through an examination of public and private exhibitions and installations, we will see the ways in which promoters relied on different

⁸⁷ *The Hindoo Patriot*, 22 May 1876

⁸⁸ Projit Bihari Mukharji, *Doctoring Traditions: Ayurveda, Small Technologies, and Braided Sciences* (Chicago and London: The University of Chicago Press, 2016), p.2 and p.24

layers of elite discourse and ceremonies. We will also examine from the few reports on electric lighting in elite *bhadralok* weddings, the ways in which electric lighting was utilised in constituting the idea of modern weddings.

In Section 2.2, I analyse the lectures and writings of Mahendralal Sircar, a doctor of medicine at Calcutta University, and his symbolic use of electricity in forwarding notions of civilisational and cultural progress based on the adoption of Western science. This will be followed by an examination of John Willoughby Meare's lectures on electrical engineering at the Civil Engineering College, Sibpur in 1900 to examine the ways in which Meares's comparisons to material advances in Britain as a result of electrical usage is also important to our study of electrical promoters' discourses in Chapter 4.

2.1. Public Displays of Electricity

On 2 October 1875, the Anglo-Indian newspaper *The Pioneer* (Allahabad) reported that the Municipal Corporation of Calcutta had decided to secure the services of P. W. Fleury & Co. for electric illuminations along Chowringhee Road for the Prince of Wales's visit in December.⁸⁹ We know very little about P. W. Fleury, not even his full name, except that his company P. W. Fleury & Co., based at 91 South Collinga Street in Calcutta, was advertised in the *Calcutta Directory for 1874* as specialists in installing and erecting "all kinds of machinery", and the "construction and repairs of electric, galvanic, and magnetic apparatus."⁹⁰ Well before the official news of Fleury's company being asked by the Municipal Corporation to display electric lighting for the Prince of Wales's visit, Fleury and his company had begun exhibitions based on the devices and illuminations he had planned to install for the Municipal Corporation. In the 23 August 1875 edition, *The Pioneer* briefly mentioned an exhibition of "illuminated devices and designs" by P. W. Fleury & Co., "for the Prince of Wales's visit"⁹¹ What these "illuminated devices and designs" were is unclear. On 2 September 1875, Fleury hosted an exhibition at his residence on Wellesley Street of chromatropes illuminated by battery-operated electric lights. According to Fleury, while the electric light was not as "brilliant" when compared to gas jets they could, the electric lights allowed the chromatropes more flexibility since they were no longer

⁸⁹ *The Pioneer*, 2 October 1875, p.3

⁹⁰ *Calcutta Directory for 1874*, p.16 (Advertisements)

⁹¹ *The Pioneer*, 23 August 1875

connected to gas pipes. The report stated that the electrically lit chromatropes “are not dependent on coal gas, they can be placed anywhere, and are especially suitable where such gas is not available.”⁹² The exhibition was also attended by some of the elite residents of the city who, as the report noted, “generally concurred in considering them a very effective means of illumination; appropriate in design, and pleasing in appearance.”⁹³

Despite gaining the interests of some of the Calcutta elites and the press following the progress of Fleury’s electric illuminations, the Municipal Corporation jeopardised Fleury’s arrangements by announcing an alteration in the planned route of the Prince’s procession. According to the new plan, all electrical illuminations initially planned to be displayed on Chowringhee Road were now restricted to one electric light on top of the Municipal Office. Crucially, the Municipal Corporation also removed the Municipal Office from the original route, thereby leaving Fleury’s single electric light away from the scene of the procession and the Prince’s view. The *Madras Mail* of 8 November wrote while discussing the alterations: “the Municipal Office and the Lindsay Street Market will not be illuminated, but an electric light will be exhibited from the top of the former building.”⁹⁴ The report, nevertheless, mentioned that all the remaining illuminations on the streets and buildings along the procession route were planned with oil and gas lamps.⁹⁵

Perhaps wishing to hold the Municipal Corporation’s as well as the public’s interests in his electric illuminations, Fleury, in the following weeks, advertised his devices and his company in all major English newspapers — both Anglo-Indian and Bengali-owned. The advertisement in the 22 November 1875 edition of *Amrita Bazar Patrika* read:

PRINCE OF WALES’ ROYAL VISIT TO INDIA

A most fitting and suitable occasion for GRAND ILLUMINATIONS; FETES AND GENERAL REJOICINGS!

Reception Halls, Gardens, Court Yards, and all the Principal Streets of large Cities, should be brilliantly illuminated by the most powerful artificial LIGHTS, **THE ELECTRIC AND LIME-LIGHTS, &c.**, And every building, should be tastefully hung with decorations of the choicest and most attractive designs in all shapes and colours; TO DO FULL HONOUR TO THE ROYAL AND MOST WELCOME VISITOR,

H.R.H. THE PRINCE OF WALES.

⁹² *The Madras Mail*, 8 September 1875, p.3

⁹³ *ibid.*

⁹⁴ *Madras Mail*, November 8, 1875, p.3

⁹⁵ *ibid*

P. W. FLEURY & Co., Builders, engineers, **manufacturers and exhibitors of electric lights**, lime-lights, chromatrope revolving lights, patent chromatrope revolving Prince of Wales Crowns, plumes, crests & transparencies, of every description

Most respectfully solicit early orders; all communications should be addressed to the Malakhoff Hotel, Black Town.

Messrs. P. W. F. & Co., beg respectfully to offer their services to the Chairman of Municipalities, Commissioners of Towns, Cities, and Districts, of the Great Indian Empire. They also offer their services to their Highnesses the Maharajahs and Princes of India, for illuminating, by the agency of **Electricity**, streets, and public buildings, and for decorating them with appropriate devices and designs.

Our Mr. Fleury and his staff of experienced assistants will superintend and carefully carry out all arrangements entrusted to them, in any part of India.

Photographs of Transparencies, Designs, Revolving chromatrope crowns, plumes, crests &c., will be shown to parties desirous of engaging their services.

P. S.: There will be a show of transparencies for this night and tomorrow at the Malakhoff Hotel, between 7 and 11 p.m. for the public so as to have their prompt orders on approval and thus prevent disappointment. If orders are obtained a show of **Electric Light** will be given to the public.⁹⁶

[emphases mine]

As we can see in the advertisement, Fleury appealed to the fashionable, royal and governmental elite to illuminate their spaces and buildings with electric lights, even offering an exhibition on the following nights to build interest. Courting the Prince of Wales and describing the electric lights as the “most powerful artificial lights”, Fleury sought to cultivate an aspiration amongst the elite for grandeur, especially as Fleury put it: “to do full honour to the Royal and most welcome visitor, H.R.H. The Prince of Wales”.⁹⁷

How Fleury fared as a result of his advertisements and exhibitions did not make news in the journalistic press, or in the official coverage of the Prince of Wales’s visit. What we do know from the press coverage of the Prince’s visit is that gas lighting was the major source of illumination in Calcutta during the period. In his book, George Wheeler, a “special correspondent of the *Central News*” and part of the press entourage that accompanied the Prince, describes the abundance of gas lamps in Calcutta lit specially for the Prince’s visit and Christmas, writing, “The Maidan and its statues were enshrouded with dazzling wreaths

⁹⁶ *Madras Mail*, November 22, 1875, p.3

⁹⁷ *ibid.*

of gas-jets, and lines of fire diverging hither and thither over the grass and by the sides of the streets lent considerable picturesqueness to the general view.”⁹⁸ He added that the number of gas lamps made traversing the streets “like promenading between walls of fire.”⁹⁹ Wheeler’s accounts can be confirmed from an account on “The City of Calcutta and its Municipal Corporation”, in *The Calcutta Review* (1880) noting that in 1875, the Oriental Gas Company served 3,502 public lamps and 37,301 private lamps including all important buildings, clubs, and the Hooghly Bridge.¹⁰⁰

Public interest and journalistic coverage, nevertheless, gave Fleury and electric lighting an audience. At the same time, exhibitions from his own home in the Dhurumtollah initiated new spaces and means with which to attract attention to electric lighting. One evening in July 1876, a reporter from *Indian Daily News* noticed Fleury’s exhibition of electric lighting from the roof of his office a mile away. From even that distance, the reporter noted, the illumination “cast a most brilliant light to a considerable distance in the neighbourhood, throwing deep shadows of the various objects interposed within the range of its rays.”¹⁰¹ The exhibition, the reporter noted, attracted the attention of several bystanders “of all classes” and elicited applause “*wah-wah*” from the audience.¹⁰²

Public newspapers — both Anglo-Indian and nationalist — also followed electrical news in the rest of the world. These news reports were either telegraphically transmitted or reprinted from other newspapers, and appeared amongst other political and social news, pointing at a deliberate assortment of news in order to cater to different tastes.¹⁰³ Nevertheless, these articles, while shaping a transcript of electricity’s public utility, also carefully interplayed popular science and mass politics. *The Hindoo Patriot*, a conservative English newspaper, regularly printed/reprinted articles on developments in electric lighting and supply, frequently adding its own interpretations of local governance at the end. In an article on Edison’s adjustable lightbulb on 6 January 1879, the newspaper mentions that with such inventions, “electric light seems to be destined to put out gas.”¹⁰⁴ The article,

⁹⁸ George Wheeler, *India in 1875-76: The Visit of the Prince of Wales : a Chronicle of His Royal Highness’s Journeyings in India, Ceylon, Spain and Portugal* (London: Chapman and Hall, 1876), p.189

⁹⁹ *ibid*

¹⁰⁰ “The City of Calcutta and its Municipal Corporation”, *The Calcutta Review*, 70 (1880), p.490
Also see: Niharika Dinkar, *Empires of Light: Vision, Visibility and Power in Colonial India* (Manchester: Manchester University Press, 2019), p.16

¹⁰¹ *Indian Daily News*, 16 July 1876, p.2

¹⁰² *ibid*.

¹⁰³ Michael Mann, *Wiring the Nation: Telecommunication, Newspaper-Reportage, and Nation Building in British India, 1850—1930* (New Delhi: Oxford University Press, 2017) pp.105-124

¹⁰⁴ *The Hindoo Patriot*, 6 January 187, p.2

however, ended with a criticism of the Municipal Commissioners in Calcutta for their insistence on a supply and lighting contract with Oriental Gas Company. In another article on 10 May 1880, following developments in Siemen's electric light which cost very little to light as compared to gas lighting, the newspaper again criticised the Commissioners due to whom Calcutta was "bound to the gas contract for 21 years."¹⁰⁵

As we will see in Chapters 4 and 5, it was only in the 1890s that the Municipal Corporation of Calcutta began considering battery-operated electric lighting in some streets, or the possibility of public electric supply. While the Municipal Commissioners did not see any financial benefits in foregoing gas supply, in the next few decades the electrical marketplace grew with several other suppliers and engineering workshops manufacturing and importing electric lights and fountains. A cursory glance over newspaper accounts will reveal electrical exhibitions or electric lighting being used to illuminate openings of hotels or mills, or even theatrical performances.¹⁰⁶ The interplay of electric lighting and public displays deserves our attention for the ways in which the process opened up new forms of consumption of illumination outside of the governmental use of illumination to mark special occasions.

Electric lighting, however, depended on the complexion, motivation and wealth of the local elite who charted the identity of electricity as a "modern" technology. The installation and staging of electric lighting as a spectacle mattered to the *bhadralok* elite, who sought new means of superfluous consumption as marks of social and class identity. This is particularly evident in the ways in which electric lighting, from the 1880s onwards, became a part of elite *bhadralok* weddings in Calcutta. Through the 1880s and to the early 1900s, news reports on the installation of electric lighting in elite marriage procession were commonplace.¹⁰⁷ As Rochona Majumdar has discussed in *Marriage and Modernity*, in the late-nineteenth and early twentieth centuries, *bhadralok* marriages and weddings were undergoing cultural, material and religious transformations based on changing ideas of "modernity" which, as Majumdar states, stemmed from "urban life, Western education, the print media (the publishing of matrimonial advertisements seeking brides and grooms), monetisation of relationships (the escalation in the practice of dowry), cultivation of

¹⁰⁵ *The Hindoo Patriot*, 10 May 1880, p.2

¹⁰⁶ Reports from *The Statesman*

8 October 1877: electric light used to illuminate a play on Hindu mythology at the opening of the Emerald Theatre.

14 May 1883: electric lighting at the opening of the Great Eastern Hotel

6 November 1883: the Eastern Electric Light Company announced an exhibition at the Zoological Gardens.

¹⁰⁷ Ranabir Ray Choudhury, *Calcutta: A Hundred Years Ago* (Calcutta: The Statesman Commercial Press, 1987), pp.96-97, p.154

Also: "Marriage in High Life", *Amrita Bazaar Patrika*, 14 March 1905, p.7

distinction and cultural capital (debates about what constitutes a tasteful wedding), and law.”¹⁰⁸ These changing ideas, especially the ones with regards to ideas of tasteful weddings, resulted in a growing usage of “modern” technologies such as photography and illumination. Photography, however, as Majumdar shows, focused only on the conjugal pair rather than on wedding rituals and ceremonies.¹⁰⁹ This explains why electric lighting is only mentioned in newspaper accounts rather than in photographic primary sources.

While electric lighting provided the elite to organise what Majumdar has termed “tasteful” weddings, electrical promoters also sought to entice new elite customers with new lighting installations. In an exhibition on 27 January 1888 in the Town Hall, Dey, Sil & Co., electricians and engineers, exhibited battery-operated lamps for carriages.¹¹⁰ A week later, *The Statesman* reported that the same carriage, lit by Dey, Sil & Co.’s electrical system was used as a nuptial car in the procession of an elite wedding in Pathuriaghatah.¹¹¹ Outside of processions, electric lighting’s connections to the *bhadralok* elite also played into performances of extravagance in wedding rituals newly introduced in the late-nineteenth century, where wealthy families displayed the gifts they exchanged which, given how expensive electric supply and technologies were in the late-nineteenth and early twentieth centuries as we will see in our discussion of consumers in Chapter 6, also included electric lamps and fans.¹¹²

The emergence of electric lighting from promoters’ exhibitions to public performances marked by urban, social and cultural ideas of modernity braided several different conceptions of electricity as modern. However, public performances of electric lighting are only one of the threads that I intend to discuss in this chapter. In the next section, we will see how public lectures, from different points of view, braided conceptions of civilisational modernity into electricity.

¹⁰⁸ Rochona Majumdar, *Marriage and Modernity: Family Values in Colonial Bengal* (Durham and London: Duke University Press, 2009), location 136 of 5741 on Kindle

¹⁰⁹ *ibid*, location 2414 of 5741 on Kindle

¹¹⁰ *The Statesman*, 29 January 1888

¹¹¹ *The Statesman*, 5 February 1888

¹¹² Majumdar, *Marriage and Modernity*, locations 917 and 925 of 5741 on Kindle

2.2. Lectures on Electricity and Threads of Civilisational Modernity

As we have seen in the opening of this chapter in our discussion of Rajendralal Mitra's lecture on electricity at the Family Literary Club, electricity was an example of the scientific-minded *bhadralok* elite bridging conceptions of European civilisational modernity into and through descriptions of electrical use in Europe. In this section I will look at two different lectures by two different individuals who sought to braid conceptions of civilisational modernity both into and through their discussions of electricity.

The first lecture was delivered at the Indian Association for the Cultivation of Science (IACS) in May 1877 by Mahendralal Sircar, a doctor of medicine at Calcutta University who began his efforts to broaden and deepen Western scientific thinking amongst the Bengali public with the establishment of the Calcutta Journal of Medicine in 1868. Along with Father Eugene Lafont, a Belgian missionary and professor of physics at St. Xavier's College in Calcutta, Sircar sought to popularise Western science as a means of national progress. His efforts culminated in the establishment of the Indian Association for the Cultivation of Science (IACS) on 15 January 1876.¹¹³ Sircar and other likeminded *bhadralok* viewed the pursuit of scientific knowledge as the true form of moral enlightenment. Western science, according to Sircar, provided an "unchallengeable basis on which the human mind can take its stand for positive certainty in all its investigation."¹¹⁴ He believed that contemporary India, due to its religious cultures and the orthodoxy of religions, especially Hinduism in all its forms, was opposed to the rationality, modernity, and progressive thinking instilled by the pursuit of scientific knowledge. He also believed that the nation needed to adopt science as its religion, and that traditional religious and spiritual beliefs "must receive their death blow from such [scientific] study".¹¹⁵ Pratik Chakaborty summarises Sircar's nationalism in this way:

For Sircar, science was the metaphor for nationalism. He stressed that political nationalism had no meaning without science as its guiding spirit. In his worldview science was a metaphor for liberty and enlightenment against the preceding 'dark' ages, the catalyst for a new cultural and political self expression.¹¹⁶

¹¹³ Pratik Chakraborty, "Science, Morality, and Nationalism: The Multifaceted Project of Mahendra Lal Sircar", *Studies in History*, 17 (2001), pp.245
Also see: Arun Kumar Biswas, *Collected Works of Mahendralal Sircar, Eugene Lafont and the Science Movement, 1860-1910* (Kolkata: Asiatic Society, 2003)

¹¹⁴ IACS, *Annual Report of the IACS* (Calcutta: 1878), p.17

¹¹⁵ Mahendralal Sircar, *Moral Influences of Physical Science* (Calcutta: 1892), p.19

¹¹⁶ Chakraborty, "Science, Morality, and Nationalism", p.247

In the lecture on electricity at IACS in May 1877, Sircar spoke about the progress that electrical sciences were making in Europe and the United States. While the content of much of the lecture is similar to that of Rajendralal Mitra's that we have already discussed, Sircar, however, while braiding electricity with European civilisational modernity, turned to India's historical past in an attempt to braid Western science with the Eastern body and mind. He said:

We read of our own ancient Rishis who could emit fire from their mouths. We need not be so uncharitable as to absolutely call in question the truth of the records in which these things are related. We may without violence to science believe that these might have been electrical phenomena.¹¹⁷

In his braiding of "electric phenomena" to ancient Hindu records, Sircar brought together what in his view were two distinct fields — the Western scientific phenomenon of electricity and Hindu religious belief. The dichotomy between Western science and Hindu religious belief, on Sircar's account, was an obvious one. The Hindu mind, in Sircar's view, was inward looking, failing to observe natural phenomenon around it. The phenomenon of *rishis* (priests or holy men) emitting fire, on Sircar's account, could mean one of two things. Firstly, that Hindu religion and scripture had no explanation of the phenomenon apart from divine intervention, or secondly, that the priests and scriptures chose not to explain the phenomenon in order to influence the Hindu mind and keep them away from the search for Truth — according to Sircar, the ultimate goal of science.¹¹⁸

The fact that ancient records could not explain the phenomenon of *rishis* emitting fire or chose not to explain it was a result of or an attempt by Hindu religion, through idolatry, priesthood and orthodoxy to make the Hindu mind incompatible with the ultimate goal of science — a search for Truth.¹¹⁹ In his book *Moral Influences of Physical Science* (1892), Sircar had written about his opinions on priesthood in Hindu religion:

It is not right that any man, far less that so many millions of men for generations without number, should be kept down in false and unworthy belief and thus deprived from the elevating and regenerating influence of the first and highest — Truth. If for no other reason, pre-eminently for this, is it the supreme duty of every devout student of nature to

¹¹⁷ *The Hindoo Patriot*, 28 May 1877, p.2

¹¹⁸ Sircar, *Moral Influences of Physical Science*, p.17

¹¹⁹ *ibid.*, p.19

endeavour his best to introduce a knowledge of the physical science amongst the people of this country?¹²⁰

In his lecture, he went on to discuss that knowledge of nature had existed within Hindu religious and domestic practices, much before the introduction of Western science. Describing how ancient Indian temples installed metal rods to prevent lightning strikes, and how Indian women removed metallic objects outside of their homes using thunderstorms:

Out temple architecture shows that the idea of averting lightning strokes by metallic rods implanted on the tops of temples and other places of worship was entertained and acted upon long anterior to the discoveries of Franklin. And the fact of our old ladies having been, in the habit of removing metallic things from the exposed parts of houses during thunder-storms long anterior to the introduction of western science points to the probability that the same idea might have floated down traditionally from remote ages.¹²¹

In what would seem like a progressive account of Indian cultural and domestic practices based on an advanced understanding of nature Sircar, however, hinted at the rudimentary knowledge that existed in contemporary Indian society. According to Sircar, traditional Indian knowledge passed through generations had not changed or advanced in manner or content. The Hindu mind steeped in “dogma and blind faith”, Sircar believed, had stagnated, resulting in a stagnation of progress in scientific knowledge.¹²² In the *Annual Report of the IACS* (1899), Sircar writes that even if he were to consider that a higher state of knowledge existed in the past, there were no such traces of them in contemporary Indian knowledge systems: “I admit for the sake of argument that there was a science even in high state of cultivation. But I beg leave to ask here are the traces of such a state of things?”¹²³

In invoking Benjamin Franklin in the lecture, Sircar put forward his notion that, given the lack of scientific knowledge in Indian society, western science was the best way for Indians to investigate natural phenomena and understand the physical sciences. Electricity here was referred to, much like Rajendralal Mitra’s lecture, as a symbol of the progressive nature of western science, which had resulted in western civilisational and material development.

¹²⁰ *ibid.*

¹²¹ *The Hindoo Patriot*, 28 May 1877, p.2

¹²² IACS, *Annual Report of the IACS* (Calcutta, 1901), p.26

¹²³ IACS, *Annual Report of the IACS* (Calcutta, 1899), pp.17-18

Sircar suggested that rejection of religious beliefs and accepting the civilisational authority of western science and the West was the only way for Indians to be seen as members of a civilised nation:

The natives of India, if they want to take rank with the civilised nations of the world, if they must escape from the ignominy of being morally and intellectually effaced from the face of the globe, must do what these nations are doing, must take to cultivation of science which will elevate them from the position of slaves to the rank and dignity of the Masters of Nature.¹²⁴

As we have discussed in the opening of this chapter, and as we can see here, the ability of Western science to enable human dominance over nature, or as Sircar puts it in the quote above, “Masters of Nature”, was central to scientific-minded *bhadralok* elite visualising and braiding electricity into conceptions of European civilisational and material modernity. Such visualisations, as we have seen, were evident in the discourses of colonial officials and engineers. The narratives of both members of the *bhadralok* elite and colonial officials positioned the West as being the model that Indian traditional order and ways of living needed to match. Dipesh Chakrabarty’s concept of the “hyperreal” Europe can be used to reflect on the discursive practices of such historical actors. In *Provincialising Europe*, Chakrabarty discusses the importance of historicism in the debates on modernity in colonial India. In particular, he uses a trope that he names ‘hyperreal’ to illustrate how fiction and imagination were used “in the very process of fabricating colonial domination”. Chakrabarty explains the use of a hyperreal Europe — a Europe “constructed by the tales that both colonialism and nationalism have told the colonised” — to deny colonies, especially India and Africa, the privilege of self rule, arguing that the colonised were ‘not yet’ civilised enough to govern themselves.¹²⁵ Such discourses averred that all civilisations were headed towards the same destination (standards of modernity, morality etc.), but some civilisations arrived earlier than others.¹²⁶

In his lectures and writings on electrical engineering at the Civil Engineering College in Sibpur in March 1900, John Willoughby Meares presents the use of electricity in British homes and businesses as a measure of material development. Meares is important to our analysis not simply because of the content of the lectures he delivered, but also his position then as the Engineer in Charge of the Sidrapong Hydroelectric Project in

¹²⁴ IACS, *Annual Report* (1893), p. 18

¹²⁵ Dipesh Chakrabarty, *Provincialising Europe: Postcolonial Thought and Historical Difference* (Oxford: Princeton University Press, 2000), p. 34

¹²⁶ *ibid.*, p.40

Darjeeling, and later in his career, the Electrical Adviser to the Government of India. Here, we will see the ways in which Meares used his technical knowledge of electric supply systems to discuss the differences in British and Indian usage of electricity. In doing so, Meares was not just forwarding technical knowledge of how the use of electricity influences the way electric supply systems function but, by also comparing British and Indian everyday lives, presents electricity as a marker of material progress.

In *Electrical Engineering with particular references to Conditions in Bengal*, Meares used a graph of electricity usage collected from the central station at Hove Electric Lighting Company in Britain to demonstrate the connections between the British lifestyle and electricity usage (**Figure 2.1**). The graph was one of typical electricity usage on a normal day in the English winter and showed “the total amperes (at 110 volts) hourly, and the total terminal volts (3-wire system) during heavy load hours.”¹²⁷ The sharp rise in the graph soon after 6:30am, according to Meares, corresponded to when people began waking up and using lights and other electrical equipment. Electricity consumption rose steadily and was maintained at a steady maximum between 7:30am and 8am. As the sun rose and street lights were no longer needed, electricity consumption also reduced. Consumption increased rapidly again soon after 3pm until 6pm when, Meares noted, “both houses and shops are on together.”¹²⁸

¹²⁷ John Willoughby Meares, *Electrical Engineering with particular references to Conditions in Bengal (Six Lectures delivered in March 1900 at the Civil Engineering College, Sibpur)* (Calcutta: Bengal Secretariat Press, 1900) [British Library India Office Records IOR: Asia, Pacific & Africa/V9417], p. 109

¹²⁸ *ibid.*

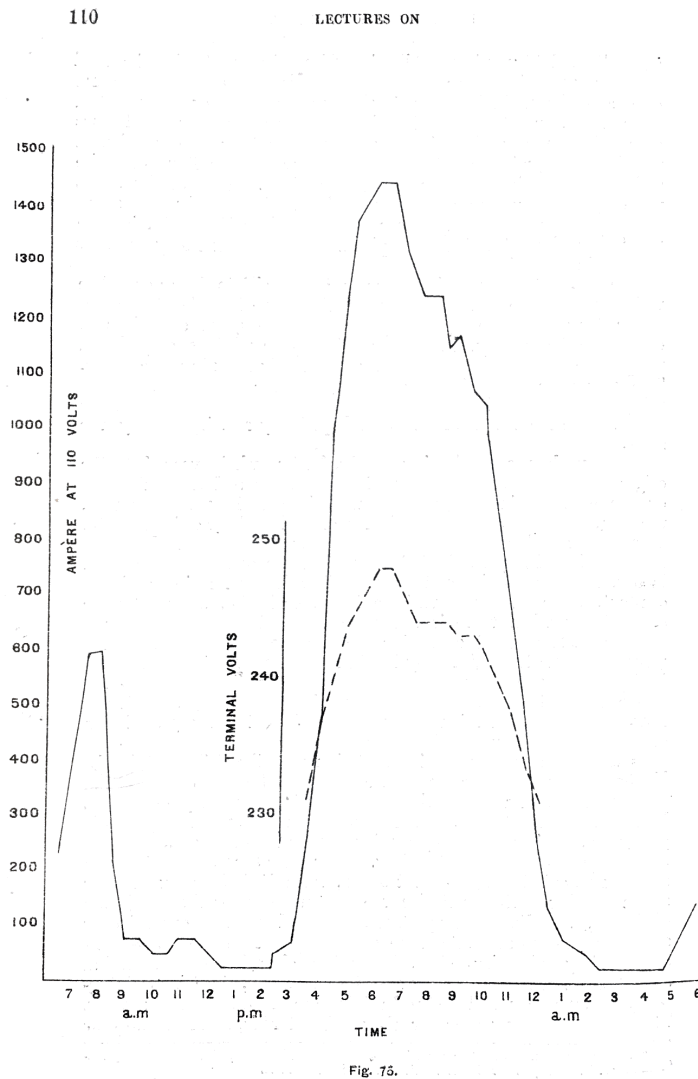


Figure 2.1: Daily load in the English winter.

Source: J. W. Meares, *Electrical Engineering with particular references to Conditions in Bengal*, p. 110

Notes: Meares stated that, according to the chart, the day-time load is remarkably low, and adds that it would be even lower in English summers, due to longer days and reduced usage of electric light and heating.

The graph above played a crucial role in reinforcing the significance of lifestyle in the metropolis as the ideal which could be replicated in India. In Meares's view, the graph illustrated “excellently some of the useful conditions of central station supply, though the different conditions of latitude, temperature, and climate, generally, would modify them in this country.”¹²⁹ Adopting a quasi-prophetic style, Meares then presented a graph

¹²⁹ *ibid.*

describing how patterns of electricity usage would look in Indian conditions. Most importantly, the graph was obtained from the usage logs of the Niagara hydroelectric station in the United States, since such load charts were unable for India (**Figure 2.2**). Nonetheless, using the graph, Meares demonstrated what the daily usage patterns in Calcutta would look like on account of the constant use of electric fans in the warm climate. In comparison to the load factor chart for an English winter day, the chart for Calcutta would, he noted, “prove very different from England, since the extensive use of rotary fans will ensure steady day-load throughout about nine months in the year.”¹³⁰

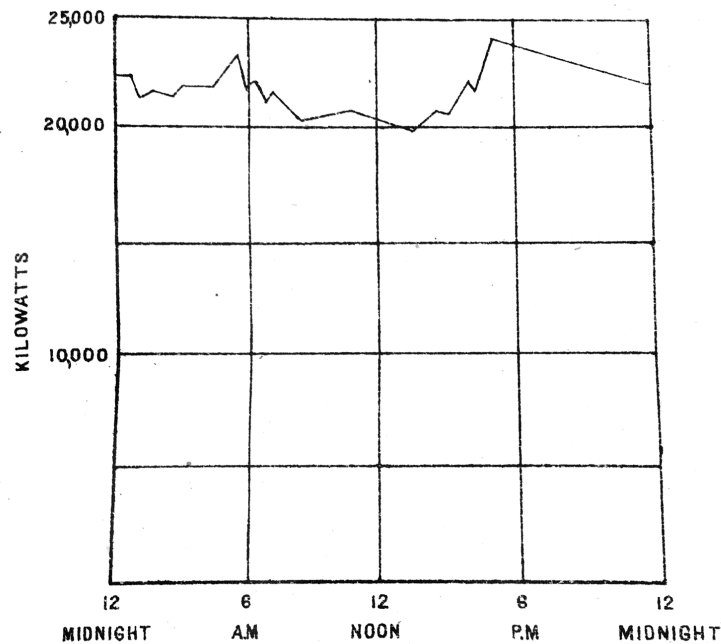


Fig. 78.

Figure 2.2: Predicted electricity usage patterns in India.

Source: J.W. Meares, *Electrical Engineering with particular references to conditions in Bengal*, p. 111

Note: The graph shows the load on the electricity supply system resulting from a constant demand for electricity; greater the demand, higher the graph.

Unsurprisingly, perhaps, the reification of constant electricity usage in Indian households would have required changing prevalent Indian lifestyles and habits. As we will see in Chapter 4, in the years before the introduction of public electric supply, electrical promoters made several references to replacing mechanisms or methods that required

¹³⁰ *ibid.*, p.111

servants with more “modern” electrical technologies. In Chapter 4, I will show how the use of electricity in homes and business was closely linked by electrical promoters to notions of modernity, convenience and morality. In that sense, our examination of the ways in which perceptions of cultural and material civilisation were braided into electricity and its usage will be important to our understanding of how promoters created new associations of electricity with literary, social and material contexts.

2.3. Conclusion

In this chapter, we have seen the ways in which public displays of electric lighting and lectures on electricity by the *bhadralok* intelligentsia has helped us build a historico-sociographical map that reflects the groups of actors engaged in braiding conceptions of material, cultural and civilisational modernities into and through discussions of electricity. I have taken my cue here from Projit Mukharji’s insightful study of modern Ayurveda in Bengal. Mukharji’s study had demonstrated the importance of technologies and historical actors in braiding varied conceptions of modernity stemming from self identity, cultural identity, nationalism and colonialism into the modernisation of Ayurvedic practices. In this chapter, we have seen how promoters’ exhibitions and journalistic coverage presented electric lighting as a symbol of material progress. Our short examination of news reports on electric lighting in elite *bhadralok* weddings shows us how electric lighting came to be used within elite notions of what constituted “tasteful weddings”. We also saw how scientific-minded *bhadralok* elite used mentions of electricity in their lectures and writings to discuss the importance of Western science to civilisational and educational progress. In such representations, electricity is presented as both a symbol of Western scientific progress and, in its application and use in machinery and lighting, a symbol of European civilisational development.

In the next chapter we will examine how such notions of modernity mostly looking to the West were utilised by anticolonial and traditionalist *bhadralok* social commentators to critique colonialism, the ideas of scientific *bhadralok* like Rajendralal Mitra and Mahendralal Sircar, Western education, and the differences of opinion on such matters within contemporary *bhadralok* society.

Chapter 3

Electricity and modernity in anticolonial and traditionalist *bhadralok* social commentaries

In a fictional letter written in Bengal in 1910, the social reformer and nationalist Aurobindo Ghosh (later Sri Aurobindo, 1872-1950) traced what he believed the “spiritual suicide” of European civilisation. The fictional letter, one of myriad writings of the type, bears the impress of Ghosh’s beliefs that life and politics must both be governed by cultural and spiritual thought and ideals.¹³¹ For Ghosh, the goal of “the long march of human civilisation”¹³² was to attain enlightenment and “spiritual freedom”¹³³ through “brotherhood and love”.¹³⁴ He, however, worried that Europe, despite the literary, societal and civilisational advances following the Enlightenment, was in a state of spiritual and cultural decline, and moving further from spirituality and, therefore, civilisation, because of its growing obsessions with “system, organisation, machinery”:

Europe boasts of her science and its marvels. [...] With all your discoveries and inventions, what have you become? Your enlightenment is great, — but what are these strange creatures that move about in the electric light you have installed and imagine that they are human?¹³⁵

This invocation of the electric light bears little similarity to the civilisational and imperialist values encoded into electricity and electric lighting by promoters, engineers and sections of *bhadralok* intelligentsia we discussed in the previous chapter. In Chapter 2, we saw how different individuals and groups braided electricity and electric lighting into parables of progress, and “European” civilisation and modernity. Circulating within promoters, engineers, Anglo-Indian and *bhadralok* elite, and journalists were multiple understandings

¹³¹ Sachidananda Mohanty, ed., *Sri Aurobindo: A Contemporary Reader* (New Delhi: Routledge, p.23)
In his writings and speeches, Ghosh argued for maintaining a balance between external forms of progress — scientific, material, commercial — and the religious and spiritual way of life.

Also see: Sartori, *Bengal in Global Concept History*, p.151;
Peter Heehs, ‘Bengali Religious Nationalism and Communalism’, *International Journal of Hindu Studies*, 1: 1 (April 1997), pp.117-139 (pp.119-120)

¹³² Sri Aurobindo, *The Complete Works of Sri Aurobindo, Volume 1: Early Cultural Writings* (Pondicherry: Sri Aurobindo Ashram Press, 2003), p.545

¹³³ *ibid.*, p.547

¹³⁴ *ibid.*, p.545

¹³⁵ *ibid.*, p.546

and perceptions of electricity and electric lighting as products and symbols of European civilisational and cultural progress. Ghosh, however, while exemplifying the electric light as a symbol of European “perfection of machinery,”¹³⁶ aligned it in terms of Europe’s spiritual and civilisational regression. Here, the electric light, described by promoters and suppliers as analogous to the British civilising mission in the colonies by bringing light — associated with material and civilisational progress — in the *dark* colonies¹³⁷ (as we have seen in Chapters 1 and 2), now revealed “Europeans” themselves as less than human. Ghosh remarked that the European race, which believed itself to be one of “creatures made in the image of the Almighty,”¹³⁸ had unwittingly nullified the cultural and civilisational evolution it had attained through the Enlightenment. While the European race had achieved “social perfection”¹³⁹ through its inventions and machinery, “man in Europe,” Ghosh writes, “is descending steadily from the human level and approximating to the ant and the hornet.”¹⁴⁰

Ghosh’s criticism of “European” culture using the electric light as a form of resistance, and selectively appropriating the symbol of “European” scientific advancement to notions of civilisational decline raises an important issue for our understanding of the “social life” of electricity. The contradictory metaphorical representations of electricity we have seen until now suggest that electricity and electrical technologies inhabited a complex hybrid space in the political and social discussions and debates of late-nineteenth and early twentieth century Calcutta. This chapter considers how anticolonial and traditionalist sections of the *bhadralok* intelligentsia posed troubling questions on the imperialist, elite and nationalist discourses that shaped electricity’s identity as a symbol of Western modernity and cultural progress, while also exposing heterogenous *bhadralok* views on nationalism and modernity. By examining the ways in which electricity and electrical technologies were presented in anticolonial and traditionalist fiction, and social and political commentaries in Bengali periodicals, pamphlets, as well as in satirical drama, I accentuate how their authors presented their political and cultural anxieties over British imperialism, technological modernity, class identity and nationalism(s) through portrayals of electricity as a harbinger of radical change capable of disrupting traditional urban and domestic values and schemes. In the primary sources considered here, representations of

¹³⁶ *ibid.*, p.545

¹³⁷ Also see: Sayer, “Explorations in the cultural history of light and illumination”, p.131; Hasenöhrl, “Rural Electrification in the British Empire”, pp.14-15

¹³⁸ Sri Aurobindo, *The Complete Works*, p.546

¹³⁹ *ibid.*, p.546

¹⁴⁰ *ibid.*, p.546

electricity are closely coupled with concerns about the ill effects of Western notions of material culture and technological modernity on the Bengali individual, family and society.

As part of its critical methodology, this chapter considers a variety of primary sources ranging from Bengali satirical drama to illustrated Bengali journals and visual ephemera, which span the period between 1875 and the 1900s. In the sources considered here, contemporary social and political debates and discussions are presented from differing positions of address and representations of electricity. In this chapter, I primarily present selective but close readings of two Bengali satirical dramas — Amritlal Basu's *The Babu: A Bengali Society Farce*¹⁴¹, performed from 1894 to the early 1900s at the Star Theatre, and Amarendranath Datta's *Majā: A Social Farce*¹⁴², performed from 1900 to 1904 at the Classic Theatre. Both these satirical presentations of contemporary *bhadralok* society build into the two aspects of anticolonial and traditionalist thought that are central to my study of the history of electricity in colonial Calcutta: literary interpretations of electricity, and the paradoxes that characterised *bhadralok* identities and nationalism(s). In Section 3.2, "Electricity and the 'Scientific' Babu," I will study the ways in which *The Babu* alludes to electricity to introduce and critique a character that Basu mentions in the list of characters as "a 'scientific' babu".¹⁴³ Basu satirises the "scientific" babu's inexorable belief in the capabilities of Western scientific tools and methods to effect social, cultural and political revolution in India. Alluding to electricity as a Western scientific tool, Basu critiques contemporary nationalist debates within *bhadralok* society. In Section 3.3, "Electricity in the Home and Outside", I will also look at the ways in which both Basu and Datta use the growing presence of electric supply and lighting in urban and domestic spheres in early twentieth century Calcutta (further discussed in Chapters 5 and 6 of this thesis) as metaphors for the threats "Western" modernity and education posed to symbols of the Bengali spiritual and cultural domain — the Bengali woman. Throughout this chapter, my aim is to illustrate how electricity and electrical technologies served as tropes signalling anticolonial and traditionalist experiences of British colonialism, *bhadralok* society, and urban Calcutta itself.

Alongside the satirical works mentioned above, I also examine illustrations that use electricity as a metaphor for imperial and colonial power. The first set of illustrations appeared in the short-lived yet influential Bengali periodical, *Basantak* (31 January 1874 to

¹⁴¹ Definition of *babu* is provided in the "Terms and Abbreviations used in this Thesis" section on page 7 of this thesis.

¹⁴² *Majā* translates to fun, humour or jest

¹⁴³ Babu Amrita Lal Bose, *English Translation of 'The Babu' (A Bengali Society Farce)*, translated into English by Nibraran Chandra Chatterjee (Calcutta: Sanyal & Co., 1911), p.vii

1876). My interest lies in caricatures that appeared in the journal's coverage of the Prince of Wales's visit to India in 1875-76. The other illustration I examine is a revolutionary pamphlet from the early 1900s calling for violence against the colonial government. The pamphlet, according to the archivists at the Centre for Studies in Social Sciences, Kolkata, was probably from around the time of violent protests against the partition of Bengal in the early 1900s.¹⁴⁴ As we will see in later sections of this chapter, the illustrations — from *Basantak* as well as the pamphlet — are important, not only aesthetically as caricatures or politically as powerful pieces of anticolonial propaganda, but also as pieces that subtly use electricity in order to represent colonialism and imperialism.

Whereas, as we saw in Chapter 2, descriptions of electric supply and lighting as parables of Western cultural and civilisational progress, whether through exhibitions or lectures, were documented in a variety of public media, including newspapers, periodicals and textbooks, electricity tends to be referred to only briefly in very few anticolonial and traditionalist writings. These aspects make the archival sources I use in this chapter unusual and rare. Yet these sources are important to my analysis for mainly two reasons. First, the sources were particularly mobile mediums for presenting social and political issues from differing positions of address and representations of electricity. Although the creators of these sources attempted to root their representations of electricity in contemporary developments in electric supply and lighting they, however, relied on their own interpretations and responded to electricity through their political and social lenses. In *Transformations of Electricity in Nineteenth-Century Literature and Science* (2016), Stella Pratt-Smith shows how the elusive nature of electricity led to new associations and parallels between electricity and certain kinds of imagery and fiction in nineteenth-century Britain. Pratt-Smith adds: "Electricity had to be imagined in order to be understood or represented, making fictionality an embedded feature of its perception and conceptualisation."¹⁴⁵ Anticolonial and traditionalist dramatists and illustrators discussed in this chapter, we will see, viewed electricity not just as a scientific phenomenon, but also as a literary and cultural one. In their narratives, technical details were rarely presented; however, unlike scientific and journalistic writings discussed in Chapter 2, the sources discussed in this chapter were designed to entertain and educate rather than disseminate scientific information.

¹⁴⁴ Email conversation with Kamalika Mukherjee, archivist at the Centre for Studies in Social Sciences Calcutta, Friday 19 January 2018

¹⁴⁵ Stella Pratt-Smith, *Transformations of Electricity in Nineteenth-Century Literature and Science* (Farnham, England, and Burlington, USA: 2016), p.69

Secondly, as we will discuss later in this chapter, the sources were important contributors to the “literary arena” in late-nineteenth and early twentieth century Calcutta. As Rosinka Chaudhuri has noted in *The Literary Thing* (2014), the “literary arena,” consisting of print literature and drama, was an important forum for contemporary political and social debates through the nineteenth century. “Many of the debates around which contemporary politics was structured,” she writes, “were first played out in the literary arena, between literary critics, creative writers, and their readers, between dramatists and their audiences.”¹⁴⁶ In *The Colonial Staged: Theatre in Colonial Calcutta* (2007), Sudipto Chatterjee has shown how theatre in nineteenth-century Calcutta, not just the physical spaces, but also its actors, plays and language, was closely linked to contemporary issues of *bhadralok* identity and politics. “The theatre of the Bengali intelligentsia,” Chatterjee writes, “was a performance of the desires and ambitions of the class itself, necessarily a dramatisation of the very issues and concerns that touched and then represented its socio-cultural and political life.”¹⁴⁷ Both *The Babu* and *Majā*, we will see, present two different dramatisations of their authors’ concerns about the complexities of Western conceptions of social and scientific modernity, both political and technological, through the subjectivities of the contemporary *bhadralok* classes.¹⁴⁸ The sources I discuss in this chapter were published and performed in demonstrably popular periodicals and public theatres, therefore, making the ideas they expressed available to a relatively wide and non-specialist audience. Before considering the individual sources, however, it is important to establish the context in which they were produced. In the next section, I begin by recounting the social lives and careers of their authors.

3.1. *The Babu, Majā, and Basantak* in Late-Nineteenth and Early Twentieth Century Bhadraklok Society

Amritlal Basu (1853-1929) entered the Bengali intellectual scene in the late-1860s. A young medical school dropout, Basu, under the tutelage of the renowned actor, director and manager Girish Chandra Ghosh, was instrumental in bringing Bengali theatre out of

¹⁴⁶ Rosinka Chaudhuri, *The Literary Thing: History, Poetry, and the Making of a Modern Cultural Sphere* (New Delhi: Oxford University Press, 2014), p.181

¹⁴⁷ Sudipto, Chatterjee, *The Colonial Staged: Theatre in Colonial Calcutta* (Calcutta: Seagull Books, 2007), p.11

the private territories of the urban rich to the wider public with the opening of the Great National Theatre on 31 December 1873. The move from theatre under private patronage to what Sudipto Chatterjee has termed in his book *The Colonial Staged* as “the democratised public theatre” (Amritlal Basu used the English word democratic in his original Bengali text) was the result of a desire to free theatre from the control of the bourgeois audience and connect with the public which, Ghosh, Basu, and their associates believed would also allow the professionalisation of an otherwise amateur Bengali theatre.¹⁴⁹ While the new theatre borrowed linguistic and stylistic attributes from older forms of urban folk performances, the public stage allowed its proponents to respond to contemporary social and political issues. As Swati Chattopadhyay succinctly puts it: “dramatic performances suddenly took on a higher purpose. They held the hidden stories of the nation.”¹⁵⁰ This dramatic change in content and intent was, nonetheless, a reflection of a rapidly changing urban society. Sudipto Chatterjee writes: “Basu, like Ghosh, knew that he was living in a world of flux and responded to it intelligently. ... He was contributing to the hybrid negotiations of the Bengali public theatre in response to the times.”¹⁵¹

Amritlal Basu, in the following years, became famous for his farces and came to be known as one of the finest comedians of the Bengali stage. While his mentor Girishchandra Ghosh was famous for his satirical criticism of the prevalent dowry system, Basu, through *The Babu* and his earlier plays, ruthlessly mocked the new-fangled ideas of “modern” Bengal, especially those propagated by socio-religious reformers like the Brahmo Samaj, and by Bengali politicians and anglicised Bengalis.¹⁵² Basu was also the first victims of the Dramatic Performances Act of March 1876; an ordinance by the colonial government designed to prevent dramatic performances that promoted “ill feeling against the British name and nation, against the tendency of British civilisation and institutions, and against the result of British rule.”¹⁵³ Soon after the Act was passed, Basu was arrested for staging his play, *Gajadananda O Jubaraj* (Gajadananda and the Crown Prince), which opened at the Grand National Theatre on 19 February 1876. The play presented the real life case of an Indian lawyer of the Calcutta High Court, Jagadananda Banerjee who, on 3 January 1876, in what many considered a breach of Hindu domestic etiquette, toadied to

¹⁴⁹ Chatterjee, *The Colonial Staged*, pp.119-125

¹⁵⁰ Swati Chattopadhyay, *Representing Calcutta: Modernity, Nationalism, and the Colonial Uncanny* (London and New York: Routledge, 2005), p.211

¹⁵¹ Sudipto Chatterjee, *The Colonial Staged*, p.139

¹⁵² P. Guha-Thakurta, *The Bengali Drama: Its Origin and Development* (Oxon: Routledge, 1930, reprinted 2000), p.130

¹⁵³ Richard Temple, *Dramatic Performances Bill* (13 June 1876), British Library V/27/242/5

the Prince of Wales by having women of his household welcome the Prince into the female quarters. As we will see in Section 3.2 of this chapter, this case was also satirised in the 1875 volume of *Basantak*. The colonial government found *Gajadananda O Jubaraj* really problematic, not in the least because it satirised and vilified the Crown Prince. Faced by strong censorship under the Act, satirists and dramatists, including Basu, decided to forego direct references to the colonisers and, instead, began adapting to using fiction laden with social commentary.¹⁵⁴ Basu's *The Babu* is, in many ways, a product of the Act. It satirises *bhadralok* society, especially the Brahmo Samaj and the anglicised babu in order to criticise colonial governance and modernity.

Basu's satire stemmed from his concerns about the effects of Western values and education on contemporary Bengali community. For Basu, the question of "community" was central to his idea of the nation. The humour and irony in his theatrical works, especially, as we will see in our discussion of *The Babu* in later sections of this chapter, highlighted his anxieties regarding the fractures in Bengali community, and the changing ideas of family and social life. In his recollections of nineteenth-century Calcutta, written in the 1920s, Basu writes about the loss of the feeling of community amongst different sections of Bengalis:

The poor bhadralok respected the wealthy, and the wealthy took care of the poor; they shared their joys and sorrows. Back in the day, one did not garner respect by saving money but by sharing their wealth with the needy. Now, many wealthy bhadralok complain that nobody respects them anymore. Why would anyone respect them? Does your wealth and status help anyone but you? You drive around in your expensive car, and splash muck all over my shirt that the washerman cleaned and returned to me after 2 months, and you still expect me to respect you?¹⁵⁵ **[translation mine]**

Swati Chattopadhyay has demonstrated that, in the nineteenth century, "the notion of community was undergoing some important shifts from the scale of the locality to the scale of the city and the nation, shifts which the likes of Amritalal Basu could not reconcile themselves."¹⁵⁶ A review of *The Babu* in *The Calcutta Review* in 1895 described Basu as one who looked at the present world through a longing of the past:

¹⁵⁴ For a detailed study of official theatre censorship on colonial India, see: Claire Pamment "Police of Pig and Sheep: Representations of the White Sahib and the construction of theatre censorship in colonial India", *South Asian Popular Culture*, 7:3 (2009), pp.233-245

Details of the Dramatic Performances Act can also be found in Samuel L. Leiter, eds., *Encyclopaedia of Asian Theatre* (Westport, CT: Greenwood Press, 2007), pp.82-83 in Vol.1, and pp.514-515 in Vol.2

¹⁵⁵ Amritalal Basu, *Smriti o Atmasmriti (Reminiscences and autobiography)* (Calcutta: Srinepalchandra Ghosh, 1957), p.110

¹⁵⁶ Chattopadhyay, *Representing Calcutta*, p.209

He has a keen sense of the ludicrous, and in these days of transition, when the old Indian world is in the course of being converted into an Anglo-Indian world, Babu Amrita Lal finds immense scope for its exercise, in the oddities and eccentricities of the so-called educated men and women of Bengal. Amrita Basu's sympathies are with the old world, and he paints the world, where he does paint it, with emotion.¹⁵⁷

Amarendranath Datta (1876-1916), one of Basu's younger contemporaries, began his theatrical career in his teens, when he set up an amateur group called the Indian Dramatic Club. In 1895, with the assistance of Amritalal Basu's mentor Girishchandra Ghosh, Datta became the owner-manager, director and lead actor of the Classic Theatre.¹⁵⁸ At a time of intense competition between several Bengali public theatres in Calcutta, Datta sought new populist ways to attract audiences to his theatre, including revolutionary storylines in plays, and handbills, posters and placards to advertise the theatre and its shows. In 1900, the Hindu revivalist newspaper *Bangabasi* published an article on Datta and Classic Theatre's success:

Sheer skills cannot alone explain the phenomenal success of the Classic Theatre. Credit has to be given to Amarendranath for earning such great repute as an actor. ... The Classic Theatre owes its success to a combination of factors like great acting skills and effective management. Not a finger could be raised at the way the Classic operated. With such combination of skill, talent and resources, what could thwart its march to success?¹⁵⁹

It must, however, be noted that neither Basu nor Datta were unexceptional for satirically engaging at length with the divisions within *bhadralok* classes. Farces of this nature were written and performed for private audiences in bourgeois residences since the 1850s. In her study of literature produced by the urban poor and those of the lower classes in nineteenth-century Calcutta, Anindita Ghosh has shown how public theatre borrowed themes of *bhadralok* corruption from urban folk and the literature of the lower classes.¹⁶⁰ These themes were also a defining influence in the publication of *Basantak*. The historian Sanjukta Sanderason describes *Basantak* as "one of the earliest Bengali cartoon

¹⁵⁷ quote from: Chatterjee, *The Colonial Staged*, p.139

¹⁵⁸ See: a short biographical column on Datta in Ananda Lal, ed., *The Oxford Companion to Indian Theatre* (New Delhi: Oxford University Press, 2004), pp.116-117

¹⁵⁹ Cited from *Bangabasi*, (3rd Bhadra, 1306 BS) in Rampati Dutta, *Rangalaye Amarendranath* (Calcutta: Puran Press, 1941), p.159

¹⁶⁰ Anindita Ghosh, *Power in Print: Popular Publishing and the Politics of Language and Culture in a Colonial Society* (New Delhi: Oxford University Press, 2006), pp.189-224

journals.”¹⁶¹ Begun by brothers Prannath and Girindrakumar Dutta, *Basantak* was an extension of the brothers’ political enterprise demanding municipal reform in Calcutta. While forging the brothers’ demands for greater Bengali middle class participation in municipal affairs, the journal also discussed and disseminated social conservatism through slandering colonial officials and “Shaheb” or anglicised Bengalis.¹⁶²

Basantak, *The Babu* and *Majā* were also not the first to use scientific concepts and technologies as metaphors for British colonialism and dominance. In his 1880 travel narrative, *Debganer Martye Agaman* (The Gods’ Arrival on Earth), Durgacharan Ray describes Brahma, the Creator’s journey to Calcutta to take account of British rule on earth. Throughout his journey, Brahma notes the ways in which the British had conquered and colonised the world by taming nature with science and machinery. British technology had tamed steam and gas, built the railways, lit the streets with gas lamps, and bound the River Ganga (Brahma’s daughter) by bridges and used her to transport goods. In the narrative, Brahma also notes the moral decline in the city, which was now plagued by drunks and prostitutes, and comments on the colonial inequality and class conflict. Ray’s narrative was far more complex than a guide to Calcutta through Brahma’s spatial exploration. Instead, writing from a position of conservative nationalism, Ray highlights the dangers of modern living and the modern city as a moral and material lesson for his readers.¹⁶³

The Babu, *Majā* and *Basantak* may, in many ways therefore, seem unremarkable. However, it is the common nature of their narratives, the popularity of their authors, and their use of electricity in varied forms that are of value. All these works allow us to understand a little more about the ways in which their authors used the narratives of “European” cultural and social significance attached to electricity and electric lighting by promoters and sections of *bhadralok* elite to capture discussions and debates in *bhadralok* society on issues of nationalism(s), religious and social reform, gender roles, education, the home and the outside, and developments in electric supply and lighting.

¹⁶¹ Sanjukta Sunderarson, ‘Arts of Contradiction: Gaganendranath Tagore and the Caricatural Aesthetic of Colonial India’, *South Asian Studies*, 32:2 (2016), pp.129-143 (p.130)

¹⁶² *ibid.*, p,131

¹⁶³ Durgacharan Ray, *Debganer Martye Agaman* (Calcutta, 1885)
Also see: Chattopadhyay, *Representing Calcutta*, p.292

3.2 Electricity and the ‘Scientific’ *Bhadralok*

The third scene of the first act of *The Babu* opens in the common room of the socio-religious reformist organisation, the Brahmo Samaj. The audience finds itself in the middle of a heated argument between the Brahmo reformer, Sajanikānta (translation: dear friend), and his friend, Aśaniprakāś (translation: lighting bolt), who Basu introduces in the list of characters as “a ‘scientific’ babu”.¹⁶⁴ Aśaniprakāś is shown criticising both Hindu religious beliefs and the Brahmo Samaj’s arguments for religious reform. While critical of the Hindu ritual of creating idols and “calling them likenesses of God,” he also rejects the Samaj’s claims that God was without form. He tells Sajanikānta that God *had* to have form, “otherwise is science false — ‘and that’s impossible.’ You know that even the air has some form.”¹⁶⁵ He follows with a short lecture on the improvements in microscopes that might enable men to spy God one day. “But,” he reflects, “I am not sure whether this would mean anything except the glorification of science.”¹⁶⁶

There are several allusions here that need unpacking. The author, Amritlal Basu uses the characters Sajanikānta and Aśaniprakāś to represent two factions of contemporary *bhadralok* society that, since the late-1860s onwards, constantly and publicly disagreed with each other’s philosophies. Sajanikānta, as described above, is a member of the Brahmo Samaj, a socio-religious reformist organisation. Founded as Ātmīya Sabha by Raja Rammohun Roy in 1815 and renamed as the Brahmo Samaj in 1828, the group engaged in monotheism and a re-reading of Hindu Vedic texts (the Vedas and Upanishads) to support their claims that Hinduism was essentially a monotheistic religion. Theoretically, caste distinctions that plagued Hinduism did not exist among the Brahmos; they believed themselves to be the children of one God, and addressed themselves as brothers and sisters.¹⁶⁷ After Rammohun Roy’s death in England in 1833, the Brahmo Samaj slid into obscurity until it was rescued and revived in 1841 by Debendranath Tagore (1817-1905) of the famous and wealthy Tagore family. Reestablished as the Ādi Brahmo Samaj and influenced by European Enlightenment ideas and rationalism, the Samaj based their new

¹⁶⁴ Basu, *The Babu*, p. vii

¹⁶⁵ *ibid.*, p.21. Note: the use of single quotations within quotes from the play highlights the use of English in the original Bengali dialogues.

¹⁶⁶ *ibid.*, pp.21-22

¹⁶⁷ David Kopf, *The Brahmo Samaj and the Shaping of the Modern Indian Mind* (New Delhi: Archives Publishers, 1988), pp.42-85 and 249-310

ideals on nature and intuition as opposed to Hindu Vedic texts.¹⁶⁸ From 1865 onwards, however, the Brahmo Samaj faced yet another phase of reform led by a Western-educated and anglicised Keshabchandra Sen (1838-1884), who was unhappy with the re-acceptance of Hindu principles that the Samaj was originally formed to fight against. In 1865, Sen, who had begun working within the Brahmo Samaj as a youth and an associate of Debendranath Tagore, led the campaign against Tagore and the old guard in the Brahmo Samaj. In opposition to the older order of the Samaj, Sen demanded the abolishment of idolatry and all caste distinctions. In addition, Sen renamed the Samaj as the Bharatbarshiya Brahmo Samaj (All-India Brahmo Samaj), and based it on ideas of female education, temperance and charity. In 1870, after a trip to England, where he addressed numerous meetings and had an audience with the Prime Minister and Queen Victoria, Sen returned to reorganise the Samaj's practices in consonance with the Vedic and spiritual philosophies of Swami Ramakrishna.¹⁶⁹

Aśaniprakāś, on the other hand, is a caricature of sections of *bhadralok* society whose brand of nationalism based on the cultivation of Western scientific thinking we have already discussed in Chapter 2. Such “scientific” nationalist views were met with derision from members of the Brahmo Samaj, who were convinced of the failings of science and rational knowledge in the face of spirituality and religion. Aśaniprakāś and Sajanikānta's conversations about the nature of God mirror some of the public debates between the Brahmo Samaj and “scientific” *bhadralok*. The context of Aśaniprakāś and Sajanikānta's discussions about the nature of God can be found in a debate in the 1880s between the scientific-minded actor, dramatist and Amritalal Basu's mentor, Girishchandra Ghosh, and one of Ramakrishna's disciples Narendranath (later Swami Vivekananda). In the debate, Narendra talks about God's infinite form and the human mind's incapability to conceive that form. Girishchandra, however, suggests that God could also appear in a finite form. In his historical-biographical study of Ramakrishna, Mahendranath Gupta, a Brahmo reformer and disciple of Ramakrishna, recalls how Girishchandra used the philosophies of Western natural philosophers and scientists to support his argument:

Gradually Narendra and Girish become involved in a heated discussion. If God is Infinity, how can He have parts? What did Hamilton say? What were the views of Herbert Spencer, of Tyndall, of Huxley? And so forth and so on.¹⁷⁰

¹⁶⁸ R. C. Majumdar, ed., *British Paramountcy in India and Indian Renaissance, Volume- II* (Bombay: Bharatiya Vidya Bhavan, 1965), p.101

Also see: Amiya P. Sen, *Hindu Revivalism in Bengal* (New Delhi: Oxford University Press, 1993), p.32

¹⁶⁹ Sen, *Hindu Revivalism in Bengal*, p.57

¹⁷⁰ Mahendranath Gupta, *Śrīśrīrāmkr̥ṣṇa Kathāmṛta*, translated by Swami Nikhilananda (Calcutta: New York: Ramakrishna-Vivekananda Center, 1942), pp.142-143

A further aspect of Aśaniprakāś's character as a man of science is made clearer in *The Babu* when, true to his name, he suggests electricity as a mechanism that offered unlimited possibilities. In later sections of *The Babu*, Aśaniprakāś and, in essence electricity is given a central function in the author's attempts to satirise not just the "scientific" *bhadralok* and their formulations of nationalism with science, but also what he believed were problematic with different forms of *bhadralok* nationalisms.

3.2.1. Eating Electricity and Delivering India

Aśaniprakāś and Sajanikānta's debate is interrupted by the arrival of one of Sajanikānta's associates, who brings news of another Hindu sect embracing Brahmoism, or as the news-bearer puts it, "our religion of love".¹⁷¹ Sajanikānta and his associate then discuss how they could get more Bengali men and women to join their community, and help deliver India before the politicians managed to do so through their speeches. He argues that Brahmo reformers like himself had to abandon their families, give up their religion (Hinduism) and their castes, and had to entice widows to remarry; thus, it was the Brahmo Samaj, according to Sajanikānta, that deserved the reputation of delivering India. He says:

Yes, we must by hook or by crook get as many brothers and sisters to join our community as possible, and that soon. We who have abandoned our parents, lost our caste, enticed away so many widows and got them married, shall we not be able to effect the deliverance of India? Shall Shashthī Vatavyāl [the character of "a 'philanthropic' babu, and a poseur"] and his disciples make a name for themselves by delivering India merely by the glamour of their speechifying? If India is to be delivered, let it be delivered by us, otherwise let India go to the dogs.¹⁷²

Arguing against the Brahmo Samaj's stance of delivering India through socio-religious reforms, and against the political endeavours of other nationalists, Aśaniprakāś suggests a shift away from indirect reformist and political actions towards a more direct scientific action against British rule. "Near Kalāgechia," he says, "an electric wire should be run into

¹⁷¹ Basu, *The Babu*, p.22

¹⁷² *ibid.*, p.26

the Ganges capable of sinking all English ships as soon as they come within its range.”¹⁷³ If the assertions of electricity’s capabilities to deliver India through sinking English ships were not convincing enough, Ásaniprakāś adds that he could achieve much more than the Brahmo Samaj had ever been able to just through the power of science and, most importantly, electricity. He believes that he could go much beyond the Brahmo Samaj’s simpler achievements of abolishing the caste system or remarrying widows:

Cannot you see that the marvels affected by electricity are increasing every day? We have telephones now; phonographs; by electricity steamers are propelled and trams made to run. Mark my words, if I live — and I’m bound to as I eat a quantity of electricity twice a day — I will by the force of electricity abolish the caste system, effect the remarriage of widows, teach women to ride horses, establish a Parliament in India, and do many other deeds besides.¹⁷⁴

While there is virtually no technical detail in the story, Ásaniprakāś’s utmost beliefs in the abilities of electricity to bring about social and political reform echoes the beliefs of the scientific-minded *bhadralok* elite discussed in Chapter 2. As we have previously seen, *bhadralok* nationalists such as Mahendralal Sircar and Rajendralal Mitra shaped progressive social visions of civilisational modernity envisioned through Western economic, technological, political and cultural development. Ásaniprakāś’s proposal for running of electric wires under the river to sink British ships appears to draw on Rajendralal Mitra’s lecture on the physical, mechanical and cultural transformational powers of electricity as it could be used “to blow up obstructions in the beds of rivers and seas.”¹⁷⁵

As we have seen so far, the image of the “scientific” *bhadralok* in *The Babu* engaged with real-world referents that were simultaneously social, cultural and conceptual. The metaphorical use of electricity worked in two ways. Firstly, electricity is presented as a symbol of Western ideas of education, material culture and civilisation. Secondly, with the sometimes unlikely or impossible capabilities of electricity in introducing societal and political change, the author presents the “scientific” *bhadralok* as one completely under the influence of Western ideas of technological and cultural modernity. The second analogy was, however, not restricted to *The Babu*. In 1875, following the Prince of Wales’s visit to Calcutta (as discussed in Chapter 2), the short-lived yet influential illustrated periodical, *Basantak* published several articles on the Prince’s journey from the perspective of contemporary *bhadralok* society. In the coverage, however, electricity was a tool of visual

¹⁷³ *ibid.*, p.26

¹⁷⁴ *ibid.*, pp.26-27

¹⁷⁵ *The Hindoo Patriot*, 22 May 1876

satire. An article discussing the preparations in Calcutta before the eventual arrival of the Prince is accompanied by a caricature of the Prince of Wales and the reception committee preparing to welcome him to Calcutta (**Figure 3.1**).



Figure 3.1: “A rough sketch of the main entrance of the pavilion just before the Prince’s arrival. Reception Committee in full expectation.”

Source: *Basantak*, 1875. Courtesy of the CrossAsia Repository, Heidelberg University Library, and Centre for Studies in Social Sciences Kolkata

In the caricature, while one member can be seen pulling a cart, another is shown blowing trumpets out of his ears. Watching over and guiding the activities of the reception

committee with his light is the Prince of Wales, who is also shown controlling the minds of the reception committee through electric waves emanating from his moustache. In the illustration, political and imperial power is disguised in the Prince of Wales bringing “light” into the colonies with total control over the minds and bodies of the natives. The 1875 publication of the illustration pre-dates the introduction of battery and generator-operated electric lighting in public spaces and elite ceremonies in Calcutta, and the article accompanying the illustration does not discuss the image in any way. Therefore, one can only assume that the electric waves emanating from the Prince’s moustache represent the electric telegraph. As Joe De Sapia has shown, the railways and telegraph were crucial to not just the Prince’s royal trip, but also important to portray the monarchy itself as embracing technological modernity.¹⁷⁶

While electricity, as we have seen so far, provided comic potential in both *The Babu* and the illustration in *Basantak*, literary engagements with electricity also further serious associations, in which electricity is seen a hegemonic agent of colonialism. In the next section, we will see how Bengali satire such as *The Babu* and *Majā* use electricity to explore more profound issues such as contemporary discussions and debates on the effects of education of the Bengali women.

3.3. Electricity in the Home and Outside

The final act of *The Babu* opens with all the wives of various *babus* — the Anglicised babu, the “scientific” babu, and the Brahmo babu — sat discussing their daily lives. The Anglicised babu’s wife, Nirada, informs her friends of her husband’s request for her to join him for a walk in the *Maidan*. The other wives, aghast at the inappropriateness of her husband’s request, warn Nirada of how her husband’s request was an affront to her religion and modesty. After her friends leave, Nirada finally decides to fulfil her husband’s request and leave the domestic sphere for a walk in the outside world. “But I have never been out walking and I am rather afraid,” she says. “Still there will be others there too and I will remain quite close to him [her husband]. ... What fun it will be! I will hear the band play. I’ll see the electric light.”¹⁷⁷

¹⁷⁶ Joe De Sapia, “Technology, Imperial Connections and Royal Tourism on the Prince of Wales’s 1875 Visit to India”, in Martin Farr and Xavier Guégan, eds., *The British Abroad Since the Eighteenth Century, Volume 1: Travellers and Tourists* (London: Palgrave Macmillan, 2013) pp.56-73

¹⁷⁷ Basu, *The Babu*, p.85

As Nirada prepares to move from the domestic sphere to the outside world, the author implies the differences between the domestic and public spaces. Written from a patriarchal viewpoint, the domestic sphere is shown to be a safe space for Nirada and, in essence, the Bengali woman. The outside world, on the other hand, the author implies, is an unknown and fearful space, yet it is something that Nirada looks forward to simply because the presence of her husband would make the outside world safe for her to step into. In characterising the domestic sphere as a safe space for the Bengali woman and the outside world the domain of the man was, as historians have shown, a common narrative of Bengali middle-class nationalism in colonial Bengal. According to Partha Chatterjee, early Bengali anticolonial nationalism focused on creating its own sovereign domain in the Bengali household before its political battle with imperialism. This was achieved by separating the spiritual domain of the Bengali domestic sphere from the material influences of the outside world. According to such nationalists, studying and replicating Western conceptions of modernity in the outside world while protecting Indian cultural values, spirituality and identity within the Indian domestic sphere could help achieve nationalist sovereignty. Under the twin influences and pressures of Bengali nationalism and Western colonialism, the Bengali middle-class intelligentsia actively engaged in refashioning the family and the domestic sphere as new sites of cultural ideal and national regeneration. This refashioning was related, Chatterjee suggests, to socially prescribing roles for men and women. The Bengali housewife — expected to combine the virtues of the self-sacrificing Hindu wife and mother, and the Victorian lady — was assigned as the guardian of the moral universe centred around the home and the family.¹⁷⁸ However, as feminist historians such as Tanika Sarkar have further added to this historiography, the re-articulation of the Indian woman to develop a nationalist ideology also meant that the rights and freedoms of the Bengali woman within the domestic sphere remained limited.¹⁷⁹ Dipesh Chakrabarty's analysis of the term "freedom" in the national construction of the Bengali woman's identity suggests that while freedom in the West was defined in terms of rights to self-definition and self-indulgence, freedom for the Bengali women, however, was defined as her capacity to voluntarily obey and follow the norms set out for her.¹⁸⁰ Tanika Sarkar shows that the limited freedoms granted to the Bengali woman were a result of the Bengali man's limited rights in the colonial public sphere.

¹⁷⁸ Partha Chatterjee, *The Nation and Its Fragments* (Princeton: Princeton University Press, 1993), pp.3-14 and pp.116-134

¹⁷⁹ Tanika Sarkar, "The Hindu Wife and the Hindu Nation: Domesticity and Nationalism in Nineteenth Century Bengal", *Studies in History*, 8 (1992), pp.213-235

¹⁸⁰ Dipesh Chakrabarty, "The Difference - Deferral of (A) Colonial Modernity: Public Debates on Domesticity in British Bengal", *History Workshop Journal*, 36 (1993), pp.1-34 (pp.11-12)

Having surrendered control of the public sphere to colonialism and the West, the Bengali man now constructed ideal visions of domesticity by burdening the woman to become the protector and definition of Indian cultural values.¹⁸¹

Enchanted by the possibility of seeing the electric lights, Nirad accompanies her husband to the *Maidan*.¹⁸² Nirada's walk is soon interrupted by molestations from a drunk English sailor. Her husband is, however, unable to stop the English sailor and protect his wife. *The Babu*, in its final act depicts electric light as an element of what Bengali nationalists believed to be the colonised outside world dangerous to, and capable of overpowering the symbol of the Bengali spiritual and cultural domain — the Bengali woman and housewife. In showing the Bengali man as being unable to protect the Bengali woman, *The Babu* reinforces Tanika Sarkar's analysis of Bengali nationalist patriarchy as having no rights or powers in the colonised outside world, and as having surrendered his control and masculinity to colonialism.

Such representations of electricity as being an element of the colonised outside world was also later used in the early twentieth century by violent revolutionaries in their calls for armed revolt against the colonial government (**Figure 3.2**). As I have discussed in the introduction to this chapter, this undated set of images is surmised by the archivists at the Centre for Studies in Social Sciences Calcutta to be from the early 1900s. The images also seem to be missing accompanying texts, as is evident from the line of cut-off texts visible to the right of the top left image and on top of the bottom right image. In the absence of accompanying texts, it is difficult to determine the order or the narrative that the images follow. However, the texts in the images can be translated to determine their representations **[translations mine]**:

- Top left image showing men sat in a conclave around three guns. The men are shown taking an oath of sacrifice. The text reads: "Come, who will give their lives? Take an oath."
- Top right image showing a man reading a book under a noose. The image also shows four bayonets presumably pointed at the man showing his imprisonment. At the bottom, the image shows a caged lion. The text reads: "In the face of the noose, they sang the songs their victories."

¹⁸¹ Sarkar, "The Hindu Wife and the Hindu Nation", pp.213-235

Also see: Mrinalini Sinha, "Giving Masculinity a History: Some Contributions from the Historiography of Colonial India", *Gender & History*, 11:3 (November 1999): 445-460

¹⁸² As we have seen in Chapter 2, the *Maidan* was a major site for public demonstrations of electric lighting in the late-nineteenth and early twentieth centuries.

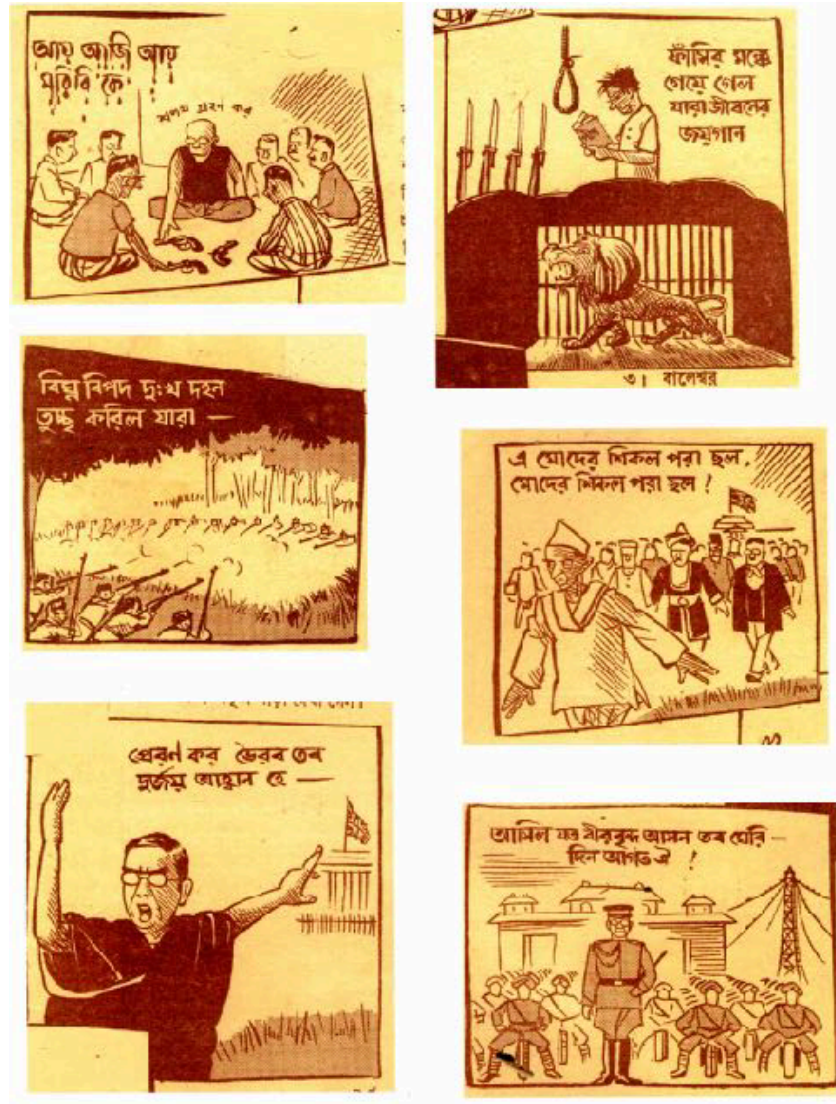


Figure 3.2: "Aay Aaji Maribi Ke" (undated)

Source: Centre for Studies in Social Sciences Calcutta Archives, Image: DU_0065

- Centre left image showing a gun battle. The text reads: "Those who burnt adversities, difficulties and grief to the ground."
- Centre right image showing a crowd of consisting of a lawyer (bespectacled man in the dark coat and white collar in the extreme right), presumably a peon in the government office (turbaned man to the left of the lawyer) and other men walking away from what seems to be a colonial building (shown with a British flag) in the background. What we can decipher from this image is a walk-out staged by native workers and lawyers employed in colonial governmental offices. The text reads: "We were bound in chains!"
- Bottom left image showing a man pointing toward a colonial building with a British flag. The text reads: "I call you to take on the unconquerable."

- Bottom right image showing what looks like an army general with his troops (wearing turbans commonly worn by police in colonial India) guarding the building and the electrical pylon behind them. The text reads: “No matter how strongly guarded the seat is, the day has come for the masses.”

As we can see from the last image, the electrical pylon is shown as part of the three aspects that represent colonial rule. Firstly, the palatial building in the background and the mention of “the seat” in the text hints at the building being an important seat of colonial power, most likely the Government House in Calcutta. The police in the foreground is the second aspect in the representation of colonial control. Finally, the pylon in the background shows electricity as what Daniel Headrick would term as a “tool of empire”.¹⁸³

While representations of electricity in the outside world linked it to aspects of colonialism, anticolonial and traditionalist commentators were also concerned about electricity in the private spaces of the Bengali home. Written in 1900, soon after the establishment of Calcutta Electric Supply Corporation (discussed in Chapter 5) and in a period when electric lighting is being increasingly used in elite social spaces (discussed in Chapter 2), Amarendranath Datta’s *Majā: A Social Farce* tells several stories about different aspects of *bhadralok* life in colonial Calcutta, including a criticism of the “modern” Westernised lifestyle of the educated Bengali middle class.¹⁸⁴ In one of the scenes, the audience is introduced to an educated babu by the name of “Mister” Dhurandhar Pakrashi. Important to note is that the prefix “Mister” is used by the author to highlight the character’s Anglicisation resulting from a Western-style education. “Mister” Pakrashi is, however, illtreated by his educated wife and daughter. His wife, who wants to become a lady novelist like Mary Correlli, constantly berates and belittles him, calling him “fool” and a “rascal” (in English). Their daughter, Phulkumari, on returning from a game of tennis (a game associated with the Anglo-Indian elite), makes several expensive demands:

¹⁸³ Headrick, *The Tools of Empire*

¹⁸⁴ *Majā* was very well received by critics on its opening. A review in the *Indian Mirror* on 17 January 1900 wrote: “In connection with the representation of ‘Maja’ on the boards of the Classic theatre, Babu Amarendra Nath Dutt is to be congratulated no less as author than as manager and player. For a production intended for the ‘season’ the highest praise that can be accorded to the piece is that it has a plot”.

Yes, now I want to go to the races. And you have to get me a new bicycle. I won't ride the one you gave me last year. And my football is torn: you have to get me another one. ... And please fix an electric lamp in my drawing-room; I can't see very well in the gaslight.¹⁸⁵

On being mocked by her father for her expensive demands, Phulkumari quips: "How can that be, Papa? You can't give me an education and then expect me to have low tastes?"¹⁸⁶

This scene is significant for a number of reasons, not in the least as it offers a critical apparatus for understanding contemporary relationships between modern education, Bengali women, and reformist and orthodox Hindu ideas about the place of the woman in the Bengali middle-class domestic sphere. Firstly, it demonstrates how essential the Bengali woman was to debates over colonial modernity and indigenous domestic life. These debates, historians have shown, resulted from colonial criticism of the social condition of Bengali women at the beginning of the nineteenth century. Bengali middle-class men internalised these criticisms, and in order to compensate for their loss of power and authority in the public sphere under colonial rule, formulated their own reforms. Combining European ideas on domestic life with traditional social rules, nationalist reformers sought to reform the Bengali woman into the "new" woman, who was expected to combine the virtues of the self-sacrificing Hindu wife and mother with the etiquettes and education of the Victorian lady. Education was meant to give Bengali women the ability to maintain order and cleanliness within the domestic sphere while using the practical aspects of their literacy to run their households according to the ever-changing economic and physical situations of the colonial world. The "new" woman was, however, in its very definition, subjected to what Partha Chatterjee and Judith E. Walsh have termed a "new patriarchy": "new" because it challenged orthodox patriarchal traditions by allowing women to be educated; while "patriarchy" maintained that women should, nevertheless, remain under their husband's authority.¹⁸⁷

Women's education was, nevertheless, a highly contested undertaking, especially as it threatened orthodox Hindu ideas regarding the domestic role of Bengali women. Several different forms of literature — from essays to novels and satire — concerned themselves with the ill-effects of modern education on Bengali women and domestic life. In several

¹⁸⁵ Amarendranth Datta, *Majā* (translation by Partha Chatterjee in "The Nation and Its Women", in Partha Chatterjee, *The Nation and Its Fragments: Colonial and Postcolonial Histories* (Princeton University Press, 1993), p.122

¹⁸⁶ *ibid.*

¹⁸⁷ Partha Chatterjee, *The Nation and Its Fragments*, p.127; *Nationalist Thought and the Colonial World* Judith E. Walsh, *Domesticity in Colonial India: What Women Learned when Men Gave Them Advice* (Maryland: Rowman & Littlefield, 2004), pp.3-4

letters to *The Statesman*, men complained how reformers and their efforts to educate women resulted in the deterioration of the state of female society. On 14 December 1882, a certain Radhanath Chatterjee of Nohpara, Calcutta, compared older forms of education to the education that women received in contemporary female schools. He complained that while women's education used to be more practical and prepared women for domestic duties, modern education had created women who though it "beneath [their] dignity even to superintend the cleansing of domestic utensils [by male and maid servants], the zenana [women's quarters] department, the work of the kitchen, the feed of children and of the grown male members of the family, the proper arrangement of the bedroom, and the suckling and clothing of infants!"¹⁸⁸ "Modern" women, according to the letters, devoted more time to reading novels and "personal cleanliness and decorations" than to household duties and raising their children.¹⁸⁹ "These are the immediate results of the so-called education of the present day," wrote another complainant from Calcutta on 21 March 1888.¹⁹⁰ Such "enlightened females", according to the letter published in *The Statesman*, lacked "purity of mind, sincerity of character, holy habits, and above all love of their husbands", and all other attributes that made the perfect Hindu woman according to the ideas and customs of the Hindu patriarchy.¹⁹¹ "Mister" Pakrashi's humiliation by his wife and daughter in *Majā* was, therefore, not only a dramatic recipe to evoke laughter in the audience, but also a criticism of what the author believed were the manners of an educated, "modern" woman. Partha Chatterjee, in his essay "The Nation and Its Women", has cautioned historians to study these caricatures as a criticism of the "idea" of the Bengali woman trying to imitate the ways of European ladies. Chatterjee writes that "it was very much an idea, for it is hard to find evidence that even in the most Westernised families of Calcutta in the mid-nineteenth century there were actually any women who even remotely resembled these gross caricatures."¹⁹²

Secondly, in the scene, Phulkumari's list of demands to her father highlights the author's ridicule of the "modern" woman's fondness for useless luxuries. This is also evident in an image published in short-lived Bengali journal *Banganibasi* (**Figure 3.3**). *Banganibasi*, first published in 1891, was an illustrated journal that covered topics of social reform, criticisms of the Anglicised *bhadralok* and the ills of Western education and lifestyles to the

¹⁸⁸ "In Transition", *The Statesman*, 16 December 1882

¹⁸⁹ *ibid.*

¹⁹⁰ "The Modern Woman", *The Statesman*, 24 March 1888

¹⁹¹ *ibid.*

¹⁹² Chatterjee, "The Nation and Its Women", p.122

domestic lives of the *bhadralok*. The figure below, titled *Grahaner hishab poriya swami hatabhambha; Grihini phnaka mane abhimani* (translation: The man of the house is shocked at the household expenses while the housewife is full of vacuous arrogance) shows an opulent couple sat in their bedroom. While the man is concerned reading what the title describes as the list of household expenses, the wife is shown to be looking away. In its presentation, the image is critical of the housewife for not fulfilling her duties by keeping household expenses under control.

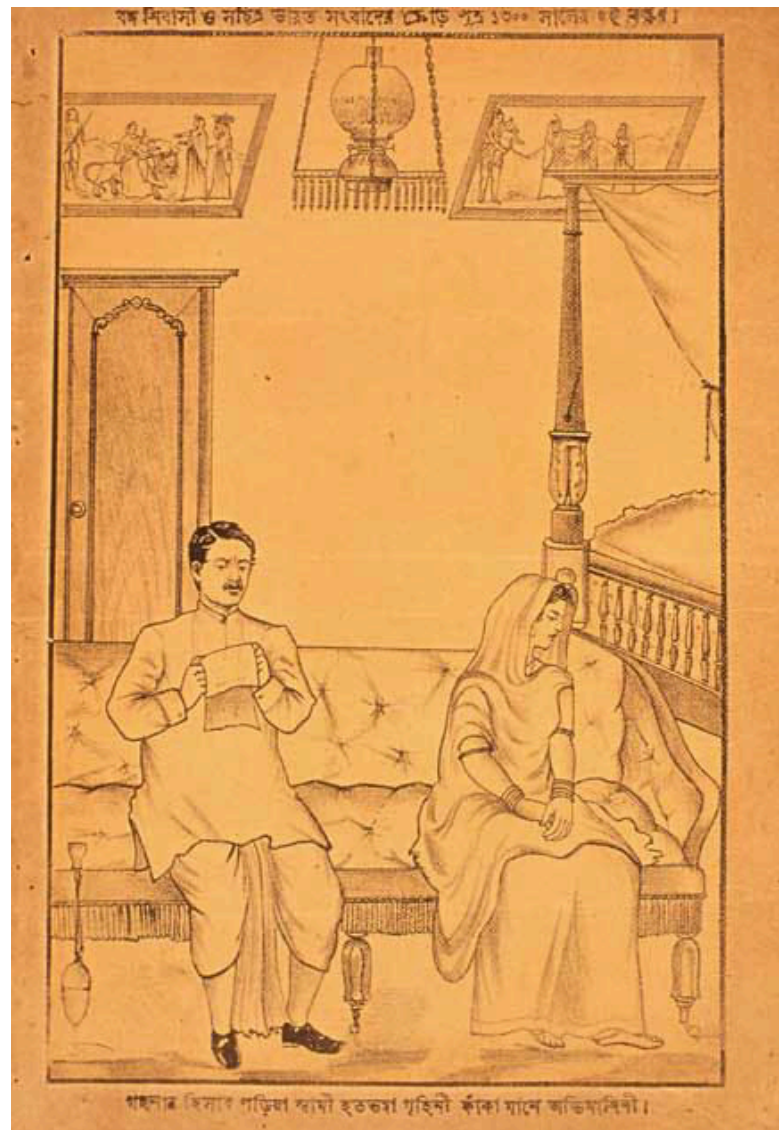


Figure 3.3: “Grahaner hishab poriya swami hatabhambha; Grihini phnaka mane abhimani”.

Source: *Banganibasi*, 1894.

Source: Centre for Studies in Social Sciences Calcutta Archives, Image: BL23

Though the author does not directly suggest in the scene, but Phulkumari's demands for an electric light in her room also relate to an upheaval in the social order of the Bengali domestic space. As I will show in Chapter 6, electric lighting and fans were from their early days associated with civility and wealth by the urban elite and the new middle-classes. Electricity was also an expensive and limited proposition for its middle-class consumers. By asking for an electric light to be installed in her room, Phulkumari challenges her father's hegemony in the household and, therefore, also challenges the new patriarchy that sought to educate, and protect the spiritual purity of Bengali women.

3.4. Conclusion

The primary appeal of electricity in late-nineteenth and early twentieth century colonial Calcutta might seem, as we have seen in Chapter 2, to have been its associations with ideas of European cultural and civilisational modernity. The writings of anticolonial and traditionalist *bhadralok* commentators discussed in this chapter have, however, revealed that electricity was often central to criticisms of the notions of a Western modernity. A primary feature of this thesis, as mentioned in Chapter 1, is to concentrate on archival sources beyond the technocratic archives and the canon. The sources discussed in this chapter may not ever be regarded as esteemed contributions to the Bengali literary canon similar to the works of Michael Madhusudan Dutta, Bankim Chandra Chattopadhyay, or Rabindranath Tagore, but they do provide critical insight into the social life of electricity in colonial Calcutta. The comparison of references to electricity in anticolonial and traditionalist social commentaries have important connotations for our understandings of the metaphorical uses of electricity, but also how such works were central to discussions of *bhadralok* class, nationalist and identity politics in the late-nineteenth and early twentieth centuries. They might appear to offer little in the way of technical or scientific details, however, what they do reveal is electricity's identity as a symbol of European modernity and colonial rule. They also reveal how authors conveyed their views on the pluralities of *bhadralok* identity and society, and their interactions with the colonial state.

Chapter 4

The Domestic Servant and the Visualisation of “Electrical Calcutta”

“Electrical Calcutta is still in embryo,” wrote R. W. Ashcroft, an engineer and member of the American Institute of Electrical Engineers in an article titled “Electrical Calcutta,” published in the 7 July 1900 edition of *The Electrical World and Engineer*. Writing soon after the establishment of Calcutta Electric Supply Corporation’s power plant, Ashcroft’s biological metaphor portrayed his belief in the foreseeable and eventual growth of the nascent electrical enterprise. The Calcutta Electric Supply Corporation, he predicted, “will pay handsome dividends, at least from that department of its service appertaining to supplying power for electric fans.”¹⁹³ For what Ashcroft was confident about was not just the efficacy and convenience of electric lighting and fans as compared to oil lamps and manual punkahs, but also his belief that it was the “infernal stupidity and laziness” of the domestic servants employed to pull punkahs and trim oil lamps that will help electrical appliances replace them.¹⁹⁴ Punkah pullers or *coolies*, Ashcroft explained, “employed to pull the punkah” and provide comfort to their employers were known to fall asleep, resulting in employers either scolding the punkah coolies or resorting to violence to keep the coolies awake: “in India, a boot-jack is used nocturnally to create activity rather than to suppress it; and, even if your aim is good, the punkah coolie will be off to sleep again in the next 15 minutes.”¹⁹⁵ Ashcroft predicted that householders in Calcutta who employed a number of coolies to work in shifts would soon adopt “Western methods of breeze-manufacturing” through electric fans.¹⁹⁶ He wrote: “The electric desk fan and the electric ceiling fan have sealed the fate of the punkah; its oscillations are becoming feebler and feebler, and will soon entirely cease.”¹⁹⁷ By the time Ashcroft, nevertheless, wrote about “electrical Calcutta” and predicted the eventual replacement of domestic servants by electrical technologies, writings and advertisements promoting electricity through concerns regarding the presence and efficiencies of domestic servants were commonplace. In this

¹⁹³ R. W. Ashcroft, “Electrical Calcutta”, *The Electrical World and Engineer*, 36: 1 (7 July 1900), p.14

¹⁹⁴ *ibid.*

See definitions in “Terms and Abbreviations used in this Thesis” on p.7 of this thesis.

¹⁹⁵ *ibid.*

¹⁹⁶ *ibid.*

¹⁹⁷ *ibid.*

and a variety of other ways discussed in this chapter, promoters, advertisers and electrical engineers presented narratives of servants within the domestic sphere as being so unacceptable and so far removed from convenience and modernity that the only available course of action for Anglo-Indian and *bhadralok* householders was to accept and use “modern” electrical technologies.

This chapter explores some of the concerns about the presence of servants within Anglo-Indian and *bhadralok* domestic spaces that were articulated within and through writings and advertisements promoting electricity and electrical technologies. I show the ways in which promoters borrowed generously from discourses regarding the place, responsibilities and behaviours of domestic servants widely discussed and debated in late-nineteenth and early twentieth century literary, public and social circles in Calcutta. To throw this discussion into relief, in this chapter I analyse advertisements of electric lighting and fans (primarily from English and Bangla newspapers and periodicals) and the writings of engineers and promoters to show how the promotion of electric supply, lighting and fans at the turn of the twentieth century did not simply depend on the efficiencies and comforts of said technologies as compared to existing means of lighting and ventilation, but conceptually depended on presenting electric lighting and fans as rhetorical and technological solutions to social and moral issues of servants within Anglo-Indian and *bhadralok* domestic spheres.

This chapter borrows from theoretical approaches adopted by historians who have previously looked at the ways in which Western goods and technologies had to be promoted and advertised in innovative ways, focusing on their everyday associations with health, domesticity, gender and class identity, before they were accepted into Indian homes. David Arnold has shown in *Everyday Technology* that mass advertising campaigns and their portrayal of technologies such as sewing machines, bicycles and typewriters as means to a healthy and rewarding life were crucial to their acceptance by the Indian public.¹⁹⁸ Recent scholarship has also studied advertising and advertisements to analyse how values of “modernity” and “nationalism” were fashioned by Indian middle classes. Douglas E. Haynes has highlighted how the Indian middle-class consumer society in the early twentieth century shaped, and was shaped by, advertisements that appeared in print and other media. He argues that advertisers modified their themes around the buying powers and anxieties of the middle class.¹⁹⁹ From the work of Madhuri Sharma we can see how in fact advertisements for mass consumer products modified their language and iconography

¹⁹⁸ Arnold, *Everyday Technology*, pp.122-126 and p.146

¹⁹⁹ Douglas E. Haynes, “Creating the consumer? Advertising, Capitalism, and the Middle Class in Urban Western India”, in Douglas E. Haynes, Abigail McGowan, Tirthankar Roy and Haruka Yanagisawa, eds., *Towards a History of Consumption in South Asia* (New Delhi: Oxford University Press, 2010), pp.185-223

to reach a wider and culturally diverse audience base. As Sharma observes, these strategies were most obvious in advertisements for medicines and health products, where Western manufacturers flooded vernacular newspapers with explicit claims, texts and imagery that drew on local cultural ethics and religion in order to “colonise the mind” of the Indian consumer. For example, European manufacturers of baby food, in their attempts to promote their products to Indian mothers, incorporated both English and Sanskrit terminologies. Through the use of Sanskrit in the phrase, “sanjeevan-tattava-milk-food” (life-giving milk food), advertisers attempted to instil a sense of the purity and genuineness of the product while also communicating the product’s suitability to Indian sensibilities.²⁰⁰

In a similar vein, this chapter examines the language of promoters of electricity, who chose to accentuate certain aspects of everyday life and how the use of electric supply, lighting and fans could improve them. The starting point of my discussions is an analysis of the place of the native domestic servant in *bhadralok* and Anglo-Indian perceptions of domestic hegemony, hierarchy and morality in the late-nineteenth and early twentieth centuries. Why the figure of the domestic servant came to be the focus of so much attention has been addressed by scholars of the cultural and social histories of everyday Anglo-Indian and *bhadralok* lives. They have demonstrated a connection between the construction of Anglo-Indian and *bhadralok* identities through the creation and maintenance of employer-servant relationships on the basis of differences created through definitions of class and social identities within the domestic sphere. In Section 4.1, I reveal through a critical reading of primary and secondary sources the importance of servants as a means to help reaffirm and maintain imperial domesticity in Anglo-Indian homes, and to the *bhadralok* intelligentsia’s refashioning of the family and the domestic sphere as new sites of cultural ideal. Here, I also reveal the ways in which Anglo-Indian and *bhadralok* employers also maintained social and cultural distance from their servants by creating and propagating discourses of servants’ dishonesty and immoral behaviours.

Following that, in Sections 4.2 and 4.3, I analyse writings on, and advertisements of electric supply, lighting and fans to illustrate how strategies of selling grand visions of an electrical modernity were intricately linked to the language developed by Anglo-Indian and *bhadralok* intelligentsia around domestic servants’ behaviours and morality. From this perspective, I show the extent to which notions of morality as defined by the Anglo-Indian and *bhadralok* intelligentsia, and issues of class and social hierarchy became

²⁰⁰ Madhuri Sharma, “Creating a Consumer: Exploring Medical Advertisements in Colonial India”, in Biswamoy Pati and Mark Harrison, ed., *The Social History of Health and Medicine in Colonial India* (Oxon: Routledge, 2009), pp. 213-228 (p. 216)

synonymous with notions of the domestic use of electricity and electrical technologies. In Section 4.2, I show how electrical promoters advocated the adoption of electrical technologies in Anglo-Indian and *bhadralok* homes in order to replace the domestic servant. What underlay the promotion of electric supply, lighting and fans as a substitute for domestic servants and traditional means of lighting and ventilation was an image of the domestic servant as a general figure of indolence and dishonesty. In Section 4.3, I study the place of the punkah and punkah-wallah within the domestic space, and the ways in which the issue of the punkah-wallah falling asleep while pulling punkahs became a major point for inventors and promoters to promote automated and electric punkah machines as replacements for the punkah-wallah. In Section 4.4 I take this discussion forward to explore how colonial anxieties around cases of punkah-coolies being assaulted and, in some cases, killed by their European employers became real grounds for an ideological reconfiguration of electric punkahs and fans as technological solutions to an issue highly politicised by Bengali/Indian nationalists. Here, we will see how, in addition to criticising native servants' inefficiencies (as we will discuss in Section 4.2), inventors and promoters of electric punkah machines and fans found expression in the construction of a vocabulary around the well-being of the punkah-wallah. Inventors and promoters claimed that electric punkah machines and fans served the dual purpose of improving ventilation and saving the lives of punkah-wallahs. Finally, my conclusion will draw out the ambiguity of consumer interest in electric punkahs and fans. Not only were some prospective consumers wary of, and dissatisfied with the automation that electric fans and punkahs provided but, as I will discuss further in Chapter 6, consumers were also concerned about the expense of buying and using such electrical systems.

4.1. The Native Servant in the Domestic Sphere

In late-nineteenth and early twentieth century India an explicit cultural and political investment in native domestic servants presented itself in English and vernacular popular magazines, newspapers, journals, monographs and domestic guidebooks. Discussing issues ranging from duties, responsibilities, salaries, behaviours to the moral, social and political implications of native servants in domestic spaces, writings on native servants emulated imperial discourses and hierarchical class systems. In Anglo-Indian discussions, the native servant in the domestic space figured as a surrogate for the colonised population, and occupied a symbolic position in affirming the Anglo-Indians' position as rulers in the

outside world. In his study of the domestic interiors of Anglo-Indian and native elites in the Indian subcontinent between 1800 and 1947, Robin D. Jones proposed that such representations of native servants emerged from Anglo-Indian idealisation of their domestic interiors as “significant space[s] intended to both constitute and to express the culture of an imperial power.”²⁰¹ Colonial notions of empire, order and domesticity converged in the Anglo-Indian interior, offering comparisons with the administration of a colonial empire. As Flora Annie Steel and Grace Gardiner commented in their domestic guidebook (1887) aimed at female British residents in colonial India: “an Indian household can no more be governed peacefully, without dignity and prestige, than an Indian empire.”²⁰²

While native domestic servants in Anglo-Indian homes helped their employers reaffirm bourgeois identity, and establish and maintain imperial domesticity, they were also seen as outsiders. Efforts by the Anglo-Indian elite in India to use domestic and public spaces to maintain their prestige and distance from the local population were usually undermined by the presence of native servants in the most private spaces of their households. As Swati Chattopadhyay writes in *Representing Calcutta*, “such proximity occasioned distrust, and the servants came to be regarded as a necessary nuisance.”²⁰³ The proximity of native servants to their Anglo-Indian employers within domestic spaces was therefore considered to be hindrance to private conversations, as depicted by the painter James Moffatt in his illustration of a native servant witnessing a domestic dispute involving her Anglo-Indian employers (**Figure 4.1**).²⁰⁴ British household guides and writings on Indian servants not only reflected hierarchical class systems further complicated by race, religion and gender issues as a result of the colonial encounter, they also influenced highly negative attitudes towards native servants and the urban poor in general, thereby helping reinforce the

²⁰¹ Robin D. Jones, *Interiors of Empire: Objects, Space and Identity Within the Indian Subcontinent, c. 1800-1947* (Manchester: Manchester University Press, 2007), p.2

²⁰² Flora Annie Steel and Grace Gardiner, *The Complete Indian Housekeeper and Cook*, 5th edition (London: Heinemann, 1907, first published in 1877), pp.7-9

Flora Annie Steel (1847-1929) was a writer married to Henry William Steel (1840-1923) of the Indian Civil Service. She spent most of, and wrote extensively about, her life in India. Available from the Oxford Dictionary of National Biography - Flora Annie Steel: <https://www.oxforddnb.com/search?q=flora+Annie+steel&searchBtn=Search&isQuickSearch=true>

²⁰³ Swati Chattopadhyay, *Representing Calcutta: Modernity, Nationalism, and the Colonial Uncanny* (London and New York: Routledge, 2005), p.128

²⁰⁴ According to the British Library Collections website, James Moffatt arrived in Calcutta aged 14 and, after having learnt engraving, published his own copperplate engravings from 1797 onwards. (Source: British Library Collections)

imperial discourse.²⁰⁵ Such negative positioning were typically aired in household guides advising British women to carefully examine and observe their Indian servants' behaviours and characters.



Figure 4.1: *The Bottle and the Bed Scene in Calcutta* - James Moffatt (1805)

Source: Centre for Studies in Social Sciences Calcutta archives; Image No.: B_00115

Notice the servant in the background witnessing a family dispute between her Anglo-Indian employers. Further details of the image and its intended audience are unfortunately unaccounted for in the archives.

To the literate *bhadralok* intelligentsia, the logic behind the scathing criticisms of native servants was immediately relevant. The political and cultural environment of the *bhadralok* in the late-nineteenth and early twentieth centuries provided the matrix within which such negative representations of native servants and the urban poor were understood and interpreted. Several historians have shown how *bhadralok* nationalist and reformist discourses that centred around the creation of an “autonomous” and “spiritual” domain of the “home” against the “outside world” marked by colonial rule sought to construct

²⁰⁵ Nupur Chaudhuri, “Memsahibs and Motherhood in Nineteenth-Century Colonial India”, *Victorian Studies*, 31:4 (1988), pp.517-535

new ideas and images of domesticity, self-identity, respectability and womanhood.²⁰⁶ Extending this line of argument, historians have expounded the ways in which women and housewives — expected to combine the virtues of the self-sacrificing Hindu wife and mother, and those of the sociable Victorian lady — became important actors in *bhadralok* intelligentsia's active refashioning of the family and domestic sphere as new sites of cultural ideal and national regeneration. Domestic servants were also central to the creation of the moral universe around the home and family, while also helping the intelligentsia define the place and role of the housewife within the family hierarchy. Middle-class hegemony and paternalism was usually established and maintained through analysing the housewife's character and status in terms of the nature and quality of the works performed by the servants under her charge. Any acts of dishonesty or theft committed by servants were attributed to the housewife's inability to maintain cultural values and morality within the household. Thus, while housewives were urged to be humane towards servants, they were also advised to believe that theft and dishonesty were natural attributes of servants.²⁰⁷

It was in the context of growing centrality of servants to Anglo-Indian and *bhadralok* identities, and growing anxieties about domestic morality that the figure of the domestic servant emerged as a distinct presence in advertisements and writings promoting greater use of domestic electric supply and electrical technologies. In the next section, we will see the ways in which promoters and advertisements legitimised the use of electrical technologies as tools to either improve the behaviour of, or completely replace the lazy, dishonest servant.

²⁰⁶ Partha Chatterjee, "The Nationalist Resolution of the Women Question", in Kumkum Sangari and Sudesh Vaid, ed., *Recasting Women: Essays in Colonial History* (Delhi: Kali for Women, 1989), pp.233-253

For a critical view on Chatterjee's formulation of the place of women in *bhadralok* discourses on "home" and the "outside", see: Tanika Sarkar, "The Hindu Wife and the Hindu Nation: Domesticity and Nationalism in Nineteenth Century Bengali", *Studies in History*, 8:2 (1992), pp.213-235

²⁰⁷ Swapna M. Banerjee, "Debates on Domesticity and the Position of Women in Late Colonial India", *History Compass*, 8:6 (2010), pp.455-473

Swapna M. Banerjee, "Subverting the Moral Universe: 'Narratives of Transgression' in the Construction of Middle-class Identity in Colonial Bengal", in Crispin Bates, ed., *Beyond Representation: Colonial and Postcolonial Construction of Indian Identity* (New Delhi: Oxford University Press, 2006), pp.77-99

Swapna M. Banerjee, *Men, Women, and Domesticity: Articulating Middle-Class Identity in Colonial Bengal* (New York: Oxford University Press, 2004)

In her studies, Banerjee emphasises the ways in which servants were crucial to the refashioning of middle-class identity and the middle-class self in colonial Bengal.

Also see: Swati Chattopadhyay, "Blurring Boundaries: The Limits of 'White Town' in Colonial Calcutta", *Journal of the Society of Architectural Historians*, 59: 2 (June 2000), pp.154-179

4.2. Electricity as a Moral Technology

In an advertisement of a battery-operated electric bell that appeared in a Bengali periodical in 1890, the new technology is promoted as a solution to issues of morality and discipline in relation to servants (**Figure 4.2**). The advertisement read:

Electric Bell. **No longer will one need to call out to servants and murder them in anger.** An approximately 2-feet long cable, a stationery dry battery, and a hook mechanism to attach them will be sent out to your home by paid-for post for a mere 6 rupees. Additional wires, if required, can be acquired at a meagre additional cost. This device, a must for every house, is very useful for people who regularly visit, and are visited by acquaintances, or to send out a message from one's room in case of need. Whether from the third floor or the underground, **this device can be used to call even deaf servants.**²⁰⁸ [translation and emphases mine]

ইলেক্ট্রিক কলিং বেল বা বৈদ্যুতিক ঘণ্টা ।

চাকর চাকরাণী ডাকিতে দার রাগিয়া খুন হইতে হইবে না । প্রায় ৪২ কুট্ দখা তার ও উৎকৃষ্ট হারী ডাই বাটারি—তারা সাথিহার চক প্রভৃতি যথেষ্ট আমদা মার জিপি ডাকমস্তল মধ্যে ৬ টাকার আপনার বাড়িতে ডাকে পৌছাইয়া দিব । অতিরিক্ত তার আবশ্যক হইলে তাহাও অতি মনস্ত্রুপে দেওয়া যাইবে । ইহা এখন প্রত্যেক গৃহে আবশ্যক, যেহেতুক পরস্পর প্রতিবাদীগণ এতদ্বািতী ওবাড়ী যোগ করিলে বিশ্বদেব দময় নিজ কক্ষ হইতে অন্য বাড়ীর লোককে সংবাদ পাঠান যাইতে পারিবে । হিতল, কক্ষ হইতে নিয়তলোব ও ভিতর বাড়ী হইতে বহিরাগীর দাসদাসীকে ডাকিতে পারিবেন । প্রত্যেক গ্রামে ও নগরে এজেন্ট আবশ্যক । পত্র লিখুন ।

শ্রী আদিত্যকুমার চট্টোপাধ্যায়,
২ নং রাজেন্দ্র নগরের সেন, বরবাজার কলিকাতা ।

ঘরে বসিয়া উপার্জন পস্থা ।

“উপার্জন পস্থা” সদর্পে জ্ঞানবার ভজ্ঞা হইলে আশাখগকে লিখিবেন, ঘরে বসিয়া কেমস করিয়া আপনি অনায়াসে মাসিক ৩০০০ টাকা উপার্জন করিতে পারেন, দেখাইয়া দিব । একখানি অর্ক সানার টিকিট পাঠাইতে হইবে মাত্র ।

ম্যানেজার “কাজের লোক” ।

Figure 4.2: Advertisement for Electric Bell

Source: *Citradarsana*, Vol.1 (1890), p.36. Cross-Asia Repository and Heidelberg University (online archives), and Centre for Studies in Social Sciences Calcutta archives.

In its allusions to servants, the advertisement presents the electric bell's function and position as an intermediary between employer and servant. This immediately tells us that

²⁰⁸ *Citradarsana*, Vol. 1 (1890), p.36

Online version of the journal hosted by CrossAsia-Repository and Heidelberg University Library, while microfilm and paper copies of the journal are held by the archives of the Centre for Studies in Social Sciences, Kolkata, and the Bangiya Sahitya Parishat in Kolkata, respectively.

the advertisement is aimed at educated *bhadralok* (most likely men) who were most likely to have been able to read the advertisement and had servants to call, and therefore occupied an elevated social status.²⁰⁹ The electric bell is also presented as a servant to the employer, enabling the employer to carry out his wishes when rung, but in instructing servants to attend to the employer's call when they hear the bell, the bell also becomes an extension of the employer's authority.²¹⁰

The advertisement also makes us think spatially about employer-servant relations within the household. The fact that servants needed to be called implies either the prevalence of or the need for physical distance between servants and their employers. In the homes of Bengali and Anglo-Indian elites, the living spaces of employers and servants were usually separate and distant from each other. As Fae Dussart has discussed in her PhD thesis (2005), servants in elite households in colonial India usually lived with their families in huts on the compounds of their employers' bungalows.²¹¹ Within the employers' domestic spaces, as we have also discussed in the previous section, the separation between employers and their servants was harder to maintain. As Robin D. Jones has shown, the open plan layout of Anglo-Indian and native domestic spaces in the colonial Indian subcontinent allowed servants to move freely in and occupy the same spaces as their employers: "spatial and social arrangements within the colonial bungalow continually undercut the separation of servant from master."²¹² According to the advertisement above, the electric bell allowed employers to enable and yet manage the physical distance between them and their servants. It suggests that at particular times, employers wished to occupy spaces away from their servants but needed them to be sufficiently close by to be able to answer the bell: "This device, a must for every house, is very useful...to send out a message from one's room in case of need."²¹³ The electric bell, according to contemporary

²⁰⁹ See: Mrinalini Sinha, "Giving Masculinity a History: Some Contributions from the Historiography of Colonial India", *Gender and History*, 11: 3 (November 1999), pp.445-460

²¹⁰ For an analysis of the complex dynamics of material culture, the sensory dimensions of objects, and human relationships within the household, see Flora Dennis, "Material Culture and Sound: A Sixteenth-Century Bell", in Anne Gerritsen and Giorgio Riello, eds., *Writing Material Culture History* (London: Bloomsbury, 2015), pp.151-156

²¹¹ Fae Dussart, *The Servant/Employee Relationship in Nineteenth Century England and India* (Unpublished doctoral dissertation, University of London, 2005), p.87. Available from ProQuest Dissertations and Theses database, UMI NO. U591979

Also see: Dussart, "That unit of civilisation and the talent peculiar to women : British employers and their servants in the nineteenth-century Indian empire", *Identities*, 22:6 (2015): 706-721

William J. Glover, "A Feeling of Absence from Old England: The Colonial Bungalow", *Home Cultures*, 1:1 (2004): 61-82

²¹² Jones, *The Interiors of Empire*, p.81

²¹³ *Citradarsana*, Vol. 1 (1890), p.36

writings, could also save employers the physical exertion of shouting or leaving their homes to call servants who had retreated to their living quarters. In an article on “Electric Bells” in *The Times of India* of 5 November 1894, the author wrote:

It is to be admitted that our domestic servants in India, despite their manifold virtues, furnish us with a fair share of the sum total of petty troubles in daily life, it is not going far wide of the mark to say that a difficulty in calling them — or rather making them hear — is one of the chief amongst them. The convenience of the bell is enormous, and I am convinced that a large number of headaches and touches of sunstroke would be avoided if people used these bells instead of going outside themselves, in desperation, to call a servant who either does not or will not hear.²¹⁴

While both the advertisement and the article exemplify the idea of the electric bell as an object with agency and function, especially as a sounding object to call servants, they also suggest its importance as a system of shaping the behaviours of both the employer and the servant. In presenting the electric bell as a device that could be used to call “even deaf servants,” or “a servant who either does not or will not hear,” the writings gesture at the ways in which the bell, far from employers’ shouts and calls that servants could until then choose to ignore, extended the employer’s authority by imposing discipline and ensuring that the servant acts upon the employer’s commands.²¹⁵ In solving the simple issue of calling servants, however, the bell also changes employers’ behaviours towards servants; employers, as the writings claim, no longer needed to either shout at or murder their servants in desperation or anger.

The perceived ability of electricity and electrical technologies to improve the behaviour of servants was also integral to the promotion of electric lighting. As we saw in Section 4.1, domestic guidebooks and memoirs warned Anglo-Indian and *bhadralok* employers, especially women, to inscribe dishonesty as natural attributes of servants.²¹⁶ This is confirmed in contemporary writings in which Anglo-Indian and *bhadralok* writers complained about servants stealing food and oil. Rabindranath Tagore, Swapna M. Banerjee has shown in her study of servants and theft in *bhadralok* households, regularly

²¹⁴ “Electric Bells”, *The Times of India*, 5 November 1894, pg.4

²¹⁵ *ibid.*

Unfortunately, there are no studies on sounds and hearing as central to social, domestic and ritual life in colonial India. However, in their study of hearing loss in Britain c.1830-1930, Graeme Gooday and Karen Sayer have shown the ways in which the term “deaf” was an “unsympathetic representation of the hard of hearing” as those who “could in fact hear more effectively than they claimed, but simply ‘chose’ stubbornly not to hear.” See: Graeme Gooday and Karen Sayer, *Managing the Experience of Hearing Loss in Britain, 1830-1930* (London: Palgrave Macmillan, 2017), p.19

²¹⁶ Banerjee, *Men, Women, and Domesticity*, pp.166-175

wrote about how servants in his household stole expensive yet regularly used items such as *ghee* (clarified butter) from the kitchen.²¹⁷ That servants stole at every opportunity was also an often-repeated account in Anglo-Indian literature. In the domestic guidebook *The Englishwoman in India* published in 1864, the unknown author — only mentioned in the book as “A Lady Resident” — suggested that British women should constantly supervise their native servants and expect them to steal food items: “native servants of all classes, good or bad, and indifferent, require the most incessant supervision. [...] It is but natural to expect them to pilfer small articles of food: rice, sugar, coffee, and every sort of oil are their specialties in this line.”²¹⁸ Discussing how the Mussaul, or the “man of lamps” (**Figure 4.3**), stole most of the oil and butter he was given to fill the lamps with, Edward Hamilton Aitken — a civil servant, founding member of the Bombay Natural History Society (founded in 1883) and author of several volumes on natural history in India — wrote in his illustrated journal on life with Indian servants, *Behind the Bungalow* (1899):

The Mussaul’s name is Mukkun, which means butter, and of this commodity I believe he absorbs as much as he can honestly or dishonestly come by. How else does the surface of him acquire that glossy, oleaginous appearance, as if he would take fire easily and burn well? I wish we could do without him!²¹⁹



Figure 4.3: The “Mussaul” or the man of lamps

Source: Edward Aitken Hamilton, *Behind the Bungalow* (Calcutta: Thacker, Spink and Co., 1889), p.55

²¹⁷ *ibid.*, 173

Also see: Rabindranath Tagore, *Jiwansmriti* (Calcutta: Vishwa-Bharti Granthabibhag, 1912), p.24

²¹⁸ Anon. (A Lady Resident), *The Englishwoman in India* (London: Smith, Elder and Co., 1864), p.58

²¹⁹ Edward Hamilton Aitken, *Behind the Bungalow* (Calcutta: Thacker, Spink and Co., 1889), p.52

Echoing prevalent Anglo-Indian and *bhadralok* attitudes towards domestic servants, John Willoughby Meares — the Electrical Adviser to the Government of India — noted that electricity was advantageous for domestic lighting because it could not be stolen. In his book, *Electrical Engineering in India: A Practical Treatise for Civil, Mechanical and Electrical Engineers* (1914), Meares wrote that although oil possessed several advantages as compared to electricity, namely ease of transport and constant supply, electricity had “the advantage that even if stolen it cannot usually be sold.”²²⁰ Extending the parables of civilisational progress that promoters and engineers braided into electric lighting, as we discussed in Chapters 1 and 2, to scathing criticisms of the immorality and dishonesty of domestic servants, Meares teleologically contended that oil would not be used in Britain if electricity or gas were available, while “in the East conditions are different, and the fact that electricity cannot be stolen is an appreciable condition.”²²¹ To put Meares's views into perspective, the use of electric lighting in domestic and public areas in urban India was not just for the benefit of electricity suppliers and producers, and the general public; it also served a moral purpose. Electricity took away oil and, according to Montague Massey, — a businessman who lived extensively in Calcutta and Bombay from late-nineteenth century onwards — “the great temptation it afforded Gungadeen, the Hindu farash bearer, to annex for his own daily requirements a certain percentage of his master's [oil] supply.”²²²

The servants that perhaps evoked the most complaints from their employers were punkah-wallahs. As compared to the domestic servants discussed until this point, punkah-wallahs occupied a far more complex place in not just their employers' discourses on self and class identity, morality and domestic spaces, but also in many other aspects of political and racial importance in the late-nineteenth and early twentieth century. In the next section, we will see the ways in which electrical promoters' discussions about replacing the punkah and the punkah-wallah with electric fans were of much greater significance than merely a point of replacing manual labour with electrical technologies.

²²⁰ J.W. Meares, *Electrical Engineering in India - A Practical Treatise for Civil, Mechanical and Electrical Engineers* (Calcutta: Thacker, Spink and Co., 1914), p.102 (hereafter *Electrical Engineering in India*) [Archived in IOR: Asia, Pacific and Africa/T 3659]

Also see: J.W. Meares, *Electrical Engineering Practice: A Practical Treatise for Civil, Mechanical and Electrical Engineers* (London: E. & F.N. Spon Ltd., 1917) (hereafter *Electrical Engineering Practice*) [Archived in IOR: General Reference Collection 08755.C.I.]. This book was a revised edition of Meares's *Electrical Engineering in India - A Practical Treatise* (1914). It was similar to the 1914 edition in all respects, except for the added chapters on lighting in mines and the inclusion of the latest I.E.E. Wiring Rules 1916.

²²¹ *ibid.*, p.114

²²² Montague Massey, *Recollections of Calcutta For Over Half a Century* (Calcutta: Thacker, Spink and Co., 1918), p.64

4.3. Punkah-pulling and the Punkah-wallah

The punkah, an intrinsically simple cooling and ventilating device, was a common presence in domestic spaces, writings and images in the Indian subcontinent. While the origins of the punkah are unclear, what we do know is that the punkah appeared and existed in several different forms depending on the spaces and occasions in which they were used. These systems ranged from small hand-held fans — to be used in close proximity — to complex systems of ropes and pulleys that pulled large cloths attached to wooden beams hung from ceilings. While punkah-pulling systems were usually worked by punkah-wallahs, a class of servants employed for the specific task of pulling punkahs, the punkah systems determined the physical distance between the punkah-wallah and his employers. Punkah-wallahs pulling hand-held punkahs usually shared the same spaces where their employers were expected to sleep, work, talk or conduct private business. More complex punkah systems involving pulleys and ropes passing through holes in walls or windows allowed punkah-wallahs to carry out their task from outside the rooms and private spaces of their employers (Figures 4.4 and 4.5).



Figure 4.4: “Under the Punkah at the Yacht Club”

Source: Edwin Lord Weeks, *From the Black Sea through Persia and India* (London: Osgood, McIlvaine & Co., 1896), p.417

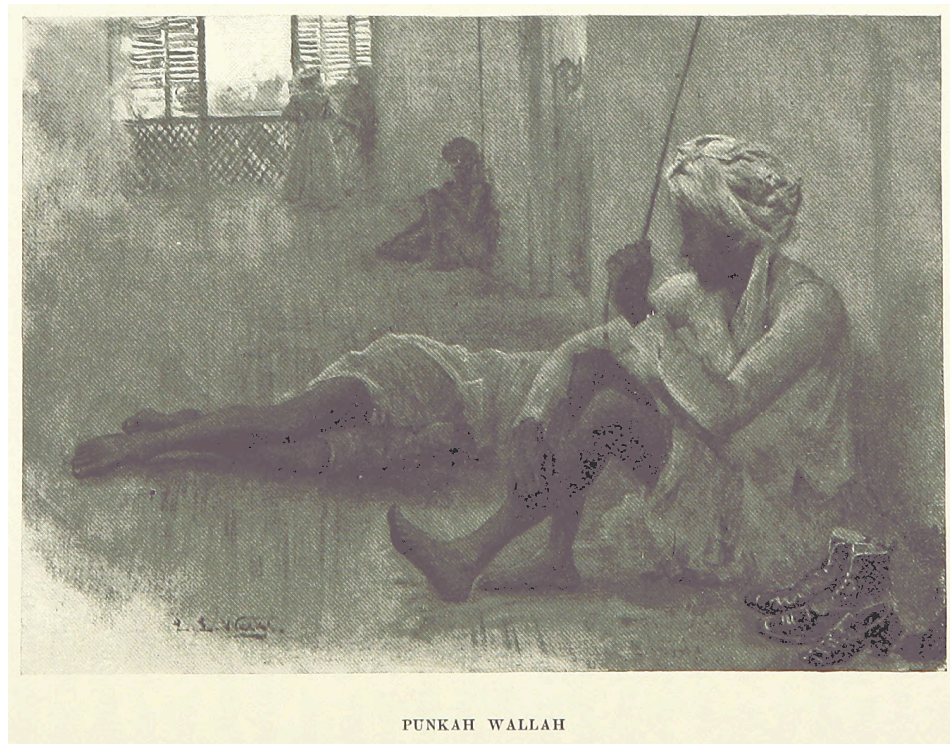


Figure 4.5: “Punkah Wallah”

Source: Edwin Lord Weeks, *From the Black Sea through Persia and India* (London: Osgood, McIlvaine & Co., 1896), p.399

Note how in **Figure 4.4** punkah-wallahs using hand-held punkahs are situated close to the people they are serving. In contrast, the punkah-wallah in **Figure 4.5** is pulling a string while sat in what looks like a verandah outside his employer’s room (notice the shoes at the bottom right of the picture which could well belong to the employers). Punkah-systems that placed the punkah-wallah outside the private spaces of employers usually worked through string(s) and pulley(s) arrangement, or string(s) directly connected to wooden beams of the punkah inside the room.

Despite their centrality to the functioning of punkahs, punkah-wallahs were constantly criticised in journalistic writings, memoirs, and domestic guidebooks published through the late-nineteenth century. They were most criticised for falling asleep while performing their duties. In his 1896 publication *Indian Sketches and Rambles*, the anglican clergyman John Bowles Daly wrote about how the punkah-wallah, after a few hours of efficient service, would gradually slow down and finally stop, resulting in complaints from his employer: “For the first hour or two the punkah goes on steadily ... Gradually the movement

becomes intermittent, and finally ceases, while shouts, and angry complaints arise.”²²³ As Ritam Sengupta has shown in his unpublished paper, in the nineteenth century, while employing the punkah-wallah was never expensive, the fact that most households required four to six coolies working in four to six-hour shifts in order to operate the punkahs throughout the day made punkahs and punkah-wallahs expensive propositions for even the most wealthy households.²²⁴ Therefore, the fact that punkah-wallahs fell asleep during their shifts while their employers had to pay for their services was a cause for criticism. A 1901 article on the “question of ventilation” in the buildings of Bombay stated that “the chief drawback of the punkah is the punkahwalla. He is dirty, unreliable, especially at night, and his work, counting day and night, costs twenty-four rupees per month for a single punkah.”²²⁵

Criticisms of the punkah-wallah’s laziness, as Steven Patterson has shown in his article on “Postcards from the Raj,” were also intrinsically linked to the justification of British imperial rule over India. The punkah-wallah, presented in images and postcards as having a lazy and leisurely approach to his work was, according to colonial narratives, a representative of the “Oriental nature” of Indians who, due to their effeminacy, laziness and dishonesty were incapable of ruling over themselves.²²⁶ In several Anglo-Indian texts of the late-nineteenth century, however, the punkah-wallah is also represented as the oppressor, using the punkah as an “engine wherewith to oppress” his employer. In the 1882 publication *Under the Sun*, Phil Robinson, a professor of literature and logic to the Government of India, describes the ways in which the punkah-wallah, who is left outside in the heat to operate the punkah, used the punkah’s swing to disturb his master’s papers, or disorder his master’s hair, or flip the master in the eye with the fringes of the punkah, or simply stop pulling the punkah when the employer most needed it.²²⁷

²²³ John Bowles Daly, *Indian Sketches and Rambles* (Calcutta: Patrick Press, 1896), p. 64
John Bowles Daly was an Anglican clergyman who, in the 1880s, accepted an offer by the nationalist Surenda Nath Bannerjee to teach at the Metropolitan College in Calcutta as a Professor of English Literature. During his years in Calcutta, Daly wrote regularly for various English newspapers including *The Times of India*, and *Statesman*. The book referred to, *Indian Sketches and Rambles*, is a collection of Daly’s articles. See: Laurence Cox and Mihirini Sirisena, “Early Western Lay Buddhists in Colonial Asia: John Bowles Daly and the Buddhist Theosophical Society of Ceylon”, *Journal of the Irish Society for the Academic Study of Religions*, 3 (2016), pp.108-139

²²⁴ Ritam Sengupta, “Dispensable Necessities: Historicising the Slow Death of the Punkah Wallah in Colonial India” (unpublished), p.6

²²⁵ “Buildings in Bombay: The Question of Ventilation in the New Houses, An Excellent Suggestion”, *The Times of India*, 2 November 1901, p.7

²²⁶ Steven Patterson, “Postcards from the Raj”, *Patterns of Prejudice*, 40:2 (2006), pp.142-158 (pp.152-153)

²²⁷ Phil Robinson, *Under the Sun* (Boston: Robert Brothers, 1882), pp. 58-59

While punkahs and punkah-wallahs were both necessary for cooling and comfort, in nineteenth-century discussions however, the mechanical object was considered far more valuable than the human operator. The immediate concerns of several writings on the subject of punkahs and punkah-wallahs through the latter half of the nineteenth century was with advancing arguments — some distinctly didactic — that would secure the acceptance of the idea of everyday life without the punkah-wallah. The *Times of India* of 11 June 1891 carried a column predicting that Calcutta would be witness to a new, but experimental installation that “will be for the working of punkah both in large offices and in private houses.” The significance of the new mechanism is clear when we consider the closing sentence of the article: “The abolition of the punkah-wallah in Calcutta would be an important public service.”²²⁸

Efforts to “improve” the punkah were prevalent in colonial India well before the introduction of battery-operated or mains powered electric fans in the early twentieth century. This is evident in the persistent proliferation of patents granted by the Government of India to new forms of, or improvements to punkah-pulling systems through the latter half of the nineteenth century. A cursory glance at the list of patents granted between the 1856 and the 1887 shows that the term “improvement” was most commonly used to define what the list mentions as the “nature of invention”.²²⁹ Such “improvements,” however, were majorly directed towards automating punkah-pulling and, therefore, either reducing the number of or completely eliminating the need for punkah-pullers. Efforts to automate punkah-pulling, however, failed on two levels. Firstly, automation required adding several mechanical elements to the rather simple punkah system, thereby increasing complexity and reducing efficiency. These complex systems could only be efficiently applied to a large number of punkahs, which made them unsuitable for domestic use. Secondly, these mechanical systems, while reducing the number of punkah-wallahs, did not completely eliminate the need for the punkah-wallah. For instance, in 1861, the Government of India granted a patent to a new punkah-pulling machine invented by a Mr. Grant who, according to *The Bombay Gazette*, was “an Englishman, a Supervisor in the Public Works Department of the North West Provinces.” Grant’s machine was considered by the Government for installation in government offices and barracks across India. According to *The Bombay Gazette*, the mechanism economised labour by enabling one punkah coolie to pull several fans at the same time, helping the government save close to Rs. 2000 in costs over five and a half months of trial operations

²²⁸ *The Times of India*, 11 June 1891, p.5

²²⁹ *List of Patents Granted / India* (Calcutta : Government Press, 1856-1887). Archived at the British Library: Asia Pacific & Africa IOR/V/25/600, Holdings: 1856-1887

in Benares.²³⁰ On 15 September 1875, *The Pioneer* reported that a Mr. Barnes of the Survey Department was also granted a patent for a mechanism capable of providing “the brute force required for the control of a large number of punkahs.”²³¹ Both the articles stated that punkah-pulling mechanisms only worked best in offices, hospitals and barracks, with the article in *The Pioneer* stating that the “advantages [of the invention] are comparatively small when applied to a few punkahs only.”²³²

Despite the financial savings and convenience that both these devices brought to the question of punkah-pulling, the systems were, nevertheless, unable to resolve the problem of the punkah-wallah and issues with ventilation in domestic spaces. The introduction of battery-operated punkah machines was seen by many commentators and inventors as the only viable solution to the presence of the punkah-wallah within the domestic sphere. In 1890, in a paper presented to the American Institute of Electrical Engineering, Wilfrid H. Fleming, an American electrical engineer, wrote that manual punkahs were both noisy and caused gas or oil lamps to flicker. Tellingly, Fleming’s only solution to the problems of noise, the flickering of lamps, and the punkah-wallah was to replace both manual punkahs and oil lamps with “noiseless motor fans and steady incandescents [respectively], thus enabling the Anglo-Indian to read and rest in comfort.”²³³ In early 1890, J. Agabeg, Manager of Messrs. Apcar & Co.’s Collieries at Churrunpore produced a portable electric fan which could be clamped to desks and chairs as per users’ choice. The mechanism “consisting of a motor, two geared wheels, a linked segment lever actuated by a crank and a small pinion, the whole fixed on a carved standard,” could be powered by a refillable copper sulphate battery for up to 14 hours. The fan, Agabeg claimed, could not only replace the punkah-wallah in its operation, but was also much more flexible and cheaper to run than employing a punkah-wallah to pull a punkah fixed permanently to the ceiling.²³⁴

While inventors and commentators presented the electrification of punkah-pulling machines as the best means of supplanting manual labour and the punkah-wallah from punkah-pulling systems as well as from domestic spaces, they also deployed the electric punkah and fan to defend the prerogatives of the colonial government in highly politicised issues in the late-nineteenth and early twentieth centuries.

²³⁰ *The Bombay Gazette*, 29 January 1862, p.100

²³¹ *The Pioneer*, 18 September 1875, p.2

²³² *ibid.*

²³³ Wilfrid H. Fleming, “Electric Lighting in the Tropics”, *Transactions of the American Institute of Electrical Engineers*, 7:1 (November 1890), pp. 168-174a (p.168)

²³⁴ “Automatic Portable Electric Fan”, *Amrita Bazar Patrika*, July 3, 1890, p.8

4.4. Electric Punkah and the Politics of the Punkah-wallah

In the last quarter of the nineteenth century, the deaths of punkah-wallahs at the hands of their Anglo-Indian employers had become tragically commonplace. Newspapers and journals published reports — almost on a fortnightly basis — on the victimisation of punkah-wallahs who unfortunately fell asleep while working, much to the chagrin of those they served. *Amrita Bazar Patrika* of 6 August 1893 writes: “Hardly a hot season in this country passes, but we read of the death from violence of one or more of that much-abused, but useful, class of menial, the *Punkha* coolie.”²³⁵ In a case that was widely covered by the popular press in 1893-94 was that of Private Rigby of the West Yorkshire Regiment based in Benares who, in May 1893, was accused of murdering a punkah-wallah who fell asleep while pulling the punkah. Despite evidences and witnesses that placed Private Rigby at the scene of the crime, he was acquitted by the magistrate because post-mortem reports showed that the punkah-wallah died of an enlarged spleen that had burst following the assault. In addition, the Joint Magistrate of Benares, who oversaw the judicial proceedings in court, mentioned Rigby’s “good character” as evidence enough to acquit him, stating: “to imprison him would, in my opinion, be, notwithstanding the terrible but accidental consequences of his acts, altogether too severe.”²³⁶

Such cases, where European — mostly British — employers and infantrymen assaulted and caused the death of punkah-wallahs, only to be acquitted citing the punkah-wallah’s enlarged spleen were so commonplace and formulaic that the nationalist newspaper *Som Prakash* termed these cases as “boot and spleen” cases in 1876.²³⁷ In her examination of the medico-legal complexities in “boot and spleen” cases, Jordanna Bailkin has noted that while the colonial government in the nineteenth century disavowed interracial white on native violence, the colonial judiciary also worked to reduce inquiries on and penalties for Britons. In colonial India, she argues, the declining murder charges against Britons in cases of interracial violence through the latter half of the nineteenth century was never simply a matter of racial inequity, but more a result of the continuing redefinition of factors such as agency and physical contact. Throughout the nineteenth century, British medical observers characterised the Indian body as a source of both legal and medical knowledge,

²³⁵ *Amrita Bazar Patrika*, 6 August 1893, p.6

²³⁶ “The Case of Private Rigby”, *Amrita Bazar Patrika*, 3 September 1893, p.3

²³⁷ *Som Prakash*, 5 June 1876.

See: Jordanna Bailkin, “The Boot and the Spleen: When Was Murder Possible in British India?”, *Society for Comparative Study of Society and History*, 48:2 (2006), pp.462-493

focusing on “pathologies of the Indian spleen.”²³⁸ Reflecting colonial ideas of race, biology and sanitation, medico-legal scholars presented the diseased spleen as a characteristic of Indian bodies owing to malaria and high fevers due to a lack of sanitation and healthy habits. Any Indian person already weakened by an enlarged spleen, these scholars declared, could be killed by any assault that they believed would otherwise be inconsequential. The enlarged spleen that ruptured on account of even the slightest force provided the judicial systems an argument to term “boot and spleen” cases as accidents instead of murder. Bailkin writes: “The ‘ruptured spleen’ defence — a joint project of colonial law and medicine—provided a compelling judicial framework within which Britons could cause the deaths of Indians without being charged with murder.”²³⁹

“Boot and spleen” cases became a popular focal point of discussion for vernacular newspapers. What provoked the ire of the vernacular press, however, were not so much the deaths of punkah-wallahs and servants, but the rather lenient sentences handed to European offenders by European judges and juries (**Figure 4.6**). *Amrita Bazar Patrika*, which followed the Private Rigby case several other “boot and spleen” cases very closely over several issues, wrote of how the trials and judgements in such cases followed a predictable script where blame is always placed on the punkah-wallah’s enlarged spleen instead of on the European carrying out the assault: “In India, whenever an Indian is killed by the kick of a European, it is often predicted that the theory of spleen-rupture would be brought into requisition; and, as a matter of fact, this prediction is as often fulfilled! In the case of Private Rigby, assuming that the punkha coolie had a large spleen, it is an admitted fact that he died from the effects of five or six blows dealt out to him.”²⁴⁰

Directly criticising the Joint Magistrate of Benares for his lack of concern for Indian lives, and accused him of reserving his humanity and sense of justice “for times of emergency and the Europeans.”²⁴¹ The *Patrika* added:

... When an Indian is the victim and a European the offender, the punishment inflicted is not only, as a rule, inadequate, but had often-times the effect of encouraging a tendency of committing assaults upon the natives of the soil. We shall here take up the latest case of this nature, to show the way in which such cases are disposed of, viz, the case of Private Rigby.²⁴²

²³⁸ Bailkin, “The Boot and the Spleen”, p.477

²³⁹ *ibid.* p.481

²⁴⁰ *Amrita Bazar Patrika*, 3 September 1893, pp.3-4 (p.4)

²⁴¹ *ibid.*, p.3

²⁴² *ibid.*, p.3



Figure 4.6: A punkah-wallah being kicked to death by his European employer.

Source: *Citradarsana*, Vol.1 (1890), p.9. Cross-Asia Repository and Heidelberg University (online archives), and Centre for Studies in Social Sciences Calcutta archives.

The article accompanying the image expressed understandable outrage on a *sahib* being let off with a fine for kicking his punkah-wallah to death: “In Delhi, a sahib kicked his punkah-coolie to death. The coolie was able, heathy and strong, but lost his life only because he woke his master. The justice served to the sahib was a meagre fine, which seemed more like a reward.”²⁴³ **[translation mine]**

The *Patrika* made the point that, in being denied justice even after being killed, the punkah-wallah’s place in society was beneath even merely mistreated animals: “We have a Society for Prevention of Cruelty to Animals, and washermen are sentenced to imprisonment for overloading their donkeys. For the slayer of a punkah-wallah, it would

²⁴³ *Citradarsana*, Vol.1 (1890), p.9

seem there is no retribution.”²⁴⁴ The newspaper added that such failures of justice in cases of interracial violence and murder made it but natural for natives to regard European juries as untrustworthy, a position that could result in dangerous political situations in the future.

While the native press widely and prominently discussed the legal, cultural and political ramifications of “boot and spleen” cases, presenting them as embedded in the racial and physical violence of colonial rule, the Anglo-Indian press, in their very limited coverage of the issue, however, saw these cases as episodic and unrepresentative of British rule and justice.²⁴⁵ In several Anglo-Indian writings, the punkah-wallah’s laziness and the heat of the Indian summer were at fault for violence upon the punkah-wallah. Sara Jeanette Duncan, a Canadian author and journalist married to an Anglo-Indian civil servant, wrote in her journal *On the Other Side of the Latch* (1901), that summer in India was “the very special time for the British private soldier to go out in anger and kick with his foot the punkah-wallah who has fallen asleep with the slack rope in his hand.”²⁴⁶ Criticising those who demanded stricter punishments for the private soldier “who only meant to admonish” the punkah-wallah stating that the incident cannot be judged without taking into consideration the “experience of the temperature in which the rash and negligent act was committed.”²⁴⁷ She squarely blames the heat for the atrocities on the punkah-wallah writing, “there is reason in the superstition which associates great heat with the devil. Operating alone, it can do almost as much as he can.”²⁴⁸

In the midst of the “boot and spleen” controversies, nevertheless, the British press also saw opportunities to discuss the various approaches that employers could adopt to inflict violence on the sleeping punkah-wallah while absolving the employer from any wrongdoing. The use of violence by employers was noted both as a necessity for and a consequence of the punkah-wallah’s laziness. For example, in an article on “Men-servants in India,” published in the January 1892 edition of *The National Review* (London), the author described how British gentlemen in India resorted to violence much against their will simply because the punkah-wallah’s laziness forced them to. In several cases, employers also punished their punkah-wallahs for faults in the machines such as squeaking noises from a lack of grease or oil:

²⁴⁴ *Amrita Bazar Patrika*, 7 July 1895, p.6

²⁴⁵ Bailkin, “The Boot and the Spleen”, pp.468-469

²⁴⁶ Sara Jeannette Duncan, *On the Other Side of the Latch* [London, 1901] p.148
Sara Jeanette Duncan (1861-1922) also published as Mrs. Everard Cotes.

²⁴⁷ *ibid.*, p.149

²⁴⁸ *ibid.*

Punkah-pulling is monotonous and sleepy work: the only means which the bearer has of arousing himself is to pull the rope off the punkah wheel, or to make the wheel squeak for want of grease. ... There are cases where even the most tender-hearted master can hardly abstain from the use of a light cane on a lazy bearer who goes to sleep or plays tricks with the punkah wheel.²⁴⁹

Yet the act of violence against the punkah-wallah was never restricted to the employer, but also involved the employer delegating violence to other servants in the household. As the article suggests, the master must, instead of taking action himself, call the head bearer to deal with the sleeping punkah-wallah. The head bearer, once woken up, could then take on the employer's role and either awaken, dismiss, or punish the sleeping punkah-wallah:

Then, if the punkah stops, or if the wheel squeaks during the night, let the head bearer's dreams be interrupted: let him be aroused to awake the delinquent or to oil the noisy wheel. ... You will probably hear him slap or cuff his peccant brother; and, in all probability, if he does not actually dismiss the man from the house, he will inflict some other unpleasant punishment.²⁵⁰

In an illustration titled "The Sleepy Punkah-Wallah" in the 21 February 1891 edition of *The Graphic* (London), the Anglo-Indian employer is shown first trying to wake up the sleeping punkah-wallah from a distance by throwing objects. As the projectiles fail to achieve the intended outcome, the employer then, instead of either waking up the punkah-wallah or even directly touching him, calls in all the other servants and asks them to take on the punkah-wallah's duties. In the last frame, the other servants, presumably angered at the suggestion of extra work while the punkah-wallah slept, are shown beating the punkah-wallah with kicks and sticks. In contrast to the article discussed above, where the author suggests the designation of violence as a way for the employer to experience uninterrupted sleep, in the illustration, the employer is shown watching the act of violence from a distance (**Figure 4.7**).

²⁴⁹ C. T. Buckland, "Men-servants In India", *The National Review* (London), 18: 107 (Jan 1892), pp.663-674 (p.673)

²⁵⁰ *ibid.*

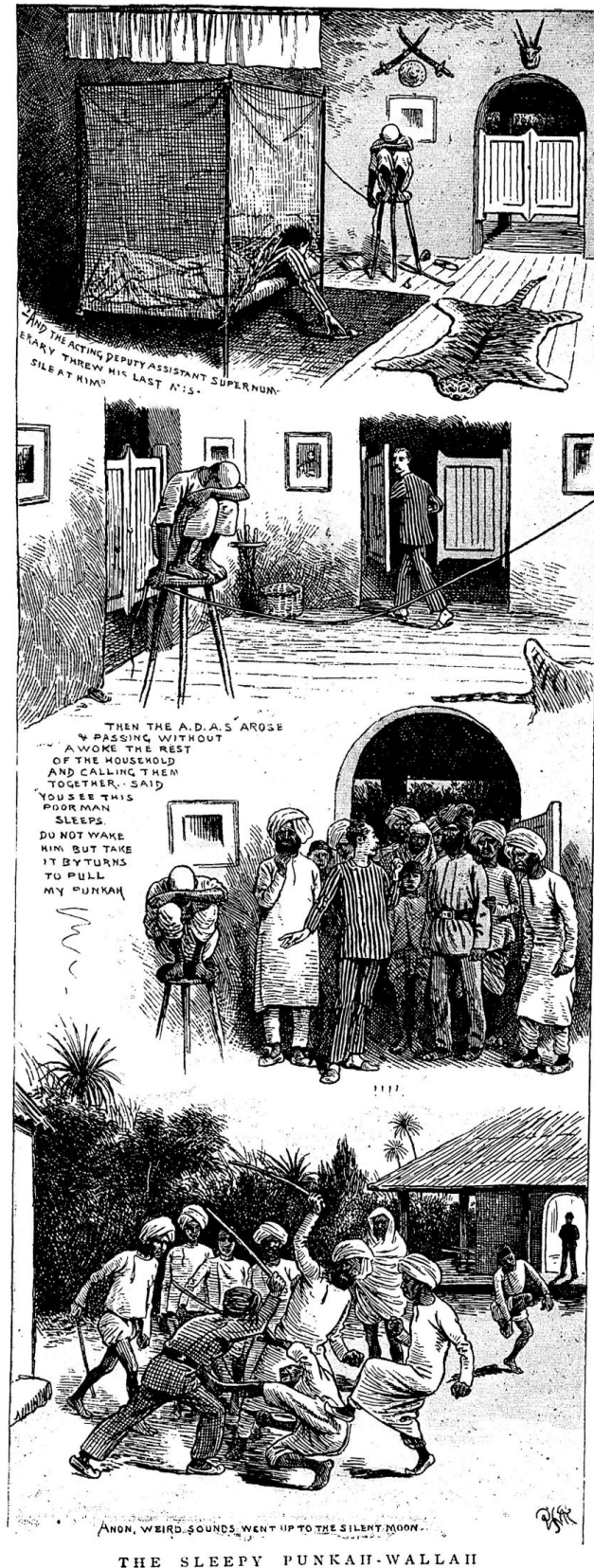


Figure 4.7: The Sleepy Punkah-wallah

Source: *The Graphic* (London), 21 February 1891, Issue 1108, p.24

The colonial government in India, much concerned about the outrage over the “boot and spleen” cases, sought to be “instrumental in relieving the hardships and reducing the risks of the British soldier’s life in India” by reducing interracial contact. As Bailkin writes: “if the impetus to violence was interracial contact, then Curzon saw the reduction of this contact as a humane policy.”²⁵¹ On 30 March 1904, at the debate on the 1904-1905 budget by the Legislative Council held at Government House, Calcutta, Lord Curzon, the Viceroy and Governor-General of India, ordered the removal of punkah-wallahs from all government offices and the largest barracks, to be replaced by electric punkahs and fans.²⁵² Electric punkahs and fans were, therefore, for the colonial government, a technological solution to a moral and political issue.

While punkah-wallahs were victims, losing both lives and employment, it helped, at least for the promoters and inventors of electric punkah machines, to use the politics surrounding the punkah-wallah to their benefit. “Boot and spleen” cases opened up new possibilities for investments and experimentations in new forms of punkahs and fans, and became important in promoting them. On 23 October 1895, *Amrita Bazar Patrika* published an interview with Babu Bihari Lal Rajak, a Bengali employee of the Public Works Department in Calcutta, who had invented an automatic punkah-pulling machine. Designed to work a clock-work principle using weights, axles and toothed gears, the machine, it was claimed by its inventor, could also be attached to an electric motor if required and “work a punkah or multiple punkahs from 8 to 9 hours at a time.”²⁵³ When asked what influenced his decision to invent this machine, the inventor stated saving the lives of punkah-wallahs as a motivation:

Babu Bihari Lal said that the idea of inventing the machine was suggested to him by the failure which generally attended to an attempt in this direction and from the treatment which many poor punkha-coolies received at the hands of their European masters. If he could, he thought, invent a practical automatic machine, why, it would not only contribute to the necessary comforts of many people living in the plains of India, but would be the means of saving, in many instances, the lives of poor coolies.²⁵⁴

With discussions in administrative circles in the early 1890s hinting at the introduction of public electric supply in Calcutta becoming a possibility in the near future (as we will

²⁵¹ Bailkin, “The Boot and the Spleen”, p.486

²⁵² George Nathaniel Curzon and T. Raleigh, ed., *Lord Curzon in India; Being a Selection from His Speeches as Viceroy and Governor-General of India, 1898-1905* (London: Macmillan, 1906), p.406

²⁵³ *Amrita Bazar Patrika*, 23 October 1895, p.5

²⁵⁴ *ibid.*

discuss in Chapter 5), several inventors also promoted their electric punkah machines as being able to serve the dual purpose of saving the lives of punkah-wallahs while providing a day load for the electric supply scheme in the future. When speaking about his own patented electric punkah machine in 1895, R. J. Browne, an electrician in the British India Steam Navigation Company, saw his machine as the solution to the problems of punkah-pulling and the punkah-wallah “on which so many inventors have worked”.²⁵⁵ Promoting the electric punkah as a replacement to the idle punkha-wallah, Browne also noted that his machine, once widely accepted by the public, would provide a day load to the upcoming power plant of the Calcutta Electric Supply Corporation: “On the Calcutta lighting station becoming an established fact this electric punkha-puller would be a boon to the Electric Supply Company as it would enable them to get a day load for their plant which otherwise would be lying idle all day.”²⁵⁶ Browne’s interview also hints at his belief in how his machine, in replacing the punkah-wallah in barracks, could also prevent assaults: “this machine should, we think, have a considerable future before it for use in barracks &c., where the punkha coolie is often the cause of much irritation to the men which infrequently leads to ill-treatment of the puller himself.”²⁵⁷

Insofar as the colonial government and inventors found the electric punkah as a compassionate solution to the moral and political problems surrounding servants and the punkah-wallahs, several individuals and nationalist newspapers were not convinced of their arguments. Electric fans were, in many nationalist accounts, an easy means for the colonial government and judiciary to allay public and press criticisms of their handling of the assaults on punkah-wallahs. The nationalist newspaper *Kaiser-i-Hind*, mockingly wrote that in replacing the punkah-wallah with electric fans the colonial government was, if nothing else, at least mindful of public criticism:

The treatment of these poor punkah coolies at the hands of some soldiers has been a subject of criticism both by the press and the public; and many a Tommy Atkins has been put on his trial for hitting and causing the death of someone of this unfortunate class. Now no longer will the excited soldier find the sleep Punkah Cooly outside the door of his barrack to vent his ire upon. The fact that the Government has thought it fit to abolish the services of the punkah coolies from all barracks shows that they were not unmindful of the public criticism in the matter of the assaults upon these unfortunate beings.²⁵⁸

²⁵⁵ “An Electric Punkha Machine”, *The Pioneer*, 5 September 1895, p.4

²⁵⁶ *ibid.*

²⁵⁷ *ibid.*

²⁵⁸ *Kaiser-i-Hind*, 22 April 1900, pp.10-11

Reflecting narratives of anticolonial and social commentators that portrayed electric supply and lighting as metaphors for colonial power (as we have seen in Chapter 3), nationalist newspapers also portrayed the electric fan as a technological means for the British to extend their colonial rule over India. In a satirical article titled “Heat, as it affects the European” in the 16 May 1901 edition of *Amrita Bazar Patrika*, the author mentions how the “intolerable heat” of India was the only obstacle to colonial rule. The Europeans used the punkah to keep them cool but, in doing so, also encountered the sleeping punkah-wallah who, even after being assaulted and killed, did not change his sleepy ways. The electric fan, in solving the problems of the punkah-wallah and the heat has, nevertheless, enabled the European to live comfortably in India and, thereby, extend his rule:

The heat is now the only difficulty that stares them in the face. It is true that they love the sun, but too much of a thing, however excellent under certain circumstances, is not good. We have good reason to believe that they do not like to be roasted. They provided themselves with punkhas, but then the coolies slept. They were sought to be kept awake by various means; indeed, it is on record that they were killed now and then, but yet without any result. If one cooly was killed for his sleepiness, his successor proved equally sleepy, unconscious of the fate that had befallen the predecessor. The latest device, the electric punkha, has no doubt removed this difficulty to some extent.²⁵⁹

The author, however, also presents the electric fan as the major reason for Indian self-governance and why Europeans should leave India. He states that the electric fan was an expensive commodity that also posed a danger of physically hurting the European if it fell while in motion. The author makes a strong suggestive remark that while it was not possible for Europeans to afford electric fans or to permanently settle in India without the help of the natives such as the punkah-wallah, the best plan of action for Europeans struggling with the heat, natives and the pests of India was to leave India and return to their respective countries of origin. The author adds, “India needs the help of the Englishman” and, therefore, only the Englishmen who had the means to travel to the hills during summer should be allowed to stay:

The very best course for a good many Europeans of this mosquito-ridden, plague-overtaken, and heat-parched country is to go home — to the dear place where they were born and where they spent their early days — to their beloved relations. ... They will be able to manage somehow or the other in their own country; so their best course lies in leaving this country at once.²⁶⁰

²⁵⁹ “Heat, as it affects the European”, *Amrita Bazar Patrika*, 16 May 1901, p.4

²⁶⁰ *ibid.*

4.5. Conclusion

What emerges from this chapter is the promotion of a technology that relied, above all, on what the promoters perceived to be the immorality and indolence of the domestic servant, and the inefficiencies and inconveniences of existing methods of lighting and ventilation. We saw the ways in which electrical promoters borrowed from negative representations of native domestic servants in Anglo-Indian and *bhadralok* writings and reportage. In the last section of this chapter, we also discussed how “boot and spleen” cases provided electrical promoters a platform to discuss electric fans as a replacement of the lazy punkah-wallah but, in doing so, also presented the electric fan as a moral technology with the potential to save the punkah-wallah’s life.

Yet, as the electric fan was promoted as an effective means of social and financial control over the punkah-wallah, it is a paradox that, despite ordering the installation of electric fans in all government buildings and barracks, Curzon himself preferred what he called the “measured sweep” of the manual punkah to what he termed as “the hideous anachronism of the revolving blades” of the electric fan.²⁶¹ While Curzon allowed the installation of electric lifts and lighting in Government House in 1900 he, nevertheless, still employed hand-pulled punkahs in the Marble Hall and Reception Rooms.²⁶² Neither contemporary histories of colonial buildings nor Curzon’s biographies and autobiographies elaborate on his decisions, but we can uncover the significance of such statements from contemporary articles on why mechanised punkahs could never replace the punkah-wallah. As *The Pioneer* noted in an article on “The Punkah-wallah: A Threatened Occupation” published on 3 February 1908, while the occupation of the punkah-wallah had been threatened in years past by several different mechanical punkah-pulling systems, the punkah-wallah had survived so long because all the automated and mechanical systems lacked one significant detail: the necessary “kick” in the punkah’s swing that the punkah-wallah provided with his wrist:

Somehow they have not been able to put into the swing of the punkah the “kick” which is, of all things, necessary. Until recently no mechanical means could be devised to assure the “kick” which the punkah wallah gives by a sharp twist to his wrist.²⁶³

²⁶¹ N. V. H. Symons, *The Story of Government House* (Alipore: Bengal Government Press, 1935), pp.35-36

²⁶² *ibid*

²⁶³ “The Punkah-wallah: A Threatened Occupation”, *The Pioneer*, 3 February 1908, p.6

Punkah-wallahs and domestic servants, despite being portrayed negatively by their employers and electrical promoters, played an important role in maintaining the complex social and spatial structures within Anglo-Indian and *bhadralok* domestic spheres. In Chapter 6, we will see how Anglo-Indian and *bhadralok* householders were more than willing to use gas and oil lamps, manual punkahs, and the servants that services them often in close proximity with electric lights and fans. This was mainly because, despite being promoted as cost-efficient methods of lighting and ventilation, electric lighting and fans had serious financial consequences, especially in the years after the introduction of public electric supply in 1899. We will also see in Chapter 6 the ways in which employers, who accused their servants for stealing oil and food, also asked their servants to collude with them in practices to unlawfully gain access to electric supply.

As we started this chapter with an article that sought to forecast the development and growth of the nascent electrical enterprise in Calcutta, and discussed the ways in which electrical promoters presented their own positive viewpoints on the future of electricity, it is but befitting for us to discuss the trajectory of public electric supply in the period after the establishment of Calcutta Electric Supply Corporation in 1899. We will see how, contrary to the predictions and beliefs of promoters and engineers, public electric supply was a complex process entangled with governmental, financial and spatial issues.

Chapter 5

From public to private: the long drawn-out journey of electric supply

In this chapter and the next, we shift our attention to public and domestic electric supply. While the next chapter will examine the manner and spaces in which electric supply and, consequently, lighting and fans were installed and used, and in some cases “misused” according to suppliers, in the internal and cultural spaces of Anglo-Indian and *bhadralok* homes, in this chapter, we will chart the trajectories of public electric supply in Calcutta in the period after Calcutta Electric Supply Corporation’s (CESC) coal-based power plant began its operations on 15 April 1899. Rather than surveying the “development” and “growth” of Calcutta’s public electric supply scheme,²⁶⁴ my intention here is to investigate the tangled ways in which the introduction and use of electric supply and illumination in public spaces and buildings were tied to the governance of public spaces in colonial Calcutta. In this chapter I will show that the introduction and use of public electric supply in early twentieth century Calcutta was, in itself, a complicated process linked directly to the everyday processes of colonial bureaucracy, the discussion and generation of public spaces, economic and socio-spatial restructuring, and the limitations of electrical technologies and infrastructure.

In order to understand the complexities that contributed to the experience of public electric supply in the two decades after its introduction, I have adopted four analytical strategies discussed in the four sections of this chapter. The first strategy is to introduce a spatial dimension to the history of public electric supply. In this chapter I bring together the technocratic sphere of government legislations and technological infrastructure, and the physical spaces where electric supply and lighting were installed and used. Written and visual sources produced by engineers, promoters, government officials, and the extant urban layout and architecture of Calcutta are the building blocks of this critical and spatial

²⁶⁴ It would be tedious and indeed pointless to survey the “development” and “growth” of Calcutta’s public electric supply scheme since these have been adequately described in Suvobrata Sarkar’s works. As I have discussed in previous chapters, in his analysis of public electric supply in Calcutta in the first four decades of the twentieth century, Sarkar has traced the “growth” of electric supply, the emergence of new institutional facilities, and what he sees as the socio-economic transformation of the city as a result of electrification. His analyses, however, rest on historical simplification and a reductive static reading of newspaper and governmental archives.

See: Sarkar, “Domesticating electric power” (2015); “Electrification of Colonial Calcutta: A Social Perspective” (2018); “Bengali Entrepreneurs And Western Technology In The Nineteenth Century: A Social Perspective” (2013)

(rather than teleological and linear) history of public electric supply. My investigation, therefore, begins with an account of the introduction and use of public electric supply and lighting in the first two decades of the twentieth century. In Section 5.1, I have listed the locations in Calcutta where Calcutta Electric Supply Corporation installed electric supply and lighting between the years 1899 and 1920. Here, I have extrapolated location data from not just Suvobrata Sarkar's works on the electrification of Calcutta, but also other secondary sources on urban history, and archival documents such as *The Story of Government House* (1935) and *The Proceedings of the Asiatic Society of Bengal* (1904), to name a few.

While the number of buildings and spaces that used electric supply and lighting in fact grew in the early years of the twentieth century, this increase was not a uniform feature. As we will see from the sources presented in Section 5.1, access to public electric supply was restricted majorly to buildings and spaces belonging to governmental and colonial institutions located in the administrative and colonial centre of Calcutta, or the "White Town," the area of predominant European residence and occupation.²⁶⁵ These observations proceed along the lines as our observations in Chapter 4, where we discussed how the colonial government sought to dismiss punkah-wallahs and servants within colonial establishments by replacing them with electric lighting and fans. These observations also follow recent investigations into the history of electric lighting and illumination in the colonial context. In her recent works, Ute Hasenöhl, arguing for a critical reading of electric supply and illumination to recognise their role as instruments of power in the colonised world, notes that electric lighting in colonial buildings and spaces created an optical imagery that articulated and materialised colonial authority. "As part of Britain's symbolic politics," she writes, "the illumination of monuments and events not only fulfilled practical purposes, but also served as visual manifestations of imperial might, visualising power and distinguishing between 'modern' and 'backwards' lifestyles."²⁶⁶

Notwithstanding Hasenöhl's contribution and observations, a key related question of location and operational spread of public electric supply still awaits proper investigation. One of the points of departure in this chapter is to understand the technological and politico-cultural practices and devices through which historical actors — suppliers, consumers, government officials, engineers — deployed electric supply, especially in the colonial centre of Calcutta, to fulfil their technological, cultural and political imaginaries.

²⁶⁵ I borrow my definition of the colonial centre and "White Town" from Partho Datta's work on urban planning in Calcutta from 1800 to 1940. Partho Datta, *Planning the City: Urbanisation and Reform in Calcutta, c. 1800 - c. 1940* (New Delhi: Tulika Books, 2012), p.13

²⁶⁶ Hasenöhl, "Rural Electrification in the British Empire", p.16

Here, I borrow the term “imaginaries” from Shiela Jasanoff and Sang-Hyun Kim’s examination of “sociotechnical imaginaries” in *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power* (2015). Jasanoff and Kim define sociotechnical imaginaries as “collectively held, institutionally stabilised, and publicly performed visions of desirable futures” attained through a shared understanding of social order and social life, and the place of the sciences and technologies in achieving said objectives.²⁶⁷ While Jasanoff and Kim’s accounts, and those of the contributors in the volume engage with the ways in which “institutions of power”, including courts and the media, enable some of the multiple imaginaries that coexist within society to be elevated above others and become “social practice”, I try to instead give a sense of how conflicting imaginaries co-existed and the ways in which such conflicts resulted in spatial, financial, bureaucratic and technological complexities.²⁶⁸ The early years of public electric supply in colonial Calcutta provide us with an entry point into the imaginaries, ideologies and motives of both the colonial and electrical enterprises. In Section 5.2, I explicitly seek out the relations between the technological and financial interventions of Calcutta Electric Supply Corporation to legitimise and expand their operations, and the contemporary colonial rhetorics of urban “development” and “governance,” while keeping in mind the built landscapes of the colonial centre of Calcutta. In order to evaluate the complex relationship between colonial politics and electric supply, we must, however, also pay attention to the other kinds of urban colonial projects that appropriated colonial ideology for visualising authority and distinguishing between colonisers and their subjects, and probe how the colonial centre of Calcutta was a “contact zone” for constitutive power relations.²⁶⁹ Town planning, especially in the late-nineteenth and early twentieth centuries, offered means for the colonial government, as Partho Datta has argued persuasively, to use discourses “on improvement, the public, bodies, spaces, hygiene and health” to regulate and displace people.²⁷⁰ Unlike urban planning and large-scale technological projects such as the railways or telegraph, all of which were controlled by the colonial state, electric supply in Calcutta

²⁶⁷ Shiela Jasanoff and Sang-Hyun Kim, eds., *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power* (Chicago: University of Chicago Press, 2015), p. 4 (location 140 of 7977 on Kindle)

²⁶⁸ *ibid.*, pp.3-6 (locations 127-181 of 7977 on Kindle)

²⁶⁹ Kapil Raj defines the “contact zone” as a space constituted of both possibilities and constraints where myriad heterogeneous networks intersect, and a “node in the transformative circulation of knowledge which structures and organises cultural encounter and its outcome.” Quote from: Kapil Raj, “The historical anatomy of a contact zone: Calcutta in the eighteenth century”, *The Indian Economic and Social History Review*, 48:1 (2011), pp.55-82 (p.78)
Also see: Kapil Raj, *Relocating Modern Science: Circulation and Construction of Knowledge in South Asia and Europe, 1650-1900* (Basingstoke: Palgrave Macmillan, 2007)

²⁷⁰ Datta, *Planning the City*, p.xv

(as in Bombay, Madras and Delhi) was, however, under the purview of a profit-oriented private enterprise.²⁷¹ The involvement of extensive capital investment and large-scale alterations to urban infrastructure, nevertheless, invited a certain level of state control and intervention. As a large-scale technological project electric supply, therefore, blurred the boundaries between private enterprise and state control to engender a “marriage of convenience,” which refers in Jonathan Coopersmith’s definition to the processes “in which the promoters of a technology join with the government to pursue common interests, albeit for different reasons, in an evolving political process.”²⁷²

By grounding the history of electric supply in the context of Calcutta’s multiple imaginaries, I also scrutinise the triumphalist and teleological sources themselves in an attempt to discern the fact that continuity is as helpful as thinking about “change” or “development”. In Section 5.3, I will show that public and urban spaces needed to be redefined in order to accommodate electrical infrastructure. However, as we will see, such changes to the urban layout were problematic for technological and spatial reasons. Electrical infrastructure not only disrupted the colonial government’s ideas of a sanitised urban centre and encroached upon more important imperial infrastructure such as telegraph systems, but was also hampered by environmental conditions. Following this, in Section 5.4, I will show how, despite the initial uptake of electric supply and lighting by the colonial government, the municipal administration, citing costs and performance issues, granted new street lighting contracts to gas supply. In Section 5.5, I conclude this chapter by discussing how the trajectories of public electric supply also influenced the trajectories of domestic electric supply, a topic we shall examine further in Chapter 6.

5.1. The Spatial Layout of Electric Supply

In the evening of April 15, 1899, two days prior to its official inauguration, engineers of Calcutta Electric Supply Corporation (CESC) tested the coal-based power plant’s machinery by lighting the Bengal Club in Chowringhee, some half a mile south of the power plant. Begun in 1897 after Messrs Kilburn & Co., a subsidiary of Crompton & Co.

²⁷¹ For histories of electrification in colonial Madras Presidency, see: Rao, “Colonialism and the Development of Electricity”; in colonial and postcolonial Delhi, see: Coleman, *A Moral Technology*, p.5 and pp.9-10; for colonial and postcolonial Bombay, see: Kale, *Electrifying India*; and Kale, “Structures of Power”

²⁷² Jonathan Coopersmith, *The Electrification of Russia, 1880-1926* (London: Cornell University Press, 1992), p.10

and managing agents for the Indian Electric Company (which changed its name to Calcutta Electric Supply Corporation in 1898), secured the Calcutta Lighting License to install a power plant in Calcutta, the thermal power plant stood on public land at Emambagh Lane, underscoring the colonial government's prominent role in facilitating what was essentially a private enterprise. The newly installed power plant, planned by the prominent electrical engineer R. E. B. Crompton, was funded by an initial capital of approximately £100,000 raised through Kilburn & Co.'s shareholders in Britain.²⁷³

At first glance, the lighting of Bengal Club — established in 1837 as the Bengal United Club — a private social space reserved exclusively for white British elite, to formally open Calcutta's first public electric supply scheme seemed to contrast the rather public displays of electric lighting by P. W. Fleury in the years following the Prince of Wales's visit to Calcutta in 1875 (discussed in Chapter 2), and the public testing of electric street lighting by Kilburn & Co. in the *Maidan* throughout the 1890s (discussed in Chapters 2 and 3). In fact, the introduction of public electric supply in Calcutta did not warrant journalistic approbation from Bengali and English "Indian" newspapers which, as we have seen in previous chapters, otherwise closely followed electrical developments both abroad and in India throughout the 1880s and 1890s. Only a few Anglo-Indian newspapers such as *Englishman* and *The Times of India*, and electrical trade journals greeted electric supply with favourable praise. Articles published in these newspapers and journals in the weeks following the inauguration of the power plant detailed the financial and technical aspects of the entire electric supply project. In a mix of the technical, political and colonial, *The Times of India*, in an article titled "Electricity in Calcutta, A Promising Enterprise," discussed the new electric supply project as one that marked "an epoch in the advance of civilisation in India," and hoped "that the undertaking will prove a success, and that its career...will be long and prosperous."²⁷⁴

In spatial terms, the public electric supply scheme was in many ways an extension of the public displays and testing of battery- and dynamo-operated electric lighting of the prior decades. As we have seen in Chapters 2 and 3, electric lighting supplied by private battery and dynamo installations had been a familiar part of the landscape of the colonial centre of Calcutta for more than a decade before public electric supply was introduced in 1899. Factories experimented with arc lamps beginning with P. W. Fleury's first demonstrations

²⁷³ *The Times* (London), 12 May 1900, p.5

Calcutta Electric Supply Corporation, Limited, registered under the English Companies Act, 1862 and 1890, had its registered office at Mansion House Buildings, London, with a local office at 4 Fairlie Place, Calcutta, just north of the Government House. See: "Revised Draft of the Calcutta Electric Lighting License 1900", *The Calcutta Gazette*, 12 September 1900, p.1002

²⁷⁴ *The Times of India*, April 28, 1899, p.3

of them, but they only became feasible in the late-1880s with Brush arc lighting dynamos and lamps that burned more steadily. In 1891, the Municipal Corporation installed electric street lighting on the newly built Harrison Road (now Mahatma Gandhi Road), around half a mile north of Government House and the *Maidan*. Electricity for the lighting systems was supplied by dynamos installed by the Municipal Corporation in a pumping station on Halliday Street (now Chittaranjan Avenue on Mahatma Gandhi Road).²⁷⁵ By 1895, electric lighting systems supplied by private installations were in operation on the Hooghly Bridge, at Kidderpore Docks, in the Bengal Club in Chowringhee, in temporary installations at the *Maidan*, and in Government House.²⁷⁶ Just as with small-scale private battery- and dynamo-based electric lighting, colonial establishments and government offices such as Bengal Club and Government House were some of the first buildings to introduce public electric supply. Within the next decade, electric street lighting was introduced along some of the major streets and buildings within and across the colonial and administrative centre of Calcutta.

In the **(Table 5.1)** below I have listed the locations in Calcutta where CESC installed electric lighting between the years 1899 and 1910. As detailed in the introduction to this chapter, this data has been extrapolated from varied primary and secondary sources. If we were to a map of the locations of the buildings and streets mentioned in the table and chart them onto a map of “The Existing Street and Main Road System of Calcutta” (1910) **(Figure 5.1)**, we might fruitfully start with Ute Hasenöhl’s observations that just like other infrastructures segregated and accessible along class and ethnic lines, access to public electric supply was also shaped by political and economic exigencies of colonial rule.²⁷⁷

Table 5.1: Year and Location of electric lighting installed in Calcutta between 1899 and 1910.

Year	Location
1900	Government House (1)
1901	Bishop’s Palace (2)
1902	Government of India Printing Offices, Hastings Street (3)

²⁷⁵ Sarkar, “Domesticating Electric Power”, p.363

²⁷⁶ “Calcutta Electric Lighting Bill”, *Proceedings of the Lieutenant Governor of Bengal - January to December 1895*, p.376-380

²⁷⁷ Hasenöhl, “Rural electrification in the British Empire”, pp.11-12

1904	Harish Chandra Mukherjee's Road (4) The Asiatic Society of Bengal (5)
1905	Old Ballygunge Road Hazra Road Mott's Lane Clive Street Amherst Street Roy Bagan Street Wellington Square Medical College Street St. Paul's Cathedral (6)
1906	Durmahatta Street (4)
1907	Wellesley Square (4)
1908	China Bazar Street (4) National Theatre, Beadon Street (9)
1910	Imperial Secretariat (8)
1911	Kalighat Temple (7)

(1) N. V. H. Symons, *The Story of Government House* (Alipore: Bengal Government Press, 1935), pp.35-36

(2) *Report of the Administration of Bengal, 1901-1902* (Calcutta: Bengal Secretariat Press, 1903), p.253

(3) *ibid.*, p.251

(4) Suvobrata Sarkar, "Domesticating electric power: Growth of industry, utilities and research in colonial Calcutta", p.363

(5) *Proceedings of the Asiatic Society of Bengal, January to December 1904* (Calcutta: The Asiatic Society, 1905), p.?

(6) "In Retrospect" - John Willoughby Meares, *The Indian and Eastern Engineer* (October 1943), p.581. Here, Meares discusses his first project of installing electric fans in St. Paul's Cathedral, Calcutta in 1904-1905.

(7) See Chapter 1 of this thesis

(8) Report on fire in the Record Room of the Revenue and Agriculture Department caused due to the fusing of electric wires. *The Tribune* (Lahore), 18 October 1910, p.3

Cambridge, MA: Harvard College Library Digital Imaging Group, 2007

Note: The map highlights all the main roads in the colonial centre of Calcutta. In *Planning the City: Urbanisation and Reform in Calcutta c.1800 - c.1940*, Partho Datta mentions that European settlements in Calcutta, from the 1790s onwards, were confined to areas in proximity to the Fort “which symbolised security.”²⁷⁸ The areas of Dharmatalla (or Dhurumtollah) and Chowringhee, both east of the river, according to Datta, were areas of European habitation throughout the eighteenth and the nineteenth centuries.

The logic of this spatial distribution of public electric supply drew on and reinforced a set of colonial assumptions about the hegemonic potency of artificial illumination — allowing colonisers to visually communicate the cultural and spatial divides that separated coloniser from the colonised. Artificial illumination was certainly a much-used symbol of colonial political and cultural supremacy in nineteenth-century Calcutta. The colonial administration seized upon gas supply and lighting as it became available in the late-1850s for their initiatives to, as Bidisha Chakraborty and Sarmistha De write in their archival explorations of Calcutta in the nineteenth century, “mould Calcutta as a healthy and hygienic city.”²⁷⁹ Chakraborty and De discuss the many benefits that colonial officials believed gas lighting possessed for the lighting of streets and public buildings, especially in the “heart of the city”: they believed gas burned relatively easily and cleanly than oil lamps, and gas lamps required little maintenance and supervision compared to oil lamps since oil could not be stolen. Moreover, the municipal administration could use gas supply to suit virtually all purposes of “health, security, safety and comforts.”²⁸⁰ In Chapter 4 of this thesis, we have seen how electrical promoters used similar arguments against oil and gas lamps to market the benefits of electric lighting in public and domestic spaces. Most importantly, the municipal corporation approved of gaslight mainly because in illuminating the colonial centre of the city it could use public lighting to differentiate and demarcate the cityscape along racial and economic lines.²⁸¹

In documenting the period of “enclave electrification” (1880s to 1930s) (also discussed in detail in Chapter 1), Hasenöhrl has suggested that while colonial administrators lacked any interest in providing electricity as an essential public work in the colonies: “electricity was a

²⁷⁸ Datta, *Planning the City*, p.174

²⁷⁹ Bidisha Chakraborty and Sarmistha De, *Calcutta in the Nineteenth Century: An Archival Exploration* (New Delhi: Niyogi Books, 2013), p.73

²⁸⁰ *ibid.*, pp.73-74

²⁸¹ pp.75-76 Also Chris Otter, *The Victorian Eye*

luxury to be enjoyed by European settlers, entrepreneurs, and administrators.”²⁸² As Hasenöhl observes, the colonisers’ need to separate themselves from the natives resulted in electric supply being restricted to European quarters in colonial urban centres.²⁸³ The location of Calcutta Electric Supply Corporation’s power plant and its area of operation perhaps most clearly elucidate Hasenöhl’s point. Both the Municipal Corporation and CESC, with the suggestion of R. E. B. Crompton, decided to locate the supply station close to the colonial administrative centre of Calcutta. The location of the supply station was important for both the colonial government and CESC. The central location of the supply station allowed CESC to install a distribution system that enabled a large coverage. In his “description of the central station and other works of the Calcutta Electric Supply Company” in one of his lectures on *Electrical Engineering with particular references to conditions in Bengal* at the Civil Engineering College in Sibpur in March 1900, John Willoughby Meares (also discussed in Chapters 2 and 4) described how feeders from the supply station connected with eleven feeding points in different parts of the centre of Calcutta. This distribution system, according to Meares, ran “through nearly every important street in the town, partly overhead and partly underground.”²⁸⁴ For the colonial administration, a distribution system with feeders in Cornwallis Street, Chitpur Road, Theatre Road, Park Street, Government House, Dharamtalla, and the Royal Exchange meant that important streets and buildings in the centre of Calcutta could easily be provided with electric supply and lighting.²⁸⁵

Hasenöhl’s observations provide a means of incorporating into the spatial descriptions presented above the dimensions of technological and politico-cultural actions that could explain how the specific locality of public electric supply in colonial Calcutta was orchestrated by colonial administrators and engineers. In the next section of this chapter, I will examine the spatial structures of hierarchy and precedence as key nodes of engagement through which both the colonial government and CESC defined their operations. In what follows I explore two examples of electrical history, discussing firstly the legislative mechanisms used by the colonial government to restrict public electric supply to the colonial centre of Calcutta; and secondly the technological and financial issues that such legislations and CESC’s operations raised.

²⁸² Hasenöhl, “Rural Electrification in the British Empire”, p.16

²⁸³ *ibid.*, p.17

²⁸⁴ Meares, *Electrical Engineering*, p.84

²⁸⁵ *ibid.*.

5.2. Technological and Politico-Cultural Aspects of Electric Supply

The introduction of small-scale, privately operated electric lighting projects in the 1890s (discussed in the previous section) opened the door to governmental legislation and regulation of electricity supply. On January 1, 1896, the Calcutta Electric Lighting Act of 1895, passed by the Lieutenant-Governor of Bengal in Council in July 1895, and approved by the Viceroy and Governor-General on 19 December 1895, came into operation.²⁸⁶ The objective of the Act, which reproduced and followed the terminologies of English Law, especially those of the English Statute of 1887, was “not to supply electric lighting,” but “to facilitate and regulate the supply of electricity for lighting and other purposes.”²⁸⁷ The Calcutta Electric Lighting Act of 1895 established common methods of regulating and facilitating electricity supply in Calcutta, and was a step towards establishing generating stations to meet what the Legislative Council perceived as a growing consumer demand for electricity.²⁸⁸ While Calcutta Electric Supply Corporation, as we have seen, established its operations based on securing licenses under the Calcutta Electric Lighting Act of 1895, the Act, and later the Indian Electricity Acts of 1903 and 1910 commissioned by the Government of India, anchored a somewhat restive alliance between the selective and elitist urban development ambitions of the local colonial administration and the technological and financial interests of the Supply Corporation.

Prior to embarking on the scheme, the Calcutta Electric Supply Corporation was required to delineate an “area of supply” which, according to the revisions in 1900 to the Calcutta Electric Lighting Act of 1895, limited the operations of CESC to an area of 5.64 square miles around Emambagh Lane.²⁸⁹ In his lectures on electrical engineering in March 1900, Meares described the supply station’s area of supply as “being bounded by Circular Road, Chowringhee, and the river.” As we have noted, the central location of the supply station and its area of supply was for the benefit of both CESC and the municipal administration. Significantly, however, it allowed the Municipal Corporation and the colonial government to exercise a great deal of control over the areas and buildings that were served by CESC.

²⁸⁶ *Reis and Rayyet*, Vol.15, 4 January 1896, p.3

²⁸⁷ “The Calcutta Electric Lighting Bill”, *Supplement to the Calcutta Gazette*, 17 July 1895 (No. 29 of 1895), p.1175

²⁸⁸ *ibid.*, p.1171

²⁸⁹ *Twenty-Second Session of the Indian Science Congress Association Calcutta, 1935: Calcutta and Suburbs* (Calcutta: U. Ray and Sons Press, 1935), pp. 237-239
Also: “Revised draft of the Calcutta Electric Lighting License 1900”, *The Calcutta Gazette*, 12 September 1900, pp.1002-1003

As we have seen, the colonial administration had, since the early nineteenth century, recognised the importance of illuminating principal streets and spaces — with oil lamps in the early nineteenth century and gas lamps from the late-1850s onwards — in the colonial and mercantile centre of Calcutta, especially in areas such as Esplanade, Strand Road and Chowringhee, to name a few. The lighting of these areas laid down a spatial pattern and set an ideological template for mercantile profit and colonial forms of urban development structured around providing both European and native elite better conditions of living than those living outside the colonial centre of Calcutta.²⁹⁰ This separation of the urban elites from the lower classes also extended into the domestic sphere, especially as discussed in Chapter 4, with promoters of electricity marketing electric lighting and fans as means of replacing or distancing the native domestic servant while providing Anglo-Indian and *bhadralok* employers a better lifestyle. Official documents from the early twentieth century are replete with references to the ways in which the colonial administration strove to ensure that the Municipal Corporation's plans for urban development and "improvement" were suitably supported by the operations of the Electric Supply Corporation. When CESC had initially begun its operations, the 1901 *Census of India* advocated rather ambitiously the need to utilise electric tramways and lighting concurrently with other improvement schemes in "Town" (the colonial and administrative centre of Calcutta) in order to improve Calcutta's standing amongst the cities of the world, especially as it occupied a certain pride of place in the British empire:

Electric Tramways, and Electric Lighting of the main thoroughfares of the Town, for which the requisite contracts have already been completed, and the requisite plant has already been imported and partly erected by the contractors, will, if carried out with the larger schemes of improvement that are in contemplation, and towards which preliminary action has already been taken, completely change the aspect of the town in the course of a few years and raise it from its present fifth position amongst the chief cities of the old world to the fourth, if not third in rank — a position to which it is entitled as the metropolis of the British Indian Empire²⁹¹

The techno-politics of structuring the spatial power dynamics of the city was, however, not restricted simply to illumination. Historians of urban planning in colonial India have shown how issues of sanitation and health were central to administrative planning schemes. In the case of colonial Bombay, Prashant Kidambi has shown how the plague

²⁹⁰ Basu, "Spatial Imagination and Development in Colonial Calcutta", pp.46-47

Also see: Chris Otter, 'Making Liberalism Durable: Vision and Civility in the Late Victorian City', *Social History*, 27: 1 (January 2002), pp.1-15

²⁹¹ A. K. Ray, *Census of India, 1901 — Volume VII: Calcutta, Town and Suburbs (Part I: A Short History of Calcutta)* (Calcutta: Bengal Secretariat Press, 1902), p.86

and public concerns about health and sanitation in the 1890s inaugurated a new phase of urban development which neither the capitalist political economy nor local politics were able to introduce. The administration, Kidambi argues, used sanitary regulations and the threats of disease and contagion as excuses to interfere with the daily lives of the populace, especially the urban poor.²⁹² During the course of the nineteenth and early twentieth centuries, the emergence of Calcutta as a sprawling urban entity was followed essentially by urban renewal and planning schemes dominated by the exigencies of the colonial government. The colonial administration in Calcutta, Swati Chattopadhyay has shown, used health maps based on colonial ethnography and ideas of native society to create a hegemonic discourse of “improvement.”²⁹³ The “improvement” of Calcutta, either through the colonial government’s establishment of government offices and buildings as symbols of political power and colonial governance, the beautification of open spaces in the colonial centre of town, the removal of slums and displacement of the urban poor, or the implementation of the Calcutta Improvement Trust in 1911, was consistent with colonial political and commercial objectives that centred on the creation of a commercially profitable and sanitised urban centre that enabled the hierarchical distribution of urban spaces and the distinctions between colonisers and the colonised.²⁹⁴

This is particularly evident in late-nineteenth and early twentieth century administrative plans for the removal of native *bustis* (slums or settlements) from the centre of town. Spurred by growing trade and the fear of contagion and spread of diseases like cholera, such plans reflected contemporary colonial ideas about governance and health based on the separation of what the colonial government considered “unsanitary” natives and their residences from elite white and native populations. For sanitary officers, despite being unclear of the aetiology of cholera and other tropical diseases, the location and residents of *bustis* were the health hazards that needed to be removed in order to develop a healthy and sanitised town.²⁹⁵ The removal of slums from “Town”, however, also took on several different meanings. In his works, Partho Datta shows how the plague, despite not as drastically affecting Calcutta as it did Bombay in 1896, resulted in a quarter of the population fleeing the city in panic. In addition, mill hands in and around Calcutta stopped working, forcibly stopped traffic and closed business, and rioted on the streets. For the

²⁹² Prashant Kidambi, *The Making of an Indian Metropolis: Colonial Governance and Public Culture in Bombay, 1890-1920* (Aldershot, England, and Burlington, USA, 2007), pp.236-237

²⁹³ Chattopadhyay, *Representing Calcutta*, pp.70-73

²⁹⁴ Datta, *Planning the City*

Also see Datta, “How Modern Planning Came to Calcutta”, *Planning Perspectives*, 28:1 (2013), pp.139-47

²⁹⁵ *ibid.*, pp.89-170

colonial government, therefore, medical and sanitary measures, especially the removal and relocation of slums, was just another means of urban regulation and policing an unruly populace.²⁹⁶ As David Arnold has written, the plague in Indian cities “represented colonialism in its most visible and tangible forms; commercially and administratively, they were the areas where Europeans were concentrated and where Indian and European life-styles most critically, often most antagonistically, intersected. In these urban areas, plague posed a composite threat.”²⁹⁷

While electric supply and lighting do not figure in the scholarly works on urban planning in Calcutta discussed above, these analyses, nevertheless, offer a model for understanding the place of electricity supply in the Municipal Corporation’s plans for urban development and “improvement”. In its administrative reports, the colonial government increasingly highlighted the material and physical consequences of electric supply for the urban habitat. In a section on “Vital statistics and health of the town” in the *Report on the Administration of Bengal, 1901-1902*, the colonial government noted that while the Municipal Corporation had managed to “improve” around a hundred *bustis* until 1902, “the progress on the work [was], however, almost unavoidably slow.”²⁹⁸ For all the initial rhetoric about urban improvement, the report claimed that the Municipal Corporation had not considered the development of suburban areas “to house the poorer classes” removed from the *bustis* in Town.²⁹⁹ One of the recommendations of the report was to build roads and transport systems, especially electric tramways, to make the suburban areas accessible to their residents: “The general introduction of electric traction on the tramways should make the solution of this [removal of *bustis* and housing the poor] problem easier, since it will make the suburbs more easily accessible.”³⁰⁰ In 1899, the Calcutta Tramways Company, which from 23 December 1880 until 1900 operated steam and horse trams in Calcutta, entered into an agreement with the Municipal Corporation of Calcutta to convert their systems from horse to electric traction within three years. With an initial capital of £700,000 raised through shareholders in Britain, the Tramways Company opened the first line under electric traction for regular service on 27 March 1902. Arguably, the colonial government’s self-imagery of paternal governance and urban “improvement” also remained entrenched within the discourse of the Calcutta Tramways Company. In an article on “The Calcutta

²⁹⁶ *ibid.*, pp.184-187

²⁹⁷ David Arnold, *Colonising the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (London: University of California Press, 1993), p.210

²⁹⁸ *Report of the Administration of Bengal, 1901-1902*, p.219

²⁹⁹ *ibid.*

³⁰⁰ *ibid.*

Tramways System”, the June 1905 edition of the *Street Railway Journal*, published in New York, alluded to the native quarters as “the hotbed of epidemics and plague,” and described the conversion of the tramways system in Calcutta as part of “a large improvement scheme upon which the government has entered.”³⁰¹

There are two further points of interest regarding the layout and operation of the electric tramways system. First, the tramways system was planned in accordance with the needs of European residents and the businesses in “Town” (**Figure 5.2**). In an article on “The Calcutta Tramways System” in the 9 June 1905 edition of *The Electrician*, the author divides Calcutta into three parts: “the European business district” in the west central part of the city along the eastern banks of the Hooghly; the “native residential and business district” in the north of the city; and the “European residential district” in the south.³⁰² Six out of the eight main routes concentrated their operations within the areas of predominant European residence. The remaining two lines, while serving the densely populated suburbs of Bhowanipore and Kidderpore, also touched upon places of interest to European residents. The Bhowanipore line passed through the “western extremity of the European residential zone”, and the Kidderpore line catered to “traffic from race-meets which are held on the race course on the Maidan.”³⁰³ Secondly, the introduction of electric tramways also allowed for a separation of the classes. According to an article in the *Street Railway Journal*, steam and horse trams only operated one carriage and, therefore, “one class for passengers.”³⁰⁴ Electric trams, which could pull two carriages, were now separated into differently price first and second class carriages in order to allow Europeans to travel with “the better class of natives” in first class carriages.³⁰⁵ For the Tramways Company, this separation of carriages to serve different classes of customers also provided a new source of revenue since European and the “better class of natives”, “who in past years never made use of the tramway,” could now use their first class services.³⁰⁶

³⁰¹ *Street Railway Journal*, 25:22 (3 June 1905), p.968

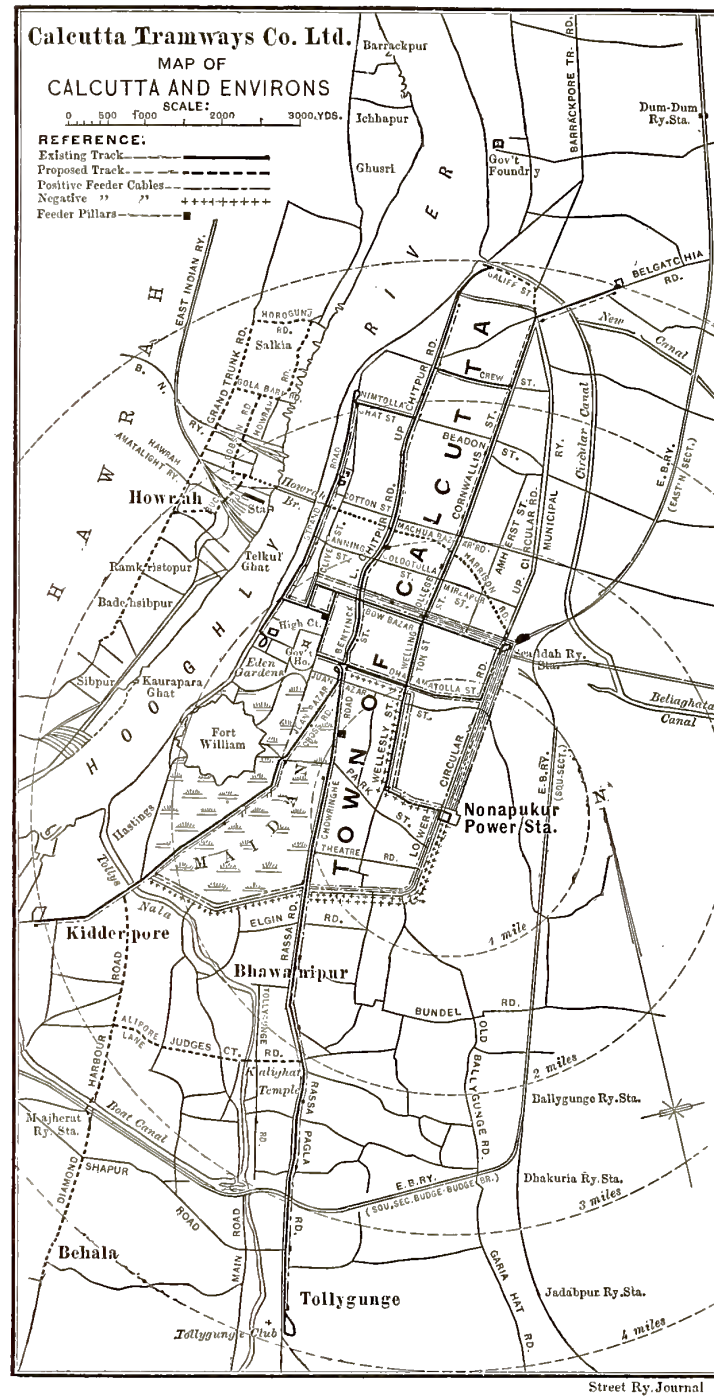
³⁰² “The Calcutta Tramways System”, *The Electrician* 1412 (No. 8, Vol. LV), 9 June 1905, pp.290-294

³⁰³ *The Street Railway Journal*, p.970

³⁰⁴ *ibid.*, p.970

³⁰⁵ *ibid.*, p.971

³⁰⁶ *ibid.*, pp.970-971



MAP OF THE CALCUTTA TRAMWAYS SYSTEM

Figure 5.2: Map of the Calcutta Tramways System

Source: "The Calcutta Tramways System", *Street Railway Journal*, 25:22 (3 June 1905), p.968

5.3. Electrical Infrastructure and the Urban Environment

While the establishment of a central electric supply system and the introduction of electric tramways served the colonial government's view of urban development focused on a hygienic and organised urban centre, it also disrupted the normal functioning of urban areas through extensive digging for underground lines and the installation of electric poles (Figures 5.3 and 5.4).



Figure 5.3: “Works photographic negative of trench, Calcutta: Shows trench with troughing with local men.” W T Glover & Co. Ltd, 1906 - 1916 [Science and Industry Museum Manchester Archives YA1972.36/MS0231/Neg 884]



Figure 5.4: “Works photographic negative of cable laying, Calcutta: Shows cable being laid in trench by business premises.” W T Glover & Co. Ltd, 1900 - 1910 [Science and Industry Museum Manchester Archives YA1972.36/MS0231/Neg 258]

The choice of erecting overhead wires or laying cables underground in colonial Calcutta centred on the issue of public safety.³⁰⁷ Such concerns are clearly visible governmental discussions and journalistic writings as well. In Britain in the late-nineteenth and early twentieth centuries, electrical engineers preferred overhead cables for transmission and electric supply, since overhead lines required less capital and human labour to install as compared to underground cabling.³⁰⁸ Significantly, however, several engineers and writers in electrical trade journals believed that while overhead lines could be used in Britain and in the Indian countryside, given the climatic conditions, they posed a severe threat to public safety in India. In an article detailing the operations of the Calcutta Electric Supply Corporation in 1900, *The Electrical World and Engineer* wrote that the overhead bare copper wires and wooden poles used by CESC were not structurally strong enough to withstand the tropical storms that commonly affected Calcutta. In addition, the breaking of

³⁰⁷ Sarkar, “Domesticating electric power”, pp.363-364

³⁰⁸ For regulations in Britain, see: Hughes, *Networks of Power*, pp. 227-261
For cabling in Indian cities, see: Meares, *Electrical Engineering in India*, p. 402

overhead lines also inconvenienced electrical customers who, given the heat and humidity in Calcutta, needed constant electric supply for their fans:

Overhead bare copper wire is used by the Calcutta Electric Supply Corporation, and many have been the accidents that have happened therefrom, even thus early in its operation. The violent tropical storms that so frequently visit the city always give the repair department plenty to keep them busy, and seriously discommode the purchasers of the current, who need it for their fans 24 hours out of 24, as can be readily surmised when you picture a temperature of 90 degs. and a humidity of about 90 per cent.³⁰⁹

The English Act of 1887, in order to ensure public safety and regulate the operations of electric suppliers in Britain, required suppliers to lay underground cables in urban areas. Also, electricity suppliers in Britain required the consent of the Board of Trade and local authorities in order to install overhead lines. Following the lines of the English Act, the Calcutta Electric Lighting Act of 1895 and Indian Electricity Acts of 1903 and 1910 suggested similar legislation of overhead lines in Calcutta and the rest of India. Borrowing verbatim from the English Board of Trade, the colonial government included in the Electric Lighting Act of 1895 several clauses that sought to prevent accidents caused by collapsing overhead electric wires. The Act suggested that, in the interest of public safety, the licensee — in this case CESC — must lay their wires underground. In governmental discussions, the question of overhead electric wires also acquired a very specific valence through their entanglements with other technological infrastructure. In 1899, the Electric Supply Corporation applied to the local government for permission to install poles and overhead cables on Harrison Road instead of laying wires underground so as to save Rs.30,000 in labour and material costs. The local government refused the application on the grounds that the only available side of the street already had poles installed by the Telegraph Department. In its discussions on this matter in the draft Indian Electricity Act 1903, the Government of India stated that while it considered the greater costs of underground cabling as reason enough to render electricity supply “commercially impracticable,” the interests of “Imperial” departments and technological infrastructure, however, were far more significant, adding “as the Telegraph is Imperial, and in order to protect their interests, it seems only fair that the Local Government should be consulted [by the Electric Supply Company] about the erection of aerial lines.”³¹⁰

³⁰⁹ *The Electrical World and Engineer*, 36:1 (7 July 1900), p.14

³¹⁰ “Note by the Electrical Engineer on new Draft Electricity Act, etc., forwarded for consideration by the Government of India with their letter No. 506 C.W.M. Of 15th May 1900”, p.35 [IET Archives IEE SC MSS 74/1 (J.W. Meares Electrical Notes Vol. IV)]

Laying underground cables was, nevertheless, not a simple solution to the issues concerning overhead lines. Not only was underground cabling more expensive than installing poles and overhead lines, engineers and administrators also had to contend with the many difficulties that local conditions presented. In 1895, while suggesting that the Supply Corporation lay their cables underground, the Municipal Commissioner, in his statement on the Electric Lighting Bill, also mentioned that “there is some difficulty in the town of Calcutta in regard to underground wires.”³¹¹ He added that “the soil, for some reason or other, renders it extremely difficult to lay down underground wires, and to maintain them in proper conditions and order.”³¹² Citing the example of the private generator-operated electric lighting installations on Harrison Road from 1891 onwards, the Commissioner maintained that underground cabling was the reason the installations had temporarily broken down for extended periods. Much of the issues with underground cabling, suggests Suvobrata Sarkar, were due to the “spongy soil” of the region.³¹³ From the late 1880s onwards, striving to devise cables for underground installations in the “spongy soil” of Calcutta, W. T. Glover & Co Ltd. — a company based in Salford and contracted by Kilburn & Co. to provide and lay cables for Calcutta Electric Supply Corporation — began manufacturing and supplying lead-sheathed cables “covered with between one and three layers of rubber strip, waterproof tape and compound braid”.³¹⁴ These waterproof cables were then installed in bitumen-filled cast iron troughs to further protect the cables from water damage.³¹⁵ **(Figure 5.5)**

³¹¹ Calcutta Gazette, July 17, 1895, p.1175

³¹² *ibid.*

³¹³ “Domesticating electric power”, p.364

³¹⁴ “Domesticating electric power”, p.364

³¹⁵ The system of installing waterproof and rubber-insulated cables in bitumen troughs was also known as the V. B., or Vulcanised Bitumen system. See: Story of Electricity in the City of Calcutta, CESC, 1979.



Figure 5.5: “Works photographic negative of trench with troughing, Calcutta”. W. T. Glover & Co. Ltd, 1900-1910 [Science and Industry Museum Manchester Archives YA1972.36/MS0231/Neg 410]

Despite being wrapped in layers of insulation and waterproofing tape, and being installed in cast iron troughs, underground electric cables could not resist damage caused by white ants (**Figures 5.6 and 5.7**).



Figure 5.6: "Works photographic negative ant eaten cable, Calcutta". W. T. Glover & Co. Ltd, 1900 - 1910 [Science and Industry Museum Manchester Archives YA1972.36/MS0231/Neg 254]



Figure 5.7: "Works photographic negative ant eaten cable, Calcutta". W. T. Glover & Co. Ltd, 1908 [Science and Industry Museum Manchester Archives YA1972.36/MS0231/Neg 256]

In an article on “Electrical Engineering in the Tropics,” presented by R. Allen, an engineer with the General Electric Co. (India), to the Installations Section of the company on 11 December 1947, the author noted how white ants, in addition to rats, mice and cockroaches, “must be included in the list of nuisances in the electrical field.”³¹⁶ He also emphasised that while cockroaches only sought to seek shelter in dark, confined spaces, and rats frequently nibbled the lead covering off cables, these pests were capable of causing only minor faults in delicate apparatus. White ants, on the other hand, Allen claimed, were capable of completely destroying electrical systems, especially by burrowing through cables and junction boxes, and depositing wet mud on exposed wires and machinery, resulting in short-circuits and fires **(Figure 5.8)**:

In one instance a rotary convertor which had been temporarily repaired with untreated cotton and had been lying idle for a few days, was found to have been attacked by termites, which had completely destroyed the field-coil taping, the armature binding cords, cotton sleeving and armature conductor covering.³¹⁷

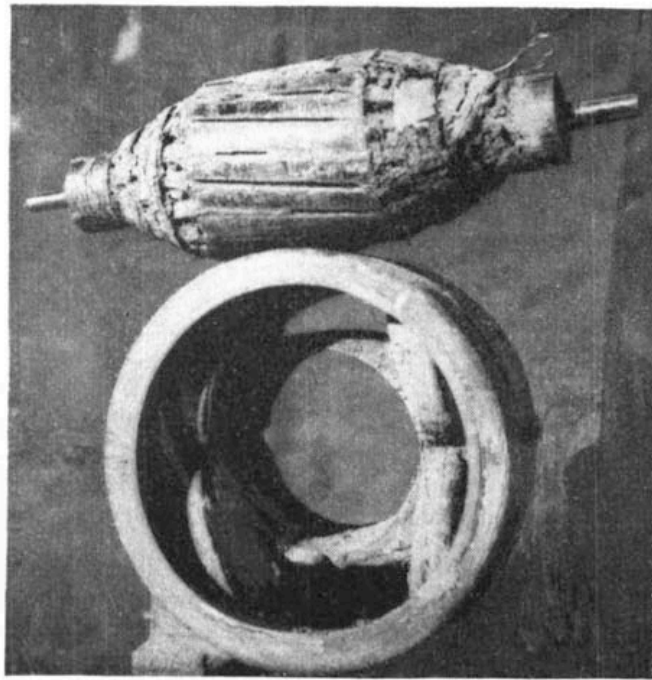


Figure 5.8: “Effect of white-ant attack on rotary-convertor armature and field windings”

Source: “Electrical Engineering Problems in the Tropics”, *Journal of the Institution of Electrical Engineers - Part II: Power Engineering*, 95: 45 (June 1948), pp. 275-283 (p.281)

Note: The image shows the effect of white ants on the armature and field windings of a rotary convertor. The author of the article claims that engineers had to chisel out the hard

³¹⁶ R. Allan, “Electrical Engineering Problems in the Tropics”, *Journal of the Institution of Electrical Engineers - Part II: Power Engineering*, 95: 45 (June 1948), pp. 275-283 (p.280)

³¹⁷ *ibid.*, p.281

mud deposited by white ants between the armature and the pole faces in order to separate the armature from the frame.³¹⁸

The relationship between technological infrastructure and their susceptibility to damage by white ants was neither new or unique to electric supply. Rohan Deb Roy has shown that white ants were a shared concern of many British officials, scientists and engineers from the early nineteenth century till later in the 1940s. From the 1840s onwards, colonial officials and engineers observed the damage to wooden railway bridges and sleepers, and telegraph posts caused by white ants. Roy's emphasis on the "entomopolitics" centred on white ants highlights the ways in which colonial power, bureaucracy and infrastructure were both defined and challenged by their sustained interspecies interactions with white ants. Not only were colonial infrastructure and, in essence, colonial power, vulnerable to attacks by white ants, these vulnerabilities, in turn, extended the colonial gaze to include animate and inanimate nonhumans. Significantly, however, white ants featured as a metaphor for political dissension and challenge to colonial rule. All these aspects are crucial to us, because part of the story of electrical infrastructure lies in understanding the resources through which engineers and officials sought to adapt technological systems and infrastructures to local conditions in the colonies.³¹⁹ This direction of analysis runs contrary to histories of electrification (discussed in Chapter 1) that focus solely on the character and politics of technological systems. The reason these issues of locality do not usually get noticed by historians is the lasting belief that the "development" of technological systems was a historical inevitability. Once we introduce the questions of locality and entomo-politics described by Roy into our study of the trajectories of electricity supply in colonial Calcutta, we move away from an image of a technological system shaped solely by governmental, economic and political factors.

As Roy has shown in his work, white ants continued to be seen by colonial officials as an unsolvable and indestructible problem which "provoked imperial officials to devise effective ways to govern these animate and inanimate nonhumans."³²⁰ From the early nineteenth century the colonial state began targeting the insects with various poisonous chemicals, steam and fumigants. Chemical treatments on electric cables, however, revealed

³¹⁸ *ibid.*

³¹⁹ Rohan Deb Roy, "White ants, empire and entomo-politics in South Asia," *The Historical Journal*, 63:2 (2020), pp. 411-436

³²⁰ *ibid.*, p.419

other dangers to underground cabling. In 1892, as an exercise by the department of telegraphs in Calcutta, engineers buried a piece of India-rubber cable core chemically treated to withstand white ant attacks. After six months, when the cable was dug up, engineers found that while the chemicals had succeeded in keeping white ants away, neither the chemicals nor the thickness of the cable and its cladding itself could prevent grass growing through the cable. In February 1893, P. V. Luke, a member of the Institution of Electrical Engineers, wrote a letter to the secretary of the Institution with a photograph of the piece of India-rubber cable core in question (**Figure 5.9**). In the letter, Luke wrote: “What at first sight appears to be an impossible performance on the part of the grass seems less so when you come to examine the hard, sharp, needle-like points which characterise the roots of this species of grass.”³²¹



Figure 5.9: Grass growing through a telegraph cable, despite the India-rubber covering and a metallic core.

Source: P. V. Luke, “A new danger to which underground wires in India are exposed”, *Journal of the Institution of Electrical Engineers*, 22: 104 (1893), pp.146-147 (p.146)

³²¹ P. V. Luke, “A new danger to which underground wires in India are exposed”, *Journal of the Institution of Electrical Engineers*, 22: 104 (1893), pp.146-147

While engineers and officials were unable to completely resolve the white ant problem, they were, nevertheless, successful to some extent in preventing white ant attacks on overground electrical infrastructure. Electrical engineers of the telegraph department and the Electric Supply Corporation used chemically treated wood to construct poles and housing for cables and equipment, or used steel lattice poles for heavier electrical cables. In his book on *Electrical Engineering in India* (1914), J. W. Meares — then Electrical Adviser to the Government of India — urged electrical engineers to follow the instructions of the Imperial Forest Services on the antiseptic treatment of timber commonly used for constructing poles.³²² In 1909-1910, the Imperial Forest Services conducted experiments with different chemicals and found that pieces of timber coated with Solignum were well preserved “from the ravages of white ants.”³²³

5.4. Existing Technologies and Electric Supply

However much engineers and administrators highlighted electric supply's contribution to colonial spatial and urban politics, and spent effort and resources to adapt electrical systems to local conditions, electric supply had to still be legitimised through usage. In the case of street lighting, the municipal corporation and the colonial government still preferred gas supply and considered the new electric lights to be both expensive and unreliable. Experiments with electric lighting in Calcutta throughout the 1890s broke down regularly. On 8 April 1904, when the commissioners of the municipal corporation met to reconsider options and suppliers for street lighting in Calcutta, they observed that electric lighting installed on Harrison Road as an experiment since 1891 was “very defective.”³²⁴ The main concern for municipal commissioners was, however, the cost of operating electric lighting as compared to the cost of using gas. While considering proposals from both the Oriental Gas Company and the Calcutta Electric Supply Company for lighting Harrison Road, the Chief Engineer advised that making a contract with the Gas Company would cost the Municipal Corporation only Rs.8,220 per annum as compared to Rs.11,628 per annum for electric lighting. The following week, the Chief Engineer of the Municipal Corporation released a statement to the press, mentioning that the Corporation's decision

³²² Meares, *Electrical Engineering in India*, pp. 402-404

³²³ R. S. Pearson (Imperial Forest Service), *Indian Forest Record: Note on the antiseptic treatment of timber in India, Vol. III, Part II* (Dehra Dun: Forest Research Institute, 1912), pp.82-86

³²⁴ “Lighting of Harrison Road”, *Amrita Bazaar Patrika*, 17 April 1904, page 9

to choose gas supply over electric supply was “a pure matter of business.”³²⁵ He added that the decision to install electric lighting on Harrison Road, the Municipal Corporation’s “pet road and which had special treatment hitherto,” was only an experiment that the Corporation was never fully interested in. The Corporation’s decision to accept the Gas Company’s proposal over the Electric Supply Company’s was based simply on the fact that gas supply was financially beneficial. The Chief Engineer added: “it would be very foolish of the Corporation not to accept that proposal, and, judging from the experience of many other Corporations, when once they had refused the offer of a Gas Company, they had ever since lived to regret it.”³²⁶

Similar to the case of Harrison Road in Calcutta, in 1893, the Standing Committee of the Bombay Municipal Corporation sanctioned Rs.30,000 for trial electric lighting in the city. The trials however, failed rather spectacularly, and experts suggested a trial with oil, and investments in incandescent gas burners.³²⁷ In fact, when the Bombay Municipal Corporation began considering proposals from gas supply and electric supply companies in 1890, the Corporation’s inclination towards electric lighting was highly criticised by members within the Corporation and newspaper alike, with the *Kaiser-i-Hind* writing: “Bombay is quite content with her gas-light. ... There is nowhere any complaint touching darkness, albeit the gas is inferior.”³²⁸

Engineers of Kilburn & Co., managing agents for the Calcutta Electric Supply Corporation, however, claimed that the defects in electric supply systems were consequences of government regulations not allowing the Supply Corporation to install poles and overhead lines in favour of the requirements of the Telegraph Department.³²⁹ While engineers cited the local conditions of Calcutta (soil, tropical weather etc., discussed in the previous section of this chapter) as the main reason for electric supply systems regularly breaking down, they also blamed the economic policies and financial interests of the Municipal Corporation and its members for restricting the operations of the Electric Supply Corporation. As we have discussed in Chapter 4 of this thesis, in an article titled, “Electrical Calcutta,” published in *The Electrical World and Engineer* of 7 July 1900, R. W. Ashcroft, an engineer and member of the American Institute of Electrical Engineers wrote of the benefits of electric supply in the climatic and social conditions of Calcutta.

³²⁵ *ibid.*

³²⁶ *ibid.*

³²⁷ *Kaiser-i-Hind*, 5 February 1893, p.7

³²⁸ *Kaiser-i-Hind*, 6 July 1890, p.4

³²⁹ *Calcutta Gazette*, 17 July 1895, p.1175

The main concern for Ashcroft, however, was the lack of administrative support for Calcutta Electric Supply Corporation. Citing Calcutta Municipal Corporation's consideration of gas lamps for street lighting instead of electric lamps, the correspondent wrote that, given the current circumstances and resistance from members of the municipal government, it seemed highly unlikely to him that the Electric Supply Corporation will be able to provide street lighting in Calcutta in the foreseeable future:

No street lighting has yet been attempted by this plant, nor will it be for some time, owing to the opposition of certain old gentlemen, with more or less power in the administration of the municipal government, who are financially interested in the manufacture of what they call the illuminating gas of Calcutta.³³⁰

Ashcroft's observations were realised in December 1909 when, after years of trials and debates, the Government of Bengal settled the much vexed question of "gas versus electricity" when it "decided that the illuminant for Calcutta should be gas, [and] tenders were called for accordingly."³³¹ The Municipal Corporation's preference of gas supply for lighting is evident in the quick, general observations made by P. Thankappan Nair about the number of street lights in the period after the introduction of public electricity supply. Especially between 1900 and 1951, Nair shows, the number of gas lamps used for street lighting in Calcutta increased exponentially from 6811 to 19001, while the number of electric lamps only increased from "a few" to 10669 in the same period.³³²

Nevertheless, despite the Municipal Corporation's opposition to electric street lighting, buildings and public spaces under the purview of, and of interest to the colonial government and other colonial institutions, as we have seen in the first section of this chapter, were some of the first to install electric lighting. This, however, did not mean that consumers were pleased or even satisfied with the promoted modernity of electric supply (see Chapter 4). Confronted by what they regarded as "extraordinary items of expenditure," the accounts of the Asiatic Society of Bengal, one of the first colonial institutions to have electric lighting installed in their offices in 1904, adduced the significant increase in their annual expenditure in the following years as proof that access to electric supply and lighting was far more expensive than gas supply. In 1904, the Society paid Kilburn & Co. Rs.2,354 to have the Society's rooms and offices "fitted with electric

³³⁰ *The Electrical World and Engineer*, 36:1 (7 July 1900), p.14

³³¹ "Lighting of Calcutta", *Amrita Bazar Patrika*, 18 November 1909, p.7

³³² P. Thankappan Nair, "Civic and Public Services in Old Calcutta", in Sukanta Chaudhuri, ed., *Calcutta The Living City Vol. 1: The Past* (New Delhi: Oxford University Press, 1990), pp.224-237

lights and fans.”³³³ The installation of electric lighting and fans, however, significantly increased the operational costs of the Society. Writing in the “Annual Report for 1903-1904” in the Proceedings of the Asiatic Society of Bengal, January to December 1904, the Financial Trustees for the Society wrote that the “principal items in excess [expenditure] were ‘lighting,’ ‘meetings,’ and ‘contingencies’.”³³⁴ The report also noted that while the Society expected expenses for “lighting” to be Rs.100, the actual expenditure was Rs.261–4 (annas), adding that “this increase is chiefly due to the payment of bills for electric lights and fans.”³³⁵ In addition, the Society estimated that expenditure on lighting would significantly increase to Rs.320 in the following year (1904-1905), despite a significant drop in the number of meetings and “rent of rooms” in 1904, especially with “the Photographic Society of India, owing to insufficiency of accommodation, [having] decided to vacate the rooms rented to them by the end of February 1904.”³³⁶

The Asiatic Society was not the only organisation facing increasing expenses on account of electric supply. On 29 December 1922, *Amrita Bazar Patrika* reported that the Government Hospital, owing to the increased expenses due to electric lighting and other extra fees, had decided to levy extra charges on their patients in order to meet their expenses:

GOVERNMENT HOSPITAL.

Serious Rise In Expenditure

Charges to be levied on patients.

Owing to the enhanced price of medical stores, electric light etc. and the increase in establishment charges which economic conditions have involved, there has recently been a serious rise in the maintenance charges of all Government hospitals, especially those in Calcutta, and Government have been compelled to look about for new sources of income in order that no new burden may be placed on provincial revenues at the present time.³³⁷

While the Asiatic Society and the Government Hospital cited electric lighting as one of the chief reasons for an increase in their annual expenses, other users questioned the high price of electric supply. On 4 November 1915, *The Pioneer* reported the findings of discussions between the Calcutta Trades Association and the Government of India on the

³³³ *Proceedings of the Asiatic Society of Bengal*, January to December 1904, p.13

³³⁴ *ibid.*, p.7

³³⁵ *ibid.*

³³⁶ *ibid.*, p.8

³³⁷ *Amrita Bazar Patrika*, 29 December 1922, p.6

matter of costs for electric supply to businesses facing economic losses due to the War. In 1914, the Association wrote a letter of protest to the Government asking for discounts and fixing the price for electric supply. After a meeting on the 1 September 1914 and a letter from the Supply Corporation on 30 October 1914, the matter was still unresolved. Both the Supply Corporation and the Government believed that reducing the price by half an anna per unit from 6 annas per unit was sufficient discount. The Association, however, demanded a fixed price of 4 annas per unit, and a 25 percent discount for early payment. The Government and the Corporation, both facing economic downturn because of the War (further discussed in Chapter 6), stated that the concessions would cost them about £50,000 a year in total; a financial burden they were unwilling to carry.³³⁸

5.5. Conclusion

This chapter has shown how public electric supply and lighting, soon after its introduction, was framed as both a means for the colonial government to create a visual idealisation of a brightly lit, sanitised and organised colonial urban centre. The project was also an impetus for the installation of electric supply and lighting in the offices and premises of government buildings and colonial institutions, and the introduction of electric trams serving the colonial centre of Calcutta. The trajectory of public electric supply was itself, however, a complex process bound and renegotiated within constantly changing financial, urban, and infrastructural issues. This chapter, in presenting the ways in which the interests and anxieties of the colonial government and various other institutions resulted in differing responses to electric supply, sometimes from the same institutions and individuals, challenges histories of electrification that present the trajectory of electric supply as one of linear and constant progress and development. While electrical systems did develop, responses to these systems, I have shown, varied depending upon external factors that eventually complicate the processes involved in the introduction and use of electric supply.

In Chapter 6, I continue this theme of trajectory and focus on domestic electric supply. Here, I will show how the spatial layout of public electric supply discussed in Section 5.1 influenced the areas in which householders had access to domestic electric supply. In addition, in the next chapter, we will see the ways in which issues of the costs of electric

³³⁸ "Calcutta's Electricity - The Question of Rates", *The Pioneer*, 4 November 1915

supply, as I have hinted at in various sections of the current chapter, were also important to the ways in which domestic consumers used newly introduced electrical technologies alongside existing lighting and ventilation technologies — oil and gas lamps, and punkahs — within their domestic spaces.

Chapter 6

The Social Identities of Electrical Consumers

The preceding chapters discussed how the first major sites for residents of Calcutta to experience electric supply, lighting and fans — both physically and in discussions and debates — were outside the home. As discussed in Chapter 2, public demonstrations, lectures, technical education and journalistic writings formed the main avenues through which different social groups established connections between electricity and different conceptions of technological and cultural modernity. Furthermore, in Chapter 5, we saw that government offices, churches and barracks constituted some of the first spaces to have electric lighting and fans installed. Here, we also examined the bureaucratic, technological and environmental factors involved in the introduction of public electric supply, and the consequent redefinition and rearrangement of public and urban spaces in early twentieth century Calcutta. Significantly, social and cultural issues of everyday Anglo-Indian and *bhadralok* lives, especially intertwined with the introduction and use of electric lighting and fans, were also political issues in the public sphere. This is evident in the ways in which Bengali nationalist and social commentators used domestic electrical technologies and their presence within Bengali households as metaphors for the ill-effects of Western influences and colonialism (Chapter 3). At the same time, for promoters and suppliers of electric fans and lighting working towards constructing an “Electrical Calcutta” in the 1890s and the early 1900s, the domestic market was indispensable to the success of the electrical enterprise in Calcutta. Promoters of domestic use of electric lighting and fans, however, utilised the liminal position that native domestic servants occupied in the morally suspect legal violence of colonialism and consequent nationalist outrage (Chapter 4).

This chapter, in contrast to the ones before it, delves into the social lives of Anglo-Indian and *bhadralok* electrical consumers. As part of this thesis’s concentration on the meanings and interpretations of electricity and electrical technologies, this chapter attempts to retrieve and highlight the relatively few instances of comments on the domestic use of electric lighting and fans by contemporary Anglo-Indian and *bhadralok* householders and residents. As I have discussed in Chapter 1, academic writing on the histories of electrification in colonial India has been wide on scope, ranging from debates on the impact of the introduction of electricity supply on industries, economy, society and politics, recasting these historical analyses through various alignments and realignments of colonial and nationalist politics. But analyses of everyday users and non-users have been relatively rare. In existing scholarship, the potential of domestic supply and users of

electricity has been absent in broader discussions of industrial and urban electrification. Domestic use and users of electricity are repeatedly presented in these studies as following straightforwardly from industrial electrification. The consumer, as this chapter will demonstrate, is an important category that ostensibly eschews the deterministic and teleological narratives of histories of industrial and urban electrification.

Here, I adopt a theoretical approach that brings into conversation aspects from “user studies” in science and technology studies³³⁹, and consumer studies in South Asian historiography.³⁴⁰ The field of consumer studies, bringing attention to “material goods and the [middle-class] attitudes towards them,” has introduced new historiographical viewpoints to the scholarship on middle-class identity in South Asia.³⁴¹ Abigail McGowan, Douglas E. Haynes, and Prashant Kidambi have all pointed out that with the growing availability of commodities in the tough economic conditions of the early twentieth century, access to material goods, and ideas and practices of consumption became central to the middle classes and their attempts to shape their class and social identities. Studying white collar workers and manual workers in early twentieth-century colonial Bombay, Kidambi shows that both these sections shared grievances about wages and work conditions. The arguments of white collar workers, however, invoked their status as “middle class” in their attempts to distance themselves from manual workers. White collar workers argued that their material needs were different, since belonging to the “respectable” class required engaging in certain forms of consumption different to the lower classes.³⁴² Abigail McGowan too, in her exploration of women’s shopping in early twentieth century Western India, has shown that increasing consumption, according to the middle class, was not only a way of personal comfort but also signified social progress. McGowan underscores Thomas Richards’ analysis of how “the British used the concept [of consumption] to articulate superiority over their colonial subjects; in British eyes, the fact that native peoples used so few commodities proved their backwardness and need for

³³⁹ See: Nelly Oudshoorn and Trevor Pinch, *How Users Matter: the Co-construction of Users and Technology* (The MIT Press, 2003); Graeme Gooday, *Domesticating Electricity: Technology, Uncertainty and Gender, 1880-1914* (Pickering & Chatto, 2008); Graeme J. Milne, “British Business and the Telephone, 1878- 1911”, *Business History*, 49: 2 (March 2007), pp.163-185; Michael Kay, “Troublesome Telephony: how users and non-users shaped the development of early British exchange telephony”, *Science Museum Group Journal* (Spring 2015)

³⁴⁰ Prashant Kidambi, “Consumption, Domesticity and the Idea of the ‘Middle Class’ in Late Colonial Bombay”, in Sanjay Joshi, ed., *The Middle Class in Colonial India* (Delhi: Oxford University Press, 2011), pp.132-155
Douglas Haynes, Abigail McGowan, Tirthankar Roy and Haruka Yanagisawa, eds., *Towards a History of Consumption in South Asia* (New Delhi: Oxford University Press, 2010)

³⁴¹ Haynes, McGowan et.al., *Towards a history of consumption in South Asia*, p.10

³⁴² Kidambi, “Consumption, Domesticity”, pp.138-139

enlightened British rule.”³⁴³ To an Indian middle class introduced to new modes of living, earning and spending as part of colonial reform projects, McGowan argues, consumption became a symbol of material and economic progress.³⁴⁴ While the increasing availability of goods, services and entertainment to urban dwellers meant that consumption became an essential marker of status in an urban society where caste no longer was an adequate measure of social standing, the uncertain economic and financial situations of early twentieth-century India resulted in the middle class rethinking their quotidian spending. This resulted, Kidambi shows, in the development of two “middle-class” viewpoints: firstly, a perception that the urban salaried classes were naturally more extravagant in their quotidian spending and consumption; and secondly, that living beyond one’s means was detrimental to the community and thrift, therefore, was essential. Kidambi writes: “Thus, thrift in this view, did not entail abstaining from consumption altogether; rather, it called for judicious discrimination in one’s patterns of expenditure. Central to the cultivation of thrift...was the need to distinguish between ‘necessities’ and ‘luxuries.’”³⁴⁵

This chapter aims to add to this historiography on consumption and class identity by making electrical consumers and their interpretations more visible as historical subjects. I argue, however, that an examination of “theft” and “improper use” of electric supply by Anglo-Indian and *bhadralok* consumers provides us a clearer yet intricate understanding of electricity within issues of consumption and class identity. The term “improper use” is used broadly here to refer to a variety of practices that the Calcutta Electric Supply Corporation believed to be interference to their property and supply.³⁴⁶ These included theft of electricity by bypassing or breaking seals on electric meters, or using electricity for purposes other than that for which it was supplied to the customer. User studies, an extension of the Social Construction of Technologies approach, have studied “improper use” of technologies as a historically contingent process that depended on, and created new technologies and social relations. In his analysis of the early history of the telephone and rural electrification in the American countryside, Ronald Kline has shown how consumer actions like eavesdropping on telephone conversations were considered by

³⁴³ Abigail McGowan, “Consuming Families: Negotiating women’s shopping in early twentieth century Western India”, in Haynes, McGowan et.al., *Towards a History of Consumption*, pp.155-184 (p.161)
Thomas Richards, *The Commodity Culture of Victorian England: Advertising and Spectacle, 1851-1914* (London: Verso, 1991)

³⁴⁴ *ibid.*

³⁴⁵ Kidambi, “Consumption, Domesticity”, p.145

³⁴⁶ *Complaint by Mr. James Cleghorn, against the Calcutta Electric Supply Corporation* (May 1911)
Government of Bengal, Public Works Department File 1E/16 of 1911, Serial Nos. 1-3, 5-10, & 12-16

telephone companies as the consumer “resisting the prescribed use of the telephone.”³⁴⁷ Such an examination of consumers and their complex relations and attitudes to new technologies, Kline argues, helps us understand how consumer interactions with and uses of technologies were historically contingent processes constructed within the users’ systems of social relations, domestic practices, and their interpretations of modernity.³⁴⁸ In this chapter, I borrow from this approach and consider some of the diverse motivations that led Anglo-Indian and *bhadralok* consumers to steal electric supply. As we have seen in Chapter 2, artificial lighting, both gas and electric, was considered by the Anglo-Indian and Bengali elite as a means of defining and displaying their social status and wealth. For the middle classes, however, as we will see, domestic electric supply was an expensive yet necessary luxury. Their non-prescribed and fraudulent use of electric supply, I will show, were parallel to and contiguous with middle-class concerns about quotidian spending and thrift at a time when prices of goods and services rose constantly and significantly. Through an examination of newspaper reports and legal documents, this section aims to provide new perspectives on the history of electricity by studying how consumers, suppliers and promoters of electricity interacted during the early days of public and domestic electric supply in colonial Calcutta.

In order to understand the motivations of electrical consumers to steal or “misuse” electric supply, it would be prudent to understand the financial and bureaucratic factors that resulted in such cases. In the next section, therefore, I will look at the discussions and debates on the price and service of electric supply in the first two decades of the twentieth century.

6.1. “Not the poor man’s light”

As we have seen in Chapter 2, the urban elite were some of the first users of battery-operated electric lighting in their lavish displays of wealth and influence. We also examined how such displays were influenced by ideas of electricity as a symbol of civilisational and cultural modernity that enabled the “respectable” classes to engage in forms of consumption different to the middle and lower classes. For the *bhadralok* and Anglo-Indian

³⁴⁷ Ronald R. Kline, “Resisting Consumer Technology in Rural America: The Telephone and Electrification”, in Nelly Oudshoorn and Trevor Pinch, eds., *How users matter: The co-construction of users and technologies* (Cambridge, MA: MIT Press, 2003), pp.51-66 (p.56)

³⁴⁸ *ibid*, pp.51-66

middle classes however, electric supply, lighting and fans were expensive and limited propositions, with *The Electrician* describing the electric light as “not the poor man’s light” in India.³⁴⁹

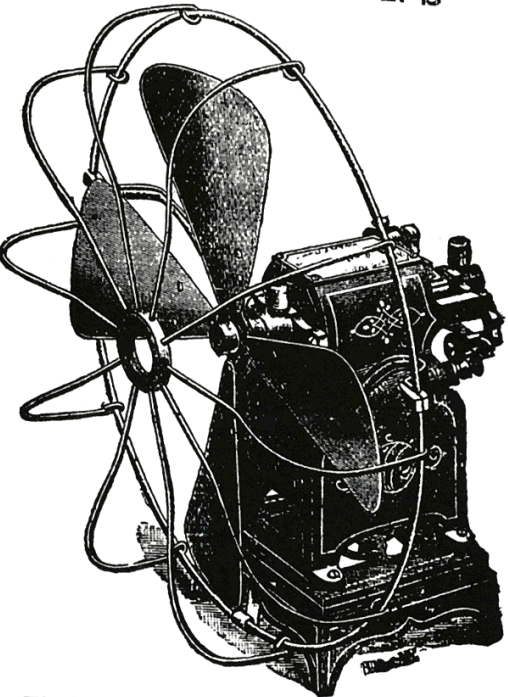
The expense of using electrical technologies is evident in advertisements of electric fans. The price for a battery-operated electric fan cost between Rs.55 and Rs.110, while the price of a mains-connected overhead electric fan, introduced after 1905 cost between Rs.95 and Rs.125 (Figure 6.1).

ELECTRIC TABLE FANS

OUR ARCTIC FANS.

Very Powerful Motors
will ventilate any size
room the cheapest and
best outfit. Complete
with Batteries to work
for 6 months. In hand-
some Teakwood Box.
Re-charges 8 As. per cell.

12 in. Fan and Guard ... Rs. 110
9 in Fan complete ... ,, 55



ELECTRIC NOVELTY DEPOT,
173, DHURRUMTOLLA STREET, (OPPOSITE CORINTHIAN THEATRE) CALCUTTA.

Figure 6.1: Advertisement for a battery-operated electric fan

Source: *The Statesman*, November 1901

There were additional costs as well. Electric fans were usually advertised with additional services like oiling, adjusting and repairs which cost an extra Rs. 36 per year.³⁵⁰ What is

³⁴⁹ *The Electrician*, No. 1333, 7:52 (4 December 1903), pp.245-247

³⁵⁰ Advertisement for electric punkah in *The Statesman*, February 1900

also interesting is the ways in which manufacturers of electric fans sought to entice new customers. As I have shown elsewhere, and we can see in **Figure 6.2**, the advertisement for the Swan Fan manufactured by the General Electric Company, shows two what seem like Anglo-Indian gentlemen enjoying what the advertisement claims to be the “cool breeze” of the fan in an elite setting. The advertisement, in its iconography, depicted not just the kind of consumers who bought and used electric fans, but also the kind of consumers it sought to serve.³⁵¹ Electric fans were costly, since Anglo-Indian and *bhadralok* middle-class salaries in the early 1900s averaged between Rs.150 and 200 per month.³⁵²



Figure 6.2: Advertisement for Swan Fan

Source: *The Statesman*, May 1915

³⁵¹ Animesh Chatterjee, “‘New wine in new bottle’: class politics and the ‘uneven electrification’ of colonial India”, *History of Retailing and Consumption*, 4:1 (2018), pp.94-108 (p.100)

³⁵² Montague Massey, *Recollections of Calcutta For Over Half a Century* (Calcutta: Thacker, Spink and Co., 1918), pp.47-48

However, in a crowded marketplace of punkahs and oil lamps, consumers had choices of other mechanisms to light and ventilate their homes. Alongside advertisements for electric lighting and fans, newspapers also carried advertisements for new and more efficient gas and oil lamps, which were much cheaper to install and use than electric lighting and fans (**Figure 6.3**). Advertisements for “punkah and wind proof” oil lamps appeared alongside advertisements for electric lighting and fans till well into the second half of the twentieth century.



Figure 6.3: Punkah and Wind Proof Oil Lamp

Source: *The Statesman*, December 1925

The costs of using electric supply were also constantly on the rise in the first three decades of the twentieth century, despite assurances by Calcutta Electric Supply Corporation that growing demands would eventually lower prices. The rising prices of electric supply became an even major concern for both the Supply Corporation and its consumers in the years of economic downturn following the First World War. In 1920, the Supply Corporation advertised their inability to accommodate or allow any new installations or extensions by consumers, stating that “they were “reluctantly compelled to make this announcement by reasons of the fact that plant on order from England has been held up

owing to strikes and other Post-War difficulties. If this warning is disregarded it will be impossible for the Corporation to guard against possible breakdowns and interruptions of the supply.”³⁵³ In 1922, the Supply Corporation announced an increase in its existing surcharge rates from 15 per cent to 30 percent, “owing to the price of coal in Calcutta still remaining very high; wages rising rather than falling; and rent, freights, increased taxation in India, and low exchange all reacting unfavourably on the Company’s nett receipts.”³⁵⁴

Domestic consumers regularly complained against the Supply Corporation’s increasing charges and its inability to provide levels of services expected by consumers. Such complaints by domestic consumers were commonplace in the years soon after the Supply Corporation began its operations. As consumers gained access to domestic electric supply in the early 1900s, the irregularity of service and high prices increasingly came under criticism from Anglo-Indian and *bhadralok* consumers. In a letter in the 23 April 1903 edition of *The Statesman*, a complainant wrote:

Sir, - As direct representations to the contractors have proved unavailing, might I approach the Press with a view to drawing public attention to the manner in which householders are being served by the monopolists in the matter of electricity for lighting. We are paying for full power, and apparently getting about half — in other words, giving a first class price for a second class article. If the dynamic power is inadequate to meet the increasing demands, surely the suppliers should make some attempt to bring it up to requirements, or reduce their charges to the level of the quality supplied. I have not heard of the supply Corporation working their lighting dynamos during the day and storing the electricity for night consumption.³⁵⁵

The complainant further added that the Municipal Corporation must closely monitor the Supply Corporation to “see that the Corporation to whom they have granted the sole right of supplying electricity to provide consumers do not take advantage of the monopoly to give an inferior article at a full price.”³⁵⁶

Letters of complaint provide an excellent, even if somewhat self-selecting, sources for contemporary concerns about prices, qualities and the importance of goods and services. Clearly restricted to literate sections of society, such letters tended to be written by sections of Anglo-Indian and *bhadralok* societies who could clearly afford access to, and use electric supply. Letters of complaint also provide a window into the importance

³⁵³ *Amrita Bazar Patrika*, April 1920, p.2

³⁵⁴ *Amrita Bazar Patrika*, 29 July 1922, p.2

³⁵⁵ *The Statesman*, 23 April 1903

³⁵⁶ *ibid.*

consumers placed on electric supply in their quotidian living. In striking contrast to early twentieth century letters about the “level of quality supplied”, letters complaining increasing prices of electricity supply in the period following the First World War mentioned the economic hardships and uncertainties faced by the middle-classes. In a letter to the editor of the *Amrita Bazar Patrika*, titled “High Prices”, the writer sought to inform how the prices of goods and services, from tram services to telephones, rose at rates much higher than the salaries of the middle classes of Calcutta:

Calcutta is passing through strenuous times, with the prevailing high prices pressing upon its citizens. First, there was the raising of tram-fares, which the Company resorted to, on account of the increased cost of coal etc. as alluded to by them when raising their fares. [...] The Bengal Telephone Company, in addition, promises a huge rise, about 75 percent in its rates, which at present is being battled against by the leading bodies. Next, follows the Calcutta Electric Supply Corporation with another 15 per cent in surcharges, over the 15 per cent already charged, making altogether 30 per cent increase. Meanwhile, little or no advance is made in the salaries of the middle classes who have to meet these enhanced charges. On the contrary the present conditions of trade showed a marked decrease leading on to reduction of employees, and thereby adding to the straitened circumstances in which those who are employed find themselves in.³⁵⁷

This image of the middle class’s suffering was also most clearly and explicitly stated in the *Report on the Enquiry into the Rise of Prices in India* (1914), which stated that rising prices, fixed salaries and fixed interest rates adversely affected “lawyers, medical practitioners and other professional classes whose income depends on customary fees, employees in government and private service on fixed salaries or graded scale...these classes have been disadvantageously placed by a rise in prices.”³⁵⁸ With regards to the Calcutta Electric Supply Corporation, the writer of the letter titled “High Prices” pointed out the need for a public protest. “Something must be done,” he wrote, adding that a public meeting of protest could help allay the additional financial burdens imposed by the Supply Corporation.³⁵⁹

In addition to the costs of electric fans and supply, access to mains electric supply was also a varied experience. Domestic electric supply followed the same trajectory as public electric supply. The Calcutta Electric Supply Corporation, in several advertisements in the

³⁵⁷ *Amrita Bazar Patrika* (Letter to the Editor), 8 August 1922, p.2

³⁵⁸ K. L. Dutta, *Report on the Enquiry Into The Rise of Prices in India*, 1 (1914), p.185, Quoted from Rochona Majumdar, *Marriage and Modernity: Family Values in Colonial Bengal* (e-Duke books scholarly collection), Kindle Location 4413

³⁵⁹ *Amrita Bazar Patrika*, 8 August 1922, p.2

early 1900s, mentioned that they could only supply electricity to houses “in streets with underground mains”.³⁶⁰ As we saw in Chapter 5, public electric supply, for the first two decades of the twentieth century, was restricted to areas of importance to the colonial administration, and areas of European and *bhadralok* elite residences. While I could build a spatial layout of public electric supply in Chapter 5 using references in primary and secondary sources, such sources are hard to come by in the case of domestic electric supply. What we can, however, infer from some incidental primary sources is how long it actually took for some areas not far outside what historians have termed the “White Town” to access electric supply. On 1 November 1919, Mr. Ambu Nath Chatterjee, Deputy Magistrate, Midnapore, applied for access to electric supply for his residence in Attabagan Street (now Chandibari Street), 3 miles north of the Maidan. After paying an initial deposit of Rs. 100 on 22 September 1920 (**Figure 6.4**), the application was finally approved by the Calcutta Electric Supply Corporation on 1 July 1924 when, in a letter, the Supply Corporation demanded a payment of Rs.79 and 8 annas for “erecting suitable service” (**Figure 6.5**).

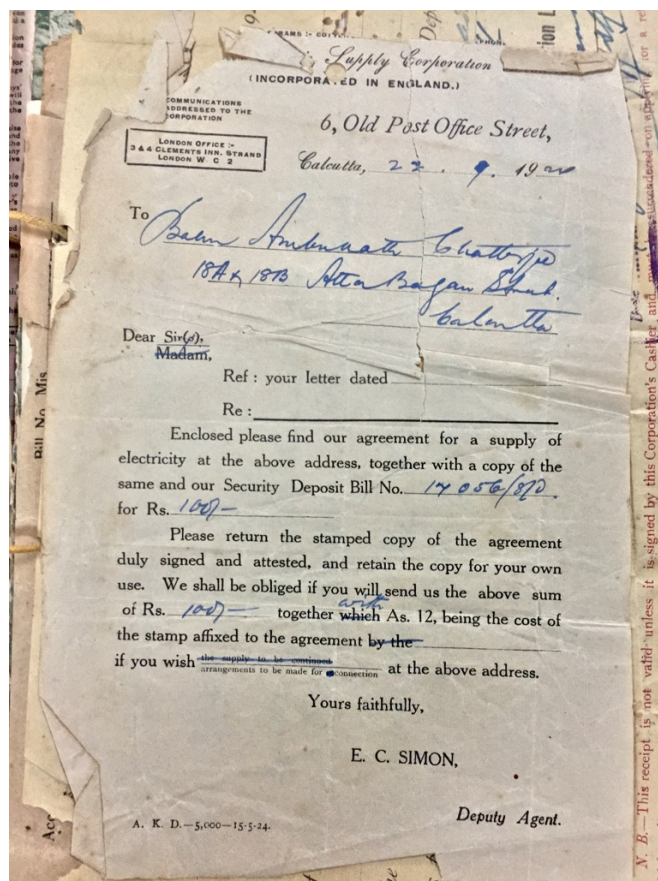


Figure 6.4: Receipt for deposit, 22 September 1920

Source: Mr Achintya Nath Chatterjee, 18B Chandi Bari Street, Kolkata

³⁶⁰ Advertisement for electric punkahs supplied by CESC, *The Statesman*, May 1899

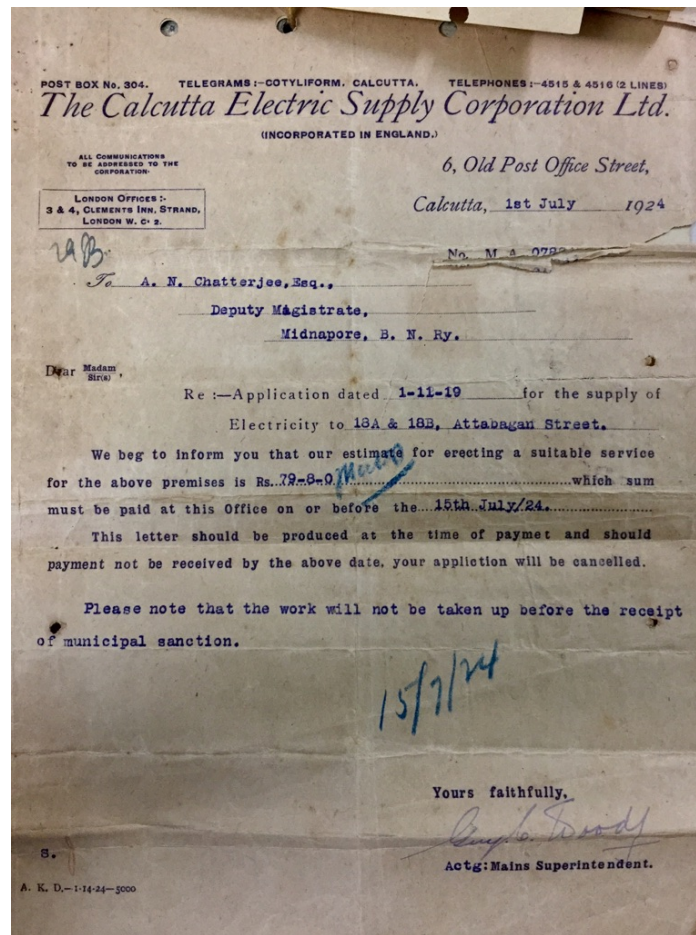


Figure 6.5: Approval of application for electric supply, 15 July 1924

Source: Mr Achintya Nath Chatterjee, 18B Chandi Bari Street, Kolkata

6.2. Thrift, Theft, and Electric Supply

As we saw in the previous section, access to domestic electric supply was a costly and time-consuming matter. However, as we saw in our discussions of letters of complaints against the increasing prices for electric supply, some consumers chose to use electricity within their homes despite the costs. While those writing letters of complaints were hopeful of positive change, several other consumers found means to access electricity for almost no cost by either tapping wires or tampering with meters. The theft of electricity was, however, not a phenomenon attributable to post-War financial hardships; soon after the introduction of public electricity supply in Calcutta in 1899, reports of consumers stealing electricity became commonplace in newspapers and journals:

India. - Another instance of a person obtaining a supply of energy from the "free" side of the meter, by placing pins in a cable, was described before the Chief Presidency Magistrate at Calcutta recently. The method adopted to obtain a supply was by the insertion of two pins connecting the main cable leading to the meter with the one from the meter, supplying the premises of the person prosecuted. A fine of 200 rupees and one day's imprisonment was imposed.³⁶¹

In November 1910, a flour mill owner Marwari, and his servant Ramrup were charged with "theft of electrical energy, the property of the Calcutta Electric Supply Corporation."³⁶² The accused Marwari was said to have systematically set back the pointer on the electric meter attached to his house, thereby showing a lower reading than expected. In doing so, Marwari broke the Corporation's seal on the meter and replaced it with a counterfeit. A search of Marwari's house revealed accessories to manufacture counterfeit seals, and for tapping electric wires. The convictions of Marwari and his servant were also overlapped with class and caste, and hence while Marwari was let off with a fine of Rs. 100, his servant Ramrup was sentenced to three months of hard labour because he was unable to pay the fine.³⁶³

Displays of middle-class identity based on extravagance, as Prashant Kidambi has shown in the case of white collar workers in colonial Bombay, were also a factor in why some consumers chose to steal electricity.³⁶⁴ In July 1920, Ram Prasad Mallick, a resident of No. 8 Darpannarain Tagore Street, was prosecuted for having ordered his *mistry* (workman) to break the seal of the cut-out box connected to the electric meter. Mallick, *Amrita Bazar Patrika* reports, had applied for two temporary meters for two hundred lights and a bioscope performance for a wedding in his house. However, as we saw in the previous section, in April 1920 the Supply Corporation had suspended supplying new users or extra connections to existing users, and Mallick's application for extra connections was rejected.³⁶⁵

While the cases discussed here involved consumers tampering with meters to either lower the costs of their consumption by turning the dials back or gaining connections for extra electrical load, these are cases where the theft was obvious. Meters were usually installed at

³⁶¹ *The Electrical Review*, 57:1444 (28 July 1905), p. 139

³⁶² *Amrita Bazar Patrika*, 30 November 1910, p.9

³⁶³ *ibid.*

³⁶⁴ Kidambi, "Consumption, Domesticity"

³⁶⁵ *Amrita Bazar Patrika*, 6 July 1920, p.5

the entrance of homes in order to make it easier for the Supply Corporation to read them without having to enter customer's premises (**Figure 6.6**) and, therefore, come across signs of tampering. Some forms of theft, however, were more discreet. This allowed the consumer to challenge the Supply Corporation's charges against them, as is evident in the case of James Cleghorn, a resident of No. 57 Ballygunje Circular Road. What also distinguishes Cleghorn's case is the that instead of accepting the Supply Corporation's fines and punishment, Cleghorn used his position as a Consulting Engineer to the Public Works Department, and his knowledge of electrical installations in public buildings to contest the definitions of "improper use".

On the 18th of October 1910, the office of the Secretary to the Government of Bengal, Public Works Department, received a letter from James Cleghorn. In the letter, Cleghorn accused Calcutta Electric Supply Corporation of degrading him "to a position worse than that of a defaulter."³⁶⁶ This matter was initiated in a letter dated 3 June 1910 from F. Rawson, the Agent and Manager, Calcutta Electric Supply Corporation, claiming that Cleghorn was used extra lamps in his house using the connections from the fan circuit. It must be noted here that citing the assumption speculation that more consumers would choose electricity for fans rather than for lighting, the Supply Corporation provided two separate meters and connections for power (fans and other electrical devices) and lighting. The charges, assuming that consumers would use their fans almost all day while lighting will only be used at night, were 4 annas per unit for power and 8 annas per unit for lighting.³⁶⁷ The Supply Corporation accused Cleghorn of using the cheaper power meter to install extra lighting in his house, stating that Cleghorn was : "in the habit of using lamps connected from your fan circuit, by which action you make 'improper use' of our electrical energy."³⁶⁸ On account of this, the Supply Company had decided to charge Cleghorn at the lighting rate until the connections were removed.

After having pleaded his case unsuccessfully several times prior, Cleghorn wrote to the Secretary to the Government of Bengal, claiming his innocence and with the hope that the government's involvement would help the Supply Corporation consider his pleas. He also wrote to the Supply Corporation accusing them of acting like monopolists and endangering the health and life of his family:

As you are monopolists in the supply of electrical energy to the public, I have no option but to continue to deal with you for the same, as I have gone to the expense of having an

³⁶⁶ *Complaint by Mr. James Cleghorn, against the Calcutta Electric Supply Corporation*, May 1911, Government of Bengal, Public Works Department File 1E/16 of 1911, Serial Nos. 1-3, 5-10, & 12-16, p.1

³⁶⁷ *The Electrical Review*, 56:1425 (17 March 1905), p.441

³⁶⁸ *Complaint by Mr. James Cleghorn*, p.3

installation put up to suit your requirements, which arrangement I cannot now afford to change, though I feel that being a small consumer, it is immaterial to you whether I deal with you or not, but it is a matter of life and health to myself and family.³⁶⁹

In his defence, Cleghorn claimed that he used the lamps connected to the power meter as “bare lamp regulators,” in order to regulate the speed of the fans in his house by distributing the current through the lamps. While the Supply Corporation allowed the use of bare lamp regulators they, however, demanded that the lamps be covered with a cloth, which Cleghorn argued had proven to be a fire hazard. After having received a total of around Rs.45 in overcharges over 5 months, he complained to the Government of Bengal, claiming that the Supply Corporation had acted against the local government by forcing him to pay the overcharges and fines within 24 hours. He also demanded that the Supply Corporation provide regulators, and if that was not feasible, then the consumer should be free to utilise the energy as they deemed fit.³⁷⁰

Having received regular complaints from Cleghorn —according to the files he wrote a letter of complaint almost every second week, albeit with the same arguments — the Government ordered an inspection of his premises by the Electrical Inspector to the Government of Bengal. On 3 March 1911, the Inspector submitted his report detailing the rooms and manner in which Cleghorn had installed what he claimed to be bare lamp regulators **(Figure 6.6 and 6.7)**.

³⁶⁹ *ibid*, p.4

³⁷⁰ *ibid.*, p.6

(21)

57, BALLYGUNGE CIRCULAR ROAD,

57 BALLYGUNJ CIRCULAR ROAD

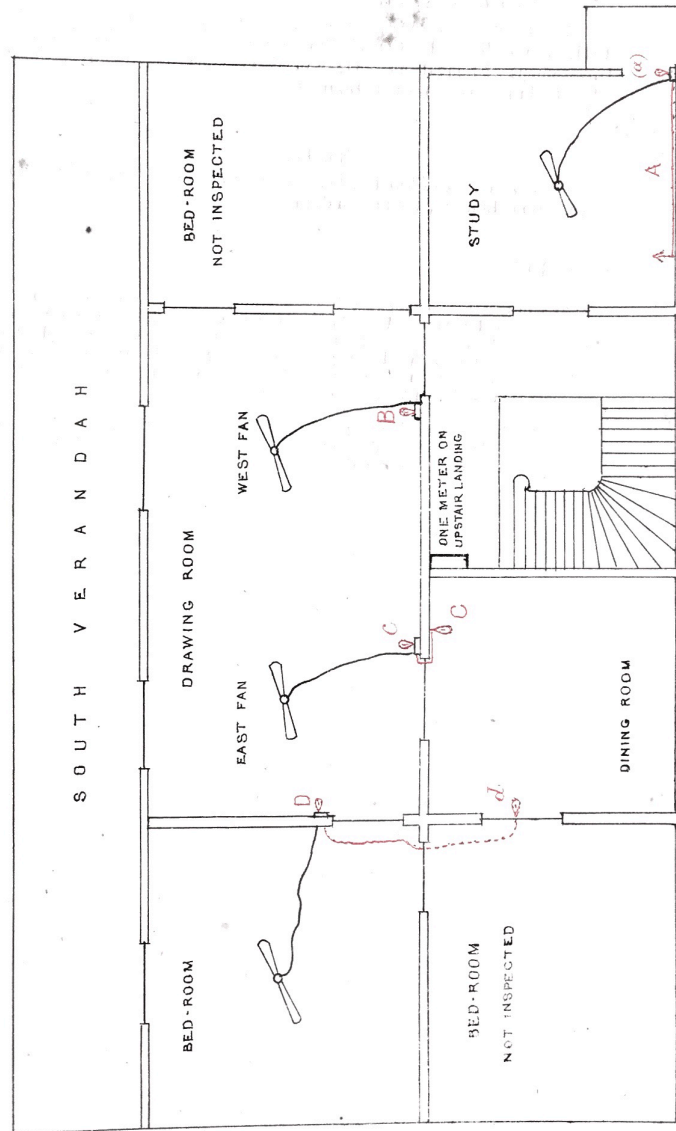


Figure 6.6: A layout of James Cleghorn's residence at 57 Ballygunj Circular Road

Source: *Complaint by Mr. James Cleghorn, against the Calcutta Electric Supply Corporation* (May 1911) Government of Bengal, Public Works Department File 1E/16 of 1911, Serial Nos. 1-3, 5-10, & 12-16, p.21

Note the meter installed outside the residence at the mouth of the stairwell.

57, BALLYGUNGE CIRCULAR ROAD.

Mr. Cleghorn's alterations and extensions to his installation.

- (a) Bare lamp regulator being a base board with about three lamp sockets with series or parallel connectors making complete regulator.
- (A) Extension from (a) consisting of 12' or 15' of flexible connecting a reading lamp (portable) which stands usually on bookshelf.
- (B) Drawing-room west fan with lamp regulator similar to others.
- (c) Ditto east fan with ditto.
- (C) Ditto with extension permanent lamp fitting carried through into dining-room from regulator.
- (D) Bed-room regular—note on drawing-room side of wall.
- (d) Extension through bed-room. Believed to go to dining-room for lighting purpose.

Figure 6.7: Electrical Inspector's observations on James Cleghorn's electrical installations

Source: *Complaint by Mr. James Cleghorn, against the Calcutta Electric Supply Corporation* (May 1911) Government of Bengal, Public Works Department File 1E/16 of 1911, Serial Nos. 1-3, 5-10, & 12-16, p.22

A cursory glance over the image and notes supplied by the Inspector reveals several interesting observations. First, is the location of the meter in the staircase outside his residence (flat in this case). In addition, as per the Inspector's notes, some of the lamps that Cleghorn claims to be bare lamp regulators are actually connected through long wires to separate rooms. When presented with this evidence of "misuse," Cleghorn cited the Bank of Bengal as using bare lamp regulators connected to long wires.³⁷¹ The long-stretched matter was finally resolved by the Secretary to the Government of Bengal who, citing insufficient evidence provided by the Inspector, stated that Cleghorn did not "misuse" electricity and should, therefore, be refunded his money.³⁷²

With this insight into matters of theft and "misuse" we can begin to understand the tensions within consumers' and the Supply Corporation's ideas of the use of electric supply. Clearly, some consumers who chose to use the expensive electric supply were also concerned about having the costs of the luxury. Linking this back to our earlier discussions of middle-class identity based on questions of balancing consumption and

³⁷¹ *ibid*, p.8

³⁷² *ibid*, Office Notes, p.9

thrift, we can begin to see the ways in which consumer used or in some cases “misused” electric supply, lighting and fans.

6.3. Conclusion

This chapter has studied the ways in which domestic consumers interacted with electrical technologies and the Supply Company. The story has been in contrast to the standard accounts of *electrification* in which consumers figure as silent acceptors of electricity’s “modernity”. In the cases discussed here, consumers appear — at least apparently — to have a choice in the ways in which they chose to use, “misuse” or not use electric supply. Electric supply was both expensive and limited, and other technologies including oil lamps were constantly being improved by manufacturers, resulting in a marketplace where the choice to lay with the consumer. As we have seen, some of those who did choose to use electric supply, chose to do so on their own terms, resulting in conflicts with the Supply Corporation and its notions of fair usage.

While this chapter has attempted to ask some questions of middle-class identity and consumption around electricity in the domestic sphere, much work still needs to be done. The question of the trajectory of domestic electric supply is important to an understanding of whether demand influenced the spread of domestic electric supply or vice versa. Subsequently, in the newspaper archives, one can find several evidences of a growing number of lettings advertisements specifically mentioning whether the property was fitted with electric lights and fans. A closer analysis of such primary sources along with others can reveal the effects of access to electric supply on the housing market. Whether or not electric lighting and fans was important to those looking to rent properties would answer quite a few questions about property prices and consumer choices.

Majorly, this chapter has lacked an understanding of the interior spaces of Anglo-Indian and *bhadralok* households, and the ways in which consumption of electricity supply, and electric lighting and fans carried direct and substantial resonance for the wider project of class and social identity. As historians Rosinka Chaudhuri and Swati Chattopadhyay have shown, in the context of Calcutta’s multiple modernities, alongside public and urban spaces, and architecture, domestic spaces too were being redefined and rearranged as a

consequence of, and in order to accommodate the introduction of electricity supply.³⁷³ An examination of the changes in the interiors of domestic spaces with the introduction of electric supply and the alteration of existing complex relations between men, women and servants within the middle-class household would serve immensely to a better understanding of the “social life” of electricity and its consumers. A closer look at where electric lights were placed within the household, who was entitled to use electric lighting and appliances, and who made the decisions would also provide a nuanced account of women’s involvement in the processes of domesticating electricity and the gendered uses of electric lights and appliances in everyday life.

Such explorations, I believe, will provide new insights into histories of class and social identities, consumption, and technologies, filling in the gaps on, as Haynes, McGowan et.al. note in their introduction to *Towards a History of Consumption in South Asia*, “how precisely such discourses [on consumption and middle-class identities and notions of modernity] influenced the range and type of material goods present in middle class homes.”³⁷⁴ While answering these questions would have greatly improved this chapter and this thesis, these will, however, be potential fodder for future works on electrical histories in the colonial context.

³⁷³ Rosinka Chaudhuri, *Freedom and Beef Steaks: Colonial Calcutta Culture* (Hyderabad: Orient BlackSwan, 2015)

Swati Chattopadhyay, *Representing Calcutta: Modernity, Nationalism, and the Colonial Uncanny* (London and New York: Routledge, 2005)

³⁷⁴ Haynes, McGowan et.al., *Towards a history of consumption in South Asia*, p.10

Chapter 7

Conclusion

Throughout this thesis I have examined the political, social and cultural meanings and interpretations of electricity and electrical technologies in the complex and plural discourses and practices of Anglo-Indian and *bhadralok* societies in late-nineteenth and early twentieth century Calcutta. In exploring multiple viewpoints on electricity, this thesis has questioned the historiographical dominance of *electrification* — a term that has come to define the historiography on presenting the inevitable “growth” and “development” of electric supply in colonial India. Such scholarship, as I have discussed in Chapter 1, has also tended to invest electricity with an agency potent enough to have both defined and catalysed industrialisation, and technological and societal modernisation in colonial and postcolonial India. This thesis has, therefore, tried to unpack and dissect concepts of “modernity,” “demand” and “use” — most commonly associated with electricity in historiography — in two interrelated ways. Firstly, this thesis recognises the contemporary historical actors who defined and questioned such terms. Secondly, and consequently, it highlights the articulation of, and debates on Anglo-Indian and *bhadralok* ideologies of class and social identities, imperialism, colonialism, nationalisms, and civilisation, and the ways in which such discussions notably created and impacted the plural political and cultural viewpoints on electricity in colonial Calcutta.

I started this thesis by questioning the existing models of studying electrical history which allocates the entire remit of introduction and implementation of electric supply to an elite technocratic minority. I have, therefore, also questioned the accepted archival paradigms through which we are forced to understand the histories of technologies in the colonial setting. Extant historiography on electrification has constructed its understanding of technologies, colonialism and nationalism from the narrow base of technocratic and governmental archives and historical actors. Since these archives reveal a linear causal association between governmental policies, nationalist thought, economy, technologies, industrialisation and modernisation, the history of electrification can easily be fenced within a sphere that excludes a vast majority of contemporary social groups. A sustained academic focus on electrification from the perspectives of engineers and politicians results in a small historical archive that presents the growth and use of electricity supply as a historical inevitability. I have argued that such scholarly concern with electrification and subsequent modernisation has, paradoxically, overlooked the social groups who created and propagated their own interpretations of electricity through their political, social and

cultural lenses. Thus, otherwise detailed histories of electrification in colonial India have neglected the presence, let alone influence, of a number of promoters, anticolonial and traditionalist commentators, and consumers, amongst a range of others. Such lesser-known and understudied historical actors, in discernible ways, understood and viewed electricity in ways far different from governmental or engineering standards. But importantly, as I have shown throughout this thesis, strands from governmental, colonial, nationalist, technical and non-technical viewpoints were braided around electricity, electric lighting and fans in ways that reflected the divergent interests, struggles and attitudes of various Anglo-Indian and *bhadralok* groups.

This thesis has attempted to introduce certain critical revisionist nuances into electrical history and the histories of technologies in the colonial context. As the preceding chapters have shown, examinations of the ways in which technologies from the West were transferred to the colonies have, until very recently, been the cynosure of histories of technologies in colonial India. In such narratives, technologies were merely colonial impositions, and the roles of the natives were limited to either at best forcibly accepting these technologies or at worst being simply awestruck. The emergence of “alternative” archives and, with it, a recognition of the agency of the natives has meant that political, cultural and social divisions internal to both the colonisers and the colonised are only recently beginning to emerge as a historiographic lens through which to study technologies.³⁷⁵ My study has taken this developing archival and methodological approach further by arguing for the cultural history of electricity in colonial Calcutta as one inflected by the mundane and ordinary everyday lives and experiences of its residents.

My efforts to understand the “social life” of electricity in colonial Calcutta have been inspired by the studies of the history of technologies in colonial India by David Arnold, and the style of electrical history invoked by Graeme Gooday. Gooday has contested electrical histories which study “electrification” and subsequent modernisation, but also those which frame this already problematic model within analytical structures defined by the archives and viewpoints of system-builders and engineers. David Arnold’s pioneering examination of “everyday technologies” is somewhat hampered by his narrow dichotomy of “everyday” and “big” technologies, and his suggestion that the historical analyses of

³⁷⁵ Ritika Prasad, *Tracks of Change: Railways and Everyday Life in Colonial India* [Cambridge: Cambridge University Press, 2015]

Aparajita Mukopadhyay, *Imperial Technology and ‘Native’ Agency: A Social History of Railways in Colonial India, 1850-1920* [London: Routledge, 2018]

Projit Bihari Mukharji, *Doctoring Traditions: Ayurveda, Small Technologies and Braided Sciences* [London: The University of Chicago Press, 2016]

Nira Wickramasinghe, *Metallic Modern: Everyday Technologies in Colonial Sri Lanka* [Oxford: Berghahn, 2014]

technologies are dependant on their economic and practical scale. However, Arnold's critical contribution, in terms of my research, lies in removing the well-established concept of "colonial technology transfer," and especially "large technological systems" frameworks from histories of technologies in the colonial context. This is where the focus of this thesis has differed from the general grain of histories of technologies in colonial India, whose long-standing international reputation and constant re-emergence in diverse forms often demands inclusion into incipient studies such as this thesis. Arnold's presentation of this methodological contestation as a research agenda, and his analysis of the "social life" or "cultural biographies" of technologies as a compelling alternative helps reinforce the analytical framework of this thesis.

My thesis has identified divergences from the narrowly defined "electrification" narratives in a variety of ways. In keeping with this study's focus on multiple interpretations of electricity in a colonial idiom, my discussions of electricity and electrical technologies has offered various avenues whereby technocratic historical narratives of electrification may be problematised. In this, synthesis has countered the positions of historians who claim that the history of electricity in colonial India effectively begins only with the introduction of public electricity supply schemes in the early twentieth century. As the preceding chapters have shown, discussions of electricity for lighting and ventilation in urban and domestic spaces continued to exist and interacted with colonial and *bhadralok* discourses, literature and modes of expression and self-definition almost a quarter century before Calcutta Electric Supply Corporation began its operations in April 1899.³⁷⁶ As we have now seen, from 1875 onwards, P. W. Fleury, a businessman and engineer, introduced electric lighting into the colonial public sphere through his public exhibitions and demonstrations. Several other promoters exhibited their electrical goods and lighting, catering to the sophistication and sensibilities of the elite audience. Importantly, in Calcutta's public spheres, the imperial, nationalist, commercial, intellectual, technological, scientific, political and journalistic were deeply intertwined. Several educated *bhadralok* also visibly immersed themselves into introducing Western sciences and technologies as mediums for class and nationalist identities, and in doing so, defined electricity as a product and symbol of Western civilisational and cultural modernity.

As I have discussed, a nuanced understanding of how connections between electricity, colonialism, and Western technological modernity were established is unavailable within the historiography on Indian electrification. This thesis has attempted in a small way to question and bridge this gap by challenging historians' definitions of electricity as a

³⁷⁶ Sarkar, "Domesticating electric power", p.358

“modern” technology simply because electrification introduced large-scale political, industrial and economic change and, therefore, modernisation. Instead, as I have shown in Chapter 2, definitions of what exactly constituted “Western” and “modern” depended on the political and cultural viewpoints of contemporary social groups.

This thesis’s emphasis on the presence and influence of, and plural interactions between, numerous elite and non-elite social actors has also introduced a nuanced understanding of how historical actors viewed conceptions of “modernity” differently depending on their cultural and political viewpoints. Chapter 3 of this thesis has actively invested in reading little-discussed worlds of Bengali satire and public theatre as platforms where anticolonial and traditionalist sentiments, philosophy, and class and cultural identities melded in the service of entertainment and propaganda. Here we have seen how anticolonial and traditionalist *bhadralok* authors, dramatists and illustrators skilfully and metaphorically used electricity in their narratives to carve out spaces to challenge colonial conceptions of modernity and education. In our discussion of satires by Amritalal Basu and Amarendranath Datta, two well-known dramatists and satirists, we have seen that invocations of electricity and clever usage of electrical technologies and terms as well as other narrative strategies common to Bengali public theatre thinly obfuscated various instances of strident anticolonial contestation. Satire and public theatre, as I have demonstrated, strikingly contested not only colonial and “Western” formulations of technological modernity, but also complicated divisions between the “home” and the “outside” by their casting of the public stage as a realm to redefine the cultural and spiritual domestic sphere. In the writings of such men and other illustrators, we have seen conceptions of “Western” education and technological modernity decimated through various tactics such as presenting electricity as an unnecessary luxury capable of corrupting Bengali women and “Indian” culture values, and pinpointing the inefficacy of “scientific” nationalism by presenting their ideas as scientific gibberish. Such formulations, as we have seen, criticised “Western” ideals and technologies, and *bhadralok* nationalist positions. Electricity, in multiple anticolonial commentaries and satire, variously appeared as a representation of the dangers of “Western” culture capable of disrupting “Indian” cultural values and schemes within *bhadralok* homes. This thesis has, however, only been able to skim the surface of these important archival sources.

As we have seen, the premise of Chapters 2 and 3 derives from the idea that articulation of electricity as a symbol of Western cultural and civilisational progress was historically constituted and contested by varied, conflicting social and political groups, and relationships weighted with power. As social groups constructed and contested various conceptualisations of electricity as “Western” and “modern,” they also revealed the

fractures within and between colonial and *bhadralok* societies. The place of political and cultural beliefs and identities in the history of electricity in colonial Calcutta present a promising line of inquiry into the pluralities of a colonial landscape where technologies worked as significant constituents of cultural divisions and self-identification.

By late-nineteenth century, as we have seen in Chapter 4, the domestic market had begun to become central to electrical promoters' visions of an "electrical Calcutta". As Chapter 4 has demonstrated, not only did advertisements and discourses promoting domestic use of electricity encompass the benefits of electricity over existing method and technologies of lighting and ventilation, very often too they directly addressed that vexed political and cultural subject considered both important and problematic to both Anglo-Indian and *bhadralok* public and domestic spheres — the native servant. This chapter has utilised a number of insufficiently studied archival sources to discuss how the disapproval of native servants by the Anglo-Indian and *bhadralok* employers also gradually crossed into the discourses of electrical promoters. By highlighting the words of journalism, technical writings, and advertising, we have seen how electrical promoters and advertisers produced scathing and highly focused critiques of a range of issues that highlighted the dishonesty and laziness of native servants. This line of inquiry has produced a few interesting conclusions. In a political and social culture and time characterised by ambivalent social attitudes complicated by imbalances of power, promoters repeatedly represented the native servant as integral to the methods and technologies that they sought to replace with electricity. The promotion of electricity as a "modern" alternative to the oil lamp or the punkah did not just mean invocations of the discomfort and incompetence of these technologies, but the near-ubiquitous presence and considerable focus on the "lazy and dishonest" servant that serviced the oil lamp or punkah. Historiography on Indian electrification is yet to appreciate the leverage exercised by the native domestic servant through their relationships with domestic and public spaces, or lighting and ventilation technologies and methods. My study is a small step in this direction.

This thesis's examination of the attempts by promoters and engineers to market the benefits of greater use of electricity questions the problematic positions of historians who read the history of electricity as one where "the spread of electric utilities has come to signify the advance of modernity."³⁷⁷ My study has illustrated various instances within colonial Calcutta where the "modernity" of electricity was not an established fact, and electricity did not simply replace existing methods of lighting and ventilation. That electrical engineers and promoters incorporated so many political and cultural discourses

³⁷⁷ Kale, *Electrifying India*, p.1

to gain the attention of prospective consumers excitingly challenges the various teleological, technocratic and colonial definitions through which histories of electricity have been understood.

In Chapter 5, I complicate linear histories of electrification further by examining the trajectory of public electric supply in the first two decades after Calcutta Electricity Supply Corporation's plant in the centre of Calcutta began its operations in May 1899. Public electric supply was essential to the colonial government's efforts to visually separate the "White Town" or the European and colonial quarters in the centre of Calcutta from the areas of native habitation. Alongside electric lighting in buildings and streets, electric tramways allowed civil authorities to "improve" Calcutta and move the urban poor out of the centre and into the suburbs. Despite the benefits of public electric supply, the colonial government was not convinced of the restructuring of the urban environment resulting from underground cabling, electric poles, the inefficient distribution systems, and the high costs of electric supply. These concerns, I have shown, were central to the local government's decision to accept proposals from the gas supply company to provide street lighting.

In Chapter 6 I address a lag in much of the scholarship on technologies, and especially electricity, in colonial India, where users of technologies have been largely overlooked by historians working within rubrics of technocratic, economic and political histories. The prevalent historiographic approaches to electrical histories work around explicit academic assumptions that the use of electricity in urban and domestic spaces was a historical inevitability simply because electricity provided a "modern" alternative to existing methods of lighting and ventilation. In this chapter, I show how some Anglo-Indian and *bhadralok* consumers also disagreed with Calcutta Electric Supply Corporation about what constituted proper and improper use of electricity. These discussions arrive to us through evidences of legal cases and news reports on Anglo-Indian and *bhadralok* consumers stealing electricity from the Supply Corporation. In the early twentieth century, as we have seen, while sections of Anglo-Indian and *bhadralok* societies began using electricity in their domestic spaces as a display of their status and wealth, concerns of consumption and thrift also became important in the difficult economic situations of the first three decades of the twentieth century. Contemporary anxieties in Calcutta over the unreliable and expensive services and monopoly of the Supply Corporation provided impetus to consumers of electricity to justify their "improper use" of electricity as an action for economic reform.

Overall, this thesis has offered a glimpse into the complex political and cultural history of electricity in Calcutta in the late-nineteenth and early twentieth centuries through an examination of Anglo-Indian and *bhadralok* positions, deployment and construction of class and social politics within this environment. It has challenged the primacy of the “technology transfer” and “electrification” frameworks as the avenue through which electrical histories may be analysed. This study’s approach of using class and social politics as a guiding mechanism has recovered the presence and influences of a number of non-elite social actors whose social and cultural viewpoints, everyday lives, and internal conflicts question the narrow technocratic accounts of histories of electricity. This thesis has argued that such actors were not passive acceptors of the “modernity” of electricity, but through their agency, created, discussed and debated their own meanings and interpretations of electricity and electrical technologies, manifestations of which are available through less recognised literary, cultural and visual sources. Alongside a recognition of the diverse interpretations of electricity and electrical technologies, and their uses, the considerable presence of matters electrical has also been revealed the complex links and divisions between and within colonial and *bhadralok* societies. Arguments and historical sources which have framed my focus on electricity have also raised concerns about conventional discussions of private and public spheres, gender roles, and the imbalances of power in the colonial landscape.

Much work, however, remains to be done to further and fully develop the arguments in this thesis. What is missing from the spectrum of representations is a further analysis of documents outside the technocratic archives and, therefore, uncovering the voices of the historical actors that have not been given a voice in this thesis — native domestic servants, audiences in lectures and theatres, and manufacturers of batteries and peripheral electrical technologies. I have also not unpacked the cultural connotations, motivations and results of using electricity and electrical technologies in domestic spaces as evinced in social and literary discourses on Anglo-Indian and *bhadralok* domestic lives. Such an analysis will invite attention to where electric lights and fans were installed and placed within households, who was entitled to use them, and who made the decisions, thereby providing a more nuanced account of the gendered uses and effects of electric lighting and technologies. It is, however, hoped that this thesis will make a reasonable contribution to available scholarship on the histories of electricity and technologies in the colonial context and, in a wider sense, also add to histories of urban and domestic cultures and politics.

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