



HISTORIES OF THE SACRED AND SECULAR, 1700–2000



Rethinking Secular Time in Victorian England

Stefan Fisher-Høyrem

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Stefan Fisher-Høyrem
University of Agder
Kristiansand, Norway



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To my families

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I wrote and rewrote this book in sporadic bursts and with fluctuating motivation levels over a period of ten years, during which I described it as an ‘ongoing project’ in at least as many unsuccessful academic job applications.

Most of the primary research was conducted at the Bodleian Library in Oxford between 2007 and 2013 when I was completing my PhD in History at Oxford Brookes University (2012). The lecturers, colleagues, and friends who enriched my life during those happy years (and beyond) are too many for me to name all of them here. My MA supervisor Roger Griffin generously provided space for exploring big theories of modernity, and Tom Crook, who supervised my PhD, convinced me it might be interesting to consider secularity as a kind of time. Many of the ideas developed in my doctoral thesis, and now developed much further in this book, were nourished by long evening conversations with Daniel Cojucaru, Peter Eckley, Joel Harrison, Nathan Rose, and many others. I also benefited greatly from Revd. Alastair Wood’s passion for all things railway related.

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Portions of the book (primarily in Chap. 4) have been previously published in different forms in the article “‘If It Teaches, It Teaches

Imperceptibly”: Recasting the Secularity of the Victorian Public Sphere’ published in *The Journal of Religious History* 41, no. 4 (December 2017): 457–75, <https://doi.org/10.1111/1467-9809.12452>. I have also presented parts of the book’s argument in the form of short papers at various conferences, occasionally receiving positive responses from more senior scholars. I am grateful to them, and to all who try to encourage younger colleagues braving the merciless wasteland of postdoctoral academic life.

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Oxford and Kristiansand

Stefan Fisher-Høyrem

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CHAPTER 1

Introduction: Secularities, Technologies, and Modern Temporalities

In 1904, Edward Cowell patented and published a pocket-size fold-out chart of ‘all the important cities of the world’, and suggested it would be particularly valuable to travellers, news editors, and bankers. On its centre page, 160 cities appeared as dots within a grid of vertical lines indicating global time zones. Readers could slip a loose ruler-like paper strip showing 24 hours into holes on either side of the page to be slid across the chart, enabling them to find the time in any of the cities, provided they knew the time in their own location. Cowell instructed his readers to

[set] the time (on the time strip) to your own local time (not Standard Time but to you own meridian). The correct time will then appear in all other cities. This chart also shows the DAY and DATE around the world; that is, it shows at a single glance what portion of the world is occupied by TOMORROW or YESTERDAY (that is, the day succeeding or preceding).¹

The cities were marked in an empty white space, their relative location determined solely by calculation of longitude and latitude, abstracted from actual topological variations. The little device represented the world as a blank surface on which travellers, news, and money could be imagined

¹ Edward Cowell, *Time Chart of the World: Instant Time in 160 Important Cities* (London and Liverpool: George Philip & Son, Ltd in London; Philip, Son & Nephew in Liverpool, 1904).

as circulating without friction so that their temporal location could be determined and predicted ‘at a single glance’, as the author put it (Image 1.1).

This was not all Cowell’s idea, of course. Something along these lines had been envisioned by the Canadian delegate to the International Geographical Congress in Venice in 1881, Sanford Fleming, who argued for adopting a ‘system of cosmopolitan time-reckoning’, which he thought

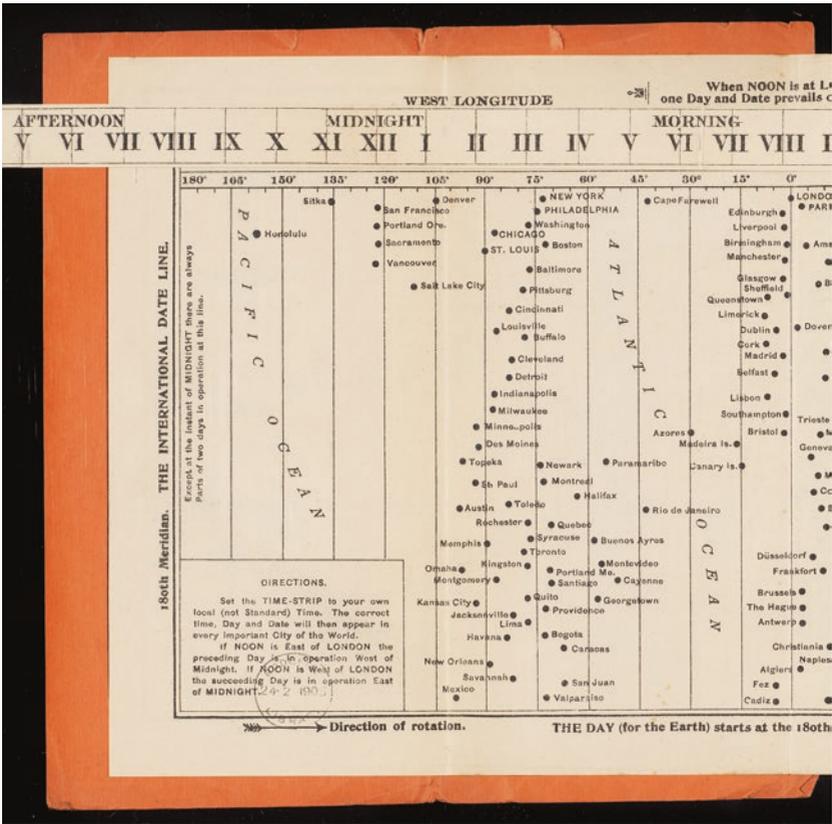


Image 1.1 Edward Cowell, *Time Chart of the World: Instant Time in 160 Important Cities* (London and Liverpool: George Philip & Son, Ltd in London; Philip, Son & Nephew in Liverpool, 1904). Bodleian Library, 22013 e. 6, whole chart

location of a common time meridian. To the Victorians, partly motivated by national pride (Britain was responsible for most of the 90,000 miles of submarine cables laid by 1880), the ‘annihilation of space and time’ effected by the expanding technological networks seemed for the first time to make conceivable in practical terms the century-old idea of a British global federacy.³ Commenting on the successful telegraphic connection between England and America, and pre-echoing the late-twentieth-century idea of a ‘global village’, the *Times* declared that ‘the world [was] fast becoming a vast city’.⁴ In 1884, the International Meridian Conference decided on the Greenwich Meridian as ‘official’, and during the early 1900s nations increasingly adopted the new standard time on domestic levels. The temporal standardization that made possible Cowell’s little time chart would become one of the great Victorian achievements.

But Cowell’s chart does more than exemplify a general *fin-de-siecle* concern with time and standardization. It makes explicit a fundamental idea that underpins the argument of this book, namely that there is a necessary conceptual connection between a particular kind of *mobile entities* such as travellers, news, and money, and the *conception of time* that makes it conceivable to predict their movement. The chart presents the entities as moving between spatial locations yet measures their flight not in spatial but in temporal terms. If the entities were to deteriorate or be interrupted along route, such temporal measurement would be impossible. On the one side of the conceptual coin, then, there are entities able to move without deterioration, and on the other, a time that is independent of their movement. Conceptually speaking, these two belong together.

This is the basic premise for what I am trying to do in this book. In the chapters that follow, I will describe three Victorian technological networks whose operation centred on moving specific entities in ways that made them impervious to change, and which therefore, I will argue, carried a particular concept of time. The Victorian railway network sought to move travellers without causing them psychological or physical harm. The networks related to daily news production and distribution moved information in the form of ‘news’ through long chains of translation without interruption. Networks connecting local banks to the Bank of England circulated paper notes meticulously made to embody the immutability of

³Duncan Bell, *The Idea of Greater Britain: Empire and the Future of World Order, 1860-1900* (Princeton and Oxford: Princeton University Press, 2007), 630–91.

⁴‘The Success of the Transatlantic Cable Etc’, *The Times*, 30 July 1866, 8.

the abstract gold standard on which depended both the notes' value and the state of the national economy. These networks functioned as intended if they were able to mobilize human skills and technologies to impart to the entities the joint properties of *immutability* and *mobility*, and maintain these properties throughout the entities' passage. If this operation was successful, the entities' movement could be traced and predicted using (for instance) time charts such as Cowell's. And because entities moving without change have a conceptual connection to a time independent of their movement, we can say that to the degree these networked operations were successful, the networks mediated this kind of time.

Mediated is a key word here. It is not so much that Victorians explicitly discussed or believed propositions about the nature of time (though, of course, discussions of this topic are not exactly difficult to find in the sources). It is rather that the networks included collective practices and behaviours that only made sense on certain unspoken conditions. We could think of it as conditions of possibility, or ideas implicitly underpinning certain practices. Cowell's chart was part of an extensive network which functioned on the condition that time was in a certain way—uniform and abstract, everywhere the same. The chart also served to install and maintain this particular time conception in the minds and embodied habits of people using it. In this way, the networks described in this book carried unarticulated ideas that gradually came to be taken for granted. This taken-for-granted-ness required active construction and maintenance. Travelling by train, engaging with current events through newspapers, or using cash—these were practices whose apparent simplicity belied the extent of work needed to make them appear so obvious and natural. In other words, the book is concerned with a level at once more material and more 'subconscious' than is perhaps common in most history books. What is at stake is not conscious ideas or experiences, but unarticulated assumptions and concepts embedded in material networks and their associated practices, together with the extensive work needed to achieve this embedding.

CHALLENGING SECULARIZATION

Analysing and describing how certain networks of technologies and practices mediated this kind of time, the book aims to offer a new approach to the history of secularization. As a pragmatic point of departure, I have chosen the revised secularization narrative presented in philosopher

Charles Taylor's 2007 book *A Secular Age*—or at least some of its core tenets.⁵

Drawing on the work of Marcel Gauchet and Benedict Anderson, Taylor offers an analysis of modernization and secularization in terms of underlying assumptions about the nature of time.⁶ In *A Secular Age*, as in his earlier works *Sources of the Self* (1989) and *Modern Social Imaginaries* (2004), Taylor digs below notions of articulated ideas and seeks to excavate the very basic sense in which people imagine and perform their everyday 'life-worlds'.⁷ He is interested in the 'pre-theoretical' assumptions that are always-already implicit in the embodied and habitual practices of human collectives.⁸ Though the 800-page book is about secularization, Taylor is less interested in belief or unbelief per se than their 'shared conditions' in modernity, that is, how belief and unbelief both take on new meanings on a common and constantly changing background. As he puts it, because 'all beliefs are held within a context or framework of the taken-for-granted, which usually remains tacit, and may even be as yet unacknowledged by the agent, because never formulated', and because this tacit background changes over time, 'belief in God isn't quite the same thing in 1500 and 2000'.⁹ For Taylor, then, to speak of modern secularity is to speak of 'the new conditions in which belief and unbelief uneasily coexist, and often struggle with each other in contemporary society'.¹⁰

Taylor's secularization thesis is sophisticated and comprehensive, and has been celebrated, discussed, and critiqued in several fora. For the purposes of this book, two specific elements of it are of particular importance, both of which historians of secularization have largely neglected—even those who have to some extent engaged Taylor's work: firstly, his mentioned attention to the level of unarticulated assumptions implicit in

⁵ Charles Taylor, *A Secular Age* (Cambridge, MA.; London: Belknap Press of Harvard University, 2007).

⁶ Marcel Gauchet, *The Disenchantment of the World: A Political History of Religion* (Princeton: Princeton University Press, 1997); Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso Editions and NLB, 1983).

⁷ Charles Taylor, *Sources of the Self: The Making of the Modern Identity* (Cambridge: Cambridge University Press, 1989); Charles Taylor, *Modern Social Imaginaries* (London: Duke University Press, 2004).

⁸ Ruth Abbey, *Charles Taylor* (Tedington: Acumen, 2000), 178–93.

⁹ Abbey, 13.

¹⁰ Taylor, *A Secular Age*, 295.

collective embodied practices; and secondly, his explicit association of secularity with a specific kind of time embedded on this level. In combination, these two core tenets of his thesis offer to the historiography of British secularization a subtle challenge whose potential radicality historians in the field have yet to fully appreciate.

Historians of British secularization have typically focused their analyses on the level of beliefs, discourses, and identity formation, and assumed that the category of secularity is conceptually and necessarily tethered to 'religion'. Whether construing secularization as a decline in conscious affirmation of Christian doctrine due to the impact of the natural sciences, historical criticism, or the erosion of any transcendent ground of morality,¹¹ or deploying case studies to counter such sweeping claims of an 'unsettlement of faith',¹² historians' focus has generally remained on religious/nonreligious beliefs and their cultural or social dissemination and influence. Intellectual historians have shown that religious ideas continued to have a strong influence throughout the nineteenth century, not only in the morally charged Victorian domestic sphere but also in political and economic thought.¹³ Alongside the emergence of self-consciously 'secular' outlooks such as utilitarianism and 'secularism' (a term coined by George

¹¹Owen Chadwick, *The Secularization of the European Mind in the Nineteenth Century*, The Gifford Lectures in the University of Edinburgh (Cambridge: Cambridge University Press, 1975).

¹²Hugh McLeod, *Class and Religion in the Late Victorian City*, ed. J.F.C. Harrison and Stephen Yeo, Croom Helm Social History Series (London: Croom Helm, 1974); Jeffrey Cox, *The English Churches in a Secular Society* (Oxford: Oxford University Press, 1982); Mark Smith, *Religion in Industrial Society: Oldham and Saddleworth, 1740-1865*, ed. Sir John Elliott et al., Oxford Historical Monographs (Oxford: Clarendon Press, 1994); David Nash, 'Reconnecting Religion with Cultural and Social History: Secularization's Failure as a Master Narrative', *Cultural and Social History* 1, no. 3 (2004): 302-25; David Nash, 'Reassessing the "Crisis of Faith" in the Victorian Age: Eclecticism and the Spirit of Moral Inquiry', *Journal of Victorian Culture* 16, no. 1 (2011): 65-82.

¹³Boyd Hilton, *The Age of Atonement: The Influence of Evangelicalism on Social and Economic Thought 1795-1865*, New ed (Oxford: Clarendon Press, 1991); Frank M. Turner, 'The Religious and Secular in Victorian Britain', in *Contesting Cultural Authority: Essays in Victorian Intellectual Life* (Cambridge: Cambridge University Press, 1993), 3-37; Frank Prochaska, *Christianity and Social Service in Modern Britain: The Disinherited Spirit* (Oxford: Oxford University Press, 2006). Recently, historian Dominic Erdozain has sought to restate the centrality of doctrinal discussions in histories of secularization. Dominic Erdozain, *The Soul of Doubt: The Religious Roots of Unbelief from Luther to Marx*, 1 edition (Oxford: Oxford University Press, 2015).

Jacob Holyoake in the 1850s),¹⁴ others have pointed to religious revivals and intense pastoral-promotional work across the spectrum of Christian denominations, not least the great profusion of domestic missions in cities like London and Manchester.¹⁵ While there certainly occurred something one could call a Victorian ‘crisis of faith’, where some widely publicized authors dismissed the particular Christian traditions in which they had grown up, the period equally saw a high number of (re)conversions to various religious orthodoxies among the same generation.¹⁶

Around the turn of the millennium, inspired by the 1990s’ historiographical debates over ‘postmodernism’, some historians shifted to a register of ‘discourses’ providing a repertoire of moral and gendered norms and narratives from which people receive and construct their identities.¹⁷ Prominent among these approaches was that of Callum Brown, whose 2001 book *The Death of Christian Britain*¹⁸ claims the latter was only fully secularized as late as the 1960s, when the force of certain narrative

¹⁴ George Jacob Holyoake, *The Trial of Theism* (London: F. Farrah, 1858); For accounts of British secularism, see David Nash, *Secularism, Art and Freedom*, New edition (London and New York: Continuum International Publishing Group Ltd., 1994); Michael Rectenwald, *Nineteenth-Century British Secularism: Science, Religion and Literature* (Palgrave Macmillan UK, 2016).

¹⁵ Prochaska, *Christianity and Social Service in Modern Britain*; Douglas A. Reid, ‘Playing and Praying’, in *The Cambridge Urban History of Britain: 1840-1950*, ed. Martin J. Daunton and Peter Clark, vol. 3 (Cambridge: Cambridge University Press, 2000), 745–810; David W. Bebbington, *Evangelicalism in Modern Britain: A History from the 1730s to the 1980s*, New edition (London: Routledge, 1988); David Roberts, *Paternalism in Early Victorian England*, Croom Helm Social History Series (London: Croom Helm, 1979); Kathleen Heasman, *Evangelicals in Action: An Appraisal of Their Social Work in the Victorian Era* (London: Geoffrey Bles Ltd, 1962).

¹⁶ Timothy Larsen, *Crisis of Doubt: Honest Faith in Nineteenth-Century England* (Oxford: Oxford University Press, 2006); Nash, ‘Reassessing the “Crisis of Faith” in the Victorian Age: Eclecticism and the Spirit of Moral Inquiry’.

¹⁷ Sarah Williams’ 1999 study of the poorer working classes in Southwark argued that ‘religiosity’ is more a question of inner identity formation than external participation in church services, while Simon J.D. Green emphasized how that same term ‘religiosity’ (or non-) might denote a property belonging to specific modes of social organization. Simon J.D. Green, *Religion in the Age of Decline: Organisation and Experience in Industrial Yorkshire, 1870-1920* (Cambridge: Cambridge University Press, 1996); S.C. Williams, *Religious Belief and Popular Culture in Southwark* (Oxford: Oxford University Press, 1999).

¹⁸ Callum G. Brown, *The Death of Christian Britain: Understanding Secularization 1800-2000*, ed. Hugh McLeod, *Christianity and Society in the Modern World* (London and New York: Routledge, 2001).

structures characteristic of Christian Evangelicalism (which until then had dominated popular discourse) went into abrupt and rapid decline. I shall not repeat his entire argument here, only note that for all his interest in religion's collective and 'discursive' forms, Brown remains committed to an understanding of religion as primarily to do with *belief*. What makes religion such a difficult phenomenon to study, he writes, is that it 'is founded upon faith—on belief—that is, by its very definition, without proof of its validity'. It is therefore only 'the social and cultural significance of religion that we study'.¹⁹

In the wake of the emerging social scientific field of nonreligion and secularity studies in the 2010s,²⁰ Brown and other historians have increasingly returned to statistics, surveys, and interviews in order to account for the multiple varieties of atheistic, agnostic, free-thinking, sceptical, or otherwise nonreligious identities that have existed throughout history despite the image often perpetuated of 'enchanted' premodern pasts.²¹ The hope is to restore a sense of historical agency and identity to groups who have more often than not been ignored or neglected by mainstream historical accounts largely focused on religion and its complex development.²²

Typically, the implicit understanding of 'religion' in these historiographies has been as a kind of universal and primordial human instinct (of which Christianity is sometimes assumed to be at once merely one expression among many *and* a prototype) whose essence nonetheless remains elusive to the rational scientist.²³ Hence, people can leave 'religion' yet

¹⁹ Callum G. Brown, *Religion and Society in Twentieth-Century Britain*, ed. Keith Robbins, Religion, Politics and Society in Britain (Harlow: Pearson Education Limited, 2006), 8–9.

²⁰ Jesse M. Smith and Ryan T. Cragun, 'Mapping Religion's Other: A Review of the Study of Nonreligion and Secularity', *Journal for the Scientific Study of Religion* 58, no. 2 (2019): 319–35, <https://doi.org/10.1111/jssr.12597>.

²¹ David S. Nash, 'Believing in Secularisation—Stories of Decline, Potential, and Resurgence', *Journal of Religious History* 41, no. 4 (2017): 505–31, <https://doi.org/10.1111/1467-9809.12449>; Callum G. Brown, *Becoming Atheist: Humanism and the Secular West* (New York: Bloomsbury, 2017); Clive D. Field, *Secularization in the Long 1960s: Numerating Religion in Britain* (Oxford, New York: Oxford University Press, 2017).

²² David Nash, 'Secularist History: Past Perspectives and Future Prospects', *Secularism and Nonreligion* 8, no. 0 (23 January 2019): 1, <https://doi.org/10.5334/snr.113>.

²³ Catherine Bell, 'Paradigms Behind (and Before) the Modern Concept of Religion', *History and Theory* 45, no. 4 (2006): 27–46.

still be ‘religious’, for instance. A few examples must suffice here. Historian Mark Smith discusses popular belief in witches and use of charms as expressions of ‘another religious world [than Christianity]’, which he calls ‘popular superstition’ and ‘traditional religion’.²⁴ Similarly, Simon Green states that after the mid-nineteenth century the British people ‘retained their religion [...] but their religion ceased to be meaningfully Christian’.²⁵ Callum Brown discusses the appearance of what he considers ‘quasi-religions’ in twentieth-century Britain,²⁶ but what makes them merely ‘quasi’ is apparently their general lack of what (at least in this part of the world) has been considered traditional Christian features such as a set of creedal propositions or institutionalized forms of worship. Despite a certain widening of the concept of ‘religion’ and moving it to a level of discourse or identity formation, current histories of secularization have maintained this rather vague understanding of what ‘religion’ really means.

Throughout these shifts, historians of British secularization have tended to cast the secular as the negation of religion—whether they conceive the latter in terms of beliefs, discourses, or identities. Unfortunately this ignores discussions that have been going on for decades in the neighbouring halls of Religious Studies, where scholars have long been questioning whether such a distinction between religion and its ‘other’ can be meaningfully made. As anthropologist Talal Asad and many others have demonstrated, ‘there cannot be a universal definition of religion, not only because its constituent elements and relationships are historically specific, but because that definition is itself the historical product of discursive processes.’²⁷ Others have argued that to assume religion has an autonomous essence distinguishable from science, politics, or rationality is to presuppose the division in contemporary liberal societies between ‘faith’ and

²⁴ Smith, *Religion in Industrial Society: Oldham and Saddleworth, 1740-1865*, 263.

²⁵ Green, *Religion in the Age of Decline: Organisation and Experience in Industrial Yorkshire, 1870-1920*, 389.

²⁶ Brown, *Religion and Society in Twentieth-Century Britain*, 24.

²⁷ Talal Asad, *Genealogies of Religion: Disciplines and Reasons of Power in Christianity and Islam* (Baltimore and London: Johns Hopkins University Press, 1993), 24.

‘politics’, a division representing a distinctly Western and modern paradigm with a murky colonial legacy.²⁸

Most historians of British secularization carry on as if these discussions never occurred. Dominic Erdozain—despite having written critically about the multiple definitions of ‘religion’ circulating in the historiography—emphasizes theological and doctrinal commitments and the ‘core beliefs’ that, for him, define the essence of what it means to be ‘religious’.²⁹ ‘Secularization’, he asserts, denotes ‘the moment when [religion] called on no resource beyond its own earthbound velocity [...] a shift [that] occurred within religious organizations, rather than outside them’.³⁰ For Callum Brown, when ‘a formerly religious people’ makes a ‘sudden plunge into a truly secular condition’, it simply means they no longer perform religion in *any* of its forms.³¹ Of course, some have contested the suddenness of this assumedly modern plunge, but for the present purposes the important point is that secularity still tends to denote a negative absence while the term ‘religion’ does most of the conceptual work.³² Secularity is only available as something occurring either within ‘religion’ (most often implicitly understood as Christianity in some form) or in opposition to a

²⁸See Russell T. McCutcheon, *Manufacturing Religion: The Discourse on Sui Generis Religion and the Politics of Nostalgia* (Oxford: Oxford University Press, 1997); Derek R. Peterson and Darren R. Walhof, eds., *The Invention of Religion: Rethinking Belief in Politics and History* (New Brunswick, NJ: Rutgers University Press, 2002); Daniel Dubuisson, *The Western Construction of Religion: Myths, Knowledge, and Ideology* (Baltimore and London: The Johns Hopkins University Press, 2003); Tomoko Masuzawa, *The Invention of World Religions: Or, How European Universalism Was Preserved in the Language of Pluralism* (Chicago: University of Chicago Press, 2005); Timothy Fitzgerald, ed., *Religion and the Secular: Historical and Colonial Formations* (London and Oakville CT: Equinox, 2007); Daniel Dubuisson, *The Invention of Religions* (Bristol: Equinox Publishing, 2019).

²⁹Erdozain himself has critiques the multiple definitions of ‘religion’ circulating in the historiography. See Dominic Erdozain, “‘Cause Is Not Quite What It Used to Be”: The Return of Secularization”, *English Historical Review* 127, no. 525 (2012): 377–400.

³⁰Dominic Erdozain, ‘The Secularisation of Sin in the Nineteenth Century’, *The Journal of Ecclesiastical History* 62, no. 1 (January 2011): 59–88.

³¹Brown, *The Death of Christian Britain: Understanding Secularization 1800-2000*, 1.

³²With this understanding of what constitutes ‘religion’, it is perhaps no surprise that *The Strange Death of Christian Britain* tends to equate religion as such with Evangelical Christianity, ignoring the presence of any Roman Catholics in nineteenth- and twentieth-century England, except for passing remarks that they were very similar to Evangelicals. See Jeremy Morris, ‘The Strange Death of Christian Britain: Another Look at the Secularisation Debate’, *The Historical Journal* 46, no. 4 (2003): 963–76.

generic and ill-defined ‘religiosity’. Very rarely is secularity admitted any independent conceptual footing.

This tendency is evident in the field as a whole to this day, even as some historians seek to challenge it with ‘postsecular’ conceptual frameworks.³³ As Jeremy Morris has pointed out, the field remains characterized by a separation between the specifically ‘religious’ and the specifically ‘nonreligious’, in structural as well as theoretical terms: histories of the *social* aspects of religion are written with little regard for a/theological issues as such, while ecclesiastical or denominational histories are written within scholarly conclaves made up of sympathizers³⁴—a pattern I want to suggest is currently repeating itself in the emerging historiography of various ‘secularisms’.

To illustrate: in 2006, a year before Taylor published *A Secular Age*, a group of scholars employed his diagnosis of the late twentieth century as an ‘age of authenticity’ in a book titled *Redefining Christian Britain*—an obvious reference to Brown’s declared death of the same.³⁵ Arguing that ‘traditional’ church practices had not so much been rejected as consciously reconfigured to meet the modern criteria of ‘authentic’ performance, they provided a series of case studies highlighting how even after the 1960s religious belief has remained ‘a critical part of British identity’.³⁶ More recently, Sam Brewitt-Taylor has argued that the moral parameters of the assumed secular revolution of the ‘Sixties’ in Britain were initially articulated by Christian radical clergymen.³⁷ From this perspective, it is as if the secularity associated with the 1960s’ radicalism and plurality of worldviews had been provided by Christianity all along and that all critique had always really been integral to the Christian tradition itself. On the other hand, historians less inclined to celebrate the flexibility of religious doctrines have sought to take Taylor and his interlocutors to task for their not always

³³ Sam Brewitt-Taylor, *Christian Radicalism in the Church of England and the Invention of the British Sixties, 1957-1970: The Hope of a World Transformed*, Oxford Historical Monographs (Oxford, New York: Oxford University Press, 2018).

³⁴ Morris, ‘The Strange Death of Christian Britain: Another Look at the Secularisation Debate’.

³⁵ Jane Garnett et al., eds., *Redefining Christian Britain: Post 1945 Perspectives* (London: SCM Press, 2006), 12, 21–34; Charles Taylor, *The Ethics of Authenticity* (Boston: Harvard University Press, 1992).

³⁶ Garnett et al., *Redefining Christian Britain*, 6.

³⁷ Brewitt-Taylor, *Christian Radicalism in the Church of England and the Invention of the British Sixties, 1957-1970*.

very subtle religious apologetics, arguing with Brown that ‘[t]he constant calibration from religion, usually Christianity, and, as in Taylor’s case, Catholicism, warps the possibility of envisioning secularity in anything like its potentials’.³⁸ Brown goes so far as to suggest that only historians who themselves identify as atheist could ever hope to get right the actual histories of atheistic and secular identities.³⁹ In his 2016 book *Nineteenth-Century British Secularism*, in a strange reversal of the religious apologetic approach described above, Michael Rectenwald referred to Taylor’s notion of a shared ‘background’ on which belief and unbelief coexist, arguing that this background—which for Taylor and his sympathizers has its roots in Christian theology and pietistic practice—was on the contrary first articulated as a conceptual possibility by none other than nineteenth-century self-identifying ‘secularists’.⁴⁰

FIRST CHALLENGE: THE MATERIAL TURN

The structural and conceptual dichotomy between religion and secularity and the related concern with changes in people’s (non-)beliefs constitute two intertwined threads running through the entire historiography of British secularization. The central elements of Taylor’s thesis challenge both tendencies. First, as we have already mentioned, Taylor is concerned with a ‘deeper’ level than beliefs or identity markers. His analysis bypasses the question of belief versus unbelief because it addresses assumptions that remain unarticulated and implicit in embodied practices shared by large collectives. Even if the nineteenth century saw a proliferation of articulated ‘-isms’ and worldview identities, these nonetheless emerged and operated on a common background of shared, unspoken conditions. The question is not what people were able to express about themselves or others, or what identity markers were available to them in dominant discourses. At stake is not thoughts or words, but actions and things, not identities or narratives, but implicit conditions for practice and the technologies that mediate these conditions.

³⁸ Callum G. Brown, ‘The Necessity of Atheism: Making Sense of Secularisation’, *Journal of Religious History* 41, no. 4 (2017): 439–56, <https://doi.org/10.1111/1467-9809.12448>.

³⁹ Brown.

⁴⁰ Rectenwald, *Nineteenth-Century British Secularism*; See also Michael Rectenwald, ‘Mid-Nineteenth-Century British Secularism and Its Contemporary Post-Secular Implications’, in *Global Secularisms in a Post-Secular Age*, ed. Rochelle Almeida, George Levine, and Michael Rectenwald (Boston: De Gruyter, 2015), 43–64.

A key concept for Taylor here is what he calls *social imaginaries*,⁴¹ which he describes as a wide array of

ways in which [people] imagine their social existence, how they fit together with others, how things go [and ought to go] on between them and their fellows, the expectations which are normally met, and the deeper normative notions and images which underlie these expectations.⁴²

While the term ‘social imaginary’ easily connotes some sphere of fantasy or dreams, Taylor is in fact employing it to be more attentive to human bodies and their material surroundings. It denotes at once a set of unarticulated assumptions and the technologies and associated practices through which these assumptions are performed, and to which they lend a sense of legitimacy. Embodied collective practices carry an implicit and often unarticulated ‘know-how’, or as Taylor says, a certain ‘understanding implicit in practice’.⁴³ The concept of the social imaginary seeks to capture this seamless interaction between ‘the understanding that makes the practice possible’ and the ‘practice that largely carries the understanding’. Social imaginaries are realized only in and as embodied practice. ‘[B]ecause human practices are the kind of thing that makes sense’, he argues, ‘certain “ideas” are internal to them; one cannot distinguish the two in order to ask the question, which causes which’.⁴⁴

This renewed attention to embodied practices and the role of material things in mediating concepts can be developed even further by drawing on what some have called a ‘material turn’, a turn that most of the historiography of secularization seems to have missed. Since at least the mid-1990s, when historians of secularization discovered narratives and discourses, many social historians instead began examining how changing notions of rationality, freedom, subjectivity, and so on are embedded in and

⁴¹ Originally coined by Cornelius Castoriadis, the term ‘social imaginary’ has been modified for different purposes. For a comparison between Taylor and other scholars’ use of the term, see Claudia Strauss, ‘The Imaginary’, *Anthropological Theory* 6 (2006): 322–44.

⁴² Taylor, *A Secular Age*, 171.

⁴³ Taylor, 173.

⁴⁴ Taylor, 212.

established through mundane technologies and associated practices.⁴⁵ Some, for instance, demonstrated how, during the nineteenth century, the use of everyday technologies such as sewers, street lights, and newspapers carried within itself emergent ideas of the ‘social’ as a sphere distinct from the ‘economic’ or the ‘political’.⁴⁶ Others described how a complex web of institutions and strategic practices associated with nineteenth-century liberalism cultivated precisely the kind of self-governing (and hence also ‘resisting’) subjects needed for the liberal state’s emerging and intensely self-critical mode of governance.⁴⁷

These historians draw on the work of thinkers such as Manuel de Landa, Donna Haraway, Bruno Latour, and others,⁴⁸ who see human persons and

⁴⁵ See, for instance, Patrick Joyce, *Visions of the People: Industrial England and the Question of Class 1848-1914* (Cambridge et al.: Cambridge University Press, 1993); Patrick Joyce, *Class* (Oxford: Oxford University Press, 1995); Joan Wallach Scott, *Gender and the Politics of History* (New York: Columbia University Press, 1999); Dror Wahrman, *Imagining the Middle Class: The Political Representation of Class in Britain, c. 1780-1840* (Cambridge et al.: Cambridge University Press, 1995); Mary Poovey, *Making a Social Body: British Cultural Formations, 1830-1864* (Chicago and London: The University of Chicago Press, 1995); Nikolas Rose, *Governing the Soul: Shaping of the Private Self*, 2nd Revised edition (London and New York: Free Association Books, 1999).

⁴⁶ Nikolas Rose, *Powers of Freedom: Reframing Political Thought* (Cambridge et al.: Cambridge University Press, 1999); Andrew Barry, Thomas Osborne, and Nikolas Rose, eds., *Foucault and Political Reason: Liberalism, Neo-Liberalism, and Rationalities of Government*, 2nd ed. (Chicago and London: University of Chicago Press, 1996); See also Chris Otter, *The Victorian Eye: A Political History of Light and Vision in Britain, 1800-1910*, Illustrated ed (Chicago and London: University of Chicago Press, 2008).

⁴⁷ See, for instance, Patrick Joyce, *The Rule of Freedom: Liberalism and the Modern City* (London and New York: Verso, 2003); Elaine Hadley, *Living Liberalism: Practical Citizenship in Mid-Victorian Britain* (Chicago and London: University of Chicago Press, 2010); Lauren M. E. Goodlad, *Victorian Literature and the Victorian State: Character and Governance in a Liberal Society* (Baltimore and London: The Johns Hopkins University Press, 2003); David Wayne Thomas, *Cultivating Victorians: Liberal Culture and the Aesthetic* (Philadelphia, PA: University of Pennsylvania Press, 2003).

⁴⁸ Diana Code and Samantha Frost, eds., *New Materialisms: Ontology, Agency, and Politics* (Durham and London: Duke University Press, 2010); Rick Dolphijn and Iris van der Tuin, *New Materialism: Interviews & Cartographies* (Ann Arbor Mich.: MPublishing, University of Michigan Library, 2012); Daniel Miller, ed., *Materiality* (Durham, N.C.: Duke University Press Books, 2005); For one example of history writing informed by these theories, see Timothy LeCain, *The Matter of History: How Things Create the Past* (Cambridge et al.: Cambridge University Press, 2017).

inanimate things as equal participants in constantly shifting collectives.⁴⁹ As Patrick Joyce, one main proponent of this conceptual shift, summarizes: for historians taking this approach, ‘[i]nstead of viewing culture as for or around practice, culture is now located in practice, and in material forms’.⁵⁰ This means granting a sense of agency to non-human things, so that non-humans and humans stand on a more equal footing which does not have to be particularly controversial. As Daniel Miller puts it, ‘[w]here material forms have consequences for people that are autonomous from human agency, they may be said to possess the agency that causes these effects.’⁵¹ According to Joyce, it has become for historians ‘a matter of taking into account [...] the distinctive kinds of effectivity that material objects and processes exert as a consequence of the positions they occupy within specifically configured networks of relations that always include human and non-human actors’. On this perspective, our ‘task of analysis involves following [distinct human and non-human entities in a network] and the networks themselves, particularly those that become “strategic” because of the number of connections they make possible in a highly contingent world’.⁵²

Some might protest that this is too theoretical and abstract. But in a sense, it is to invoke a stronger-than-usual kind of empiricism. When historians use surveys and interviews to measure and map historical changes in articulated non-/religious outlooks and identities, it is tempting to ask: since when has anyone been able to articulate their own fundamental assumptions, desires, or convictions? The problem is not (only) that historians lack access to people’s deepest-held beliefs, but (also) that people themselves enjoy no such access to their own subconscious depths. By contrast, pitching the analysis on the level of unarticulated and technologically mediated assumptions that allow certain networks to function

⁴⁹ Bruno Latour, ‘Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts’, in *Shaping Technology/Building Society: Studies in Sociotechnical Change*, ed. Wiebe E. Bijker and John Law, 1 (Cambridge, MA and London: The MIT Press, 1992), 225–58; For a discussion of the human/nonhuman distinction in historical writing in general, see Martin Reuss and Stephen H. Cutcliffe, eds., *The Illusory Boundary: Environment and Technology in History* (Charlottesville and London: University of Virginia Press, 2010).

⁵⁰ Joyce, *The Rule of Freedom*, 7.

⁵¹ Daniel Miller, ‘Materiality: An Introduction’, in *Materiality*, ed. Daniel Miller (Durham: London: Duke University Press, 2005), 11.

⁵² Patrick Joyce, ‘What Is the “Social” in Social History?’, *Past & Present*, no. 206 (2010): 213–48.

and collective practices to make sense for participants means historians need not rely (as much) on what people say about themselves or each other. I want to suggest that attending to the unspoken premises that underpin collective technological practices allows historians to make as (if not more) precise assessments of *implicit* ideas than we could ever hope to make of *explicit* ones.

Most of the historiographical work following the ‘material turn’ focuses on modern state power in domestic and imperial contexts,⁵³ and has yet to pay any critical or sustained attention to the material mediation of secularity.⁵⁴ Especially if we understand the latter the way that Taylor proposes. This is the second crucial challenge his thesis poses to the historiography of secularization.

SECOND CHALLENGE: THE TEMPORAL TURN

The challenge is this: For Taylor, the term *secularity* does not denote ‘unbelief’ as opposed to ‘belief’. Instead, he uses it in a way some might consider quite radical. He writes: ‘In spite of all the risks of confusion, there is a reason to use the term “secular” here because it marks in its very etymology what is at stake in this context, which has something to do with the way human society inhabits time’.⁵⁵

‘Secular’, as we all know, comes from *saeculum*, a century or age. When it begins to be used as one term in an opposition, like secular/regular clergy; or being in the *saeculum*, as against in religion (that is, some monastic order), the original meaning is being drawn on in a very specific way. People

⁵³ Patrick Joyce, ‘Filing the Raj: Political Technologies of the Imperial British State’, in *Material Powers: Cultural Studies, History and the Material Turn*, ed. Tony Bennett and Patrick Joyce, *Culture, Economy and the Social* 3 (London and New York: Routledge, 2010), 102–23; Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley; Los Angeles; London: University of California Press, 2002); Miles Ogborn, *Indian Ink: Script and Print in the Making of the English East India Company*, Illustrated ed (Ann Arbor and London: University of Chicago Press, 2007). 2007).

⁵⁴ Some have, inspired by Michel Foucault, sought to account for how different concepts of secularity have been construed and resisted in different historical and cultural contexts. Markus Dressler and Arvind Mandair, *Secularism and Religion-Making* (Oxford and New York: Oxford University Press, 2011); Peterson and Walhof, *The Invention of Religion*; Talal Asad, *Formations of the Secular: Christianity, Islam, Modernity* (Stanford, CA: Stanford University Press, 2003).

⁵⁵ Taylor, *A Secular Age*, 192. Taylor, *A Secular Age*, 192.

who are in the *saeculum* are embedded in ordinary time, they are living the life of ordinary time; as against those who have turned away from this in order to live closer to eternity. The word is thus used for ordinary against higher time. A parallel distinction is temporal/spiritual. One is concerned with things in ordinary time, the other with the affairs of eternity.⁵⁶

Secularity is a kind of time. This is the cornerstone of Taylor's entire thesis: while premodern (or at least pre-Reformational) social imaginaries were characterized by a multiplex of 'higher times',⁵⁷ the processes of modernization involve, according to Taylor, a gradual purging : on the level of the social imaginary, all temporalities have eventually been pushed away or obscured by *one* singular kind of time: the *saeculum*, or secular time. One long-term consequence of this, according to Taylor, was that secular time gradually came to be seen as existing apart from the cosmic matrix that had initially granted it legitimacy. Secularization, then,

can be seen from one angle as the rejection of higher times, and the positing of time as purely profane. Events now exist only in this one dimension, in which they stand at greater and lesser temporal distance, and in relations of causality with other events of the same kind. The modern notion of simultaneity comes to be, in which events utterly unrelated in cause or meaning are held together simply by their co-occurrence at the same point in this single profane time-line ... the move to ... "secularity" is obviously related to this radically purged time-consciousness. It comes when associations are placed firmly and wholly in homogenous, profane time, whether or not the higher time is negated altogether, or other associations are still admitted to exist in it.⁵⁸

In modernity, secular time is 'what to us is ordinary time, indeed, to *us* it's just time, period'.⁵⁹ To be secular, then, according to Taylor, is not necessarily to be a-religious or nonreligious or disinterested in religion, but 'to live in this ordinary time'⁶⁰—which is equally the case for believers and non-believers.

⁵⁶ Taylor, 54–55. Taylor, 54–55.

⁵⁷ See, for instance, Eamon Duffy, *The Stripping of the Altars: Traditional Religion in England, 1400-1580*, 2nd edition (New Haven: Yale University Press, 2005), 46–52.

⁵⁸ Taylor, *A Secular Age*, 196.

⁵⁹ Taylor, 55, 541–42.

⁶⁰ Taylor, 256.

Taylor's move is subtle, and its radical potential rarely acknowledged. By associating secularity directly with the temporal dimension of the social imaginary, he untethers the concept of secularity from the concept of religion. No longer cast as religion's 'other', secularity denotes instead a kind of time carried as part of the shared background of unarticulated assumptions that underpin common practices in modernity. Throughout *A Secular Age*, Taylor repeatedly returns his readers' attention to the etymology of the *saeculum* and its specifically temporal connotations. Indeed, it is the fact that modern collective practices implicitly mediate this concept of time that for him justifies labelling the modern age a 'secular' one.⁶¹

Taylor's reformulation of secularity and the level on which it operates allows historians to repose the entire question of British secularization. At its heart is a concern with *time*, not only how it is theorized, but how it is technologically mediated and collectively performed. The material turn needed in the historiography of British secularization must be accompanied by a temporal one.

Taylor is not alone in associating secularization with changing conceptions of time; many scholars have sought, in the words of sociologist Richard Fenn, to '[retrieve] the notion of the secular to represent the experience of being temporal', and propose that 'the sheer subjection to the passage of time [...] defines the experience of being secular'.⁶² Taylor explicitly relates secularization to the shift to a conception of time as 'homogenous'—that is, as an empty container 'which things and events contingently fill, rather than as constituted by what fills them'—and associates this with philosophies as different as Augustine's theology and the scientific philosophy of Isaac Newton.⁶³ Taylor himself leans heavily on Benedict Anderson's 1983 book *Imagined Communities*, which argues that the modern notion of the nation state rests on a new experience of time. Modern nations, claims Anderson, are 'secular, historically-clocked, imagined communities', a kind of 'horizontal' fraternities without

⁶¹ Taylor, 54–61, 96, 124, 194–96, 208–9, 264–65, 271, 302, 328–29, 342, 368, 446, 541–42, 566, 712–16, 719–20, 789n55, 797n43, 798n45. Despite this, it is not uncommon among scholars drawing on his work to try to have it both ways: they slip between describing secularity as a shared condition for 'belief' and 'unbelief' while at the same time associating it with specific forms of 'unbelief'. For one recent example of this equivocation, consider Rectenwald, *Nineteenth-Century British Secularism*, 7–8.

⁶² Richard Fenn, *Time Exposure: The Personal Experience of Time in Secular Societies* (Oxford: Oxford University Press, 2001), 8.

⁶³ Taylor, *A Secular Age*, 798n45.

reference to the divine, predicated on collective simultaneous experience of its individual members,⁶⁴ and mediated through, for instance, news media. Historians of early modern England have similarly related secularization in that context to the temporal periodicity characterizing emerging news networks, and the way this disciplined producers and consumers to ‘see the world in terms of an undifferentiated and secular time’.⁶⁵ In a similar vein, medieval historians have described a shift in time conceptions—from the ‘Time of the Church’ to the ‘Time of the Merchant’—as ‘the whole process of secularization of the basis and context of human activity: labour time, and the conditions of intellectual and economic production’.⁶⁶

These are only a few examples of works whose understanding of secularization draw on a common trope in narratives of modernization: namely to cast it as a unilinear progression, at once tragic and triumphant, of ‘empty, homogenous time’. And this is where Taylor’s thesis and the historiography of secular time of which it is a part needs to be thoroughly developed. Most of these narratives, in a move which goes back at least to the nineteenth century, cast this form of temporality as a monstrous, inauthentic, unnatural, and procrustean frame imposed on human communities. Technologies, and especially those used for measuring time and organizing collective disciplines in ways that can be cast as ‘modern’, play a vital role due to their assumed ability to structure societies independently of the ‘natural cycles’ that were crucial in the premodern world.⁶⁷ Even in literature arguing that postmodern relativity has thrown this modern time ‘out of joint’, the narrative of modernization as a process through

⁶⁴ Anderson, *Imagined Communities*.

⁶⁵ C. John Sommerville, *The Secularization of Early Modern England: From Religious Culture to Religious Faith* (Oxford: Oxford University Press, 1992), 41.C.

⁶⁶ Jacques Le Goff, *Time, Work & Culture in the Middle Ages* (Chicago and London: University of Chicago Press, 1982), 30.

⁶⁷ See, for instance, David S. Landes, *Revolution in Time: Clocks and the Making of the Modern World*, vol. Revised edition (London: Viking, 2000); Lewis Mumford, *Technics & Civilization* (Chicago: University of Chicago Press, 2010); Lorenzo C. Simpson, *Technology, Time, and the Conversations of Modernity* (London and New York: Routledge, 1995); Alfred W. Crosby, *The Measure of Reality: Quantification and Western Society, 1250-1600*, New Ed edition (Cambridge England ; New York, NY, USA: Cambridge University Press, 1997); E. P. Thompson, ‘Time, Work-Discipline, and Industrial Capitalism’, *Past & Present*, no. 38 (1967): 56–97.

which a singular temporality is technologically imposed on society has remained foundational.⁶⁸

Current scholarship is thoroughly questioning this understanding of modern temporality as homogenous and empty. Postcolonial scholars, for instance, have seen in it yet another master narrative serving to legitimize Eurocentric and imperialistic ideas of universal and progressive development, propagated through a range of technologies and practices, including academic history writing.⁶⁹ In his seminal book *Provincializing Europe: Postcolonial Thought and Historical Difference*, Dipesh Chakrabarty describes how the ‘code’ of the modern historical disciplines emerging in the eighteenth and nineteenth centuries

invokes a natural, homogeneous, secular, calendrical time without which the story of human evolution/civilization—a single human history, that is—cannot be told [...] the code of the secular calendar that frame historical explanations has this claim built into it: that independent of culture or consciousness, people exist in historical time.⁷⁰

For Chakrabarty, the practices of academic history have an ‘abiding allegiance to secular, continuous, empty, homogenous time’, and subaltern voices need to be aware of how the latter structures the human

⁶⁸ See, for instance, Stephen Kern, *The Culture of Time and Space, 1880-1918* (Cambridge, MA, and London: Harvard University Press, 2003); Donald J. Wilcox, *The Measure of Times Past: Pre-Newtonian Chronologies and the Rhetoric of Relative Time* (Chicago and London: The University of Chicago Press, 1987); Helga Nowotny, *Time: The Modern and Postmodern Experience*, trans. Neville Plaice (Cambridge: Polity Press, 1994); Elizabeth Deeds Ermarth, *Sequel to History: Postmodernism and the Crisis of Representational Time* (New Jersey: Princeton University Press, 1992).

⁶⁹ One recent example is Priya Satia, *Time’s Monster: How History Makes History* (Cambridge, Massachusetts: Belknap Press: An Imprint of Harvard University Press, 2020). Similarly, medievalist scholars have long argued that narratives of unidirectional modernization and temporal secularization wrongly presuppose that ‘the medieval Christian mind’ simply lacked any conception of the homogenous time allegedly characteristic of modernity. See, for instance, Kathleen Davis, ‘National Writing in the Ninth Century: A Reminder for Postcolonial Thinking about the Nation’, *Journal of Medieval and Early Modern Studies* 28, no. 3 (1998): 611–37; See also the essays in Andrew Cole and D. Vance Smith, eds., *The Legitimacy of the Middle Ages: On the Unwritten History of Theory* (Durham, 2010).

⁷⁰ Dipesh Chakrabarty, *Provincializing Europe: Postcolonial Thought and Historical Difference*, Princeton Studies in Culture/Power/History (Princeton and Oxford: Princeton University Press, 2000), 74.

sciences and modern state bureaucracies alike.⁷¹ On a similar note, Talal Asad takes his cue from Anderson (on this particular point), and says that ‘history’s linear temporality has become the privileged measure of all time’ because it is ‘integral to modern life in the nation-state’.⁷² For Asad, secular time is a monolithic and overly simplistic temporality characterizing (Western) modernity, whose imposed homogeneity does violence to the heterogeneous temporalities of the ‘many tradition-rooted practices’ of religious and cultural minorities.⁷³ ‘[T]here are other temporalities’, he reminds us, ‘immediate and mediated, reversible and nonreversible, by which individuals in heterogeneous society live and by which therefore their political responses are shaped’.⁷⁴

While some of these postcolonial accounts retain the understanding of Western modern temporality as monolithic and singular, and are primarily concerned with giving voice to its heterogeneous ‘others’,⁷⁵ others argue that neither modernity nor its characteristic temporality are as singular as often assumed, and that the notion of a modern inescapably homogeneous time is, as some have put it, simply a ‘myth’.⁷⁶ Homi Bhabha claims that modernity’s temporal logic rather consists of a ‘double temporality... [of] two incommensurable temporalities ... that threaten [the imagined community’s] coherence’.⁷⁷ Smita A. Rahman puts it more succinctly:

The simultaneity that Taylor and Anderson espouse is actually the simultaneity of multiple complex temporal perspectives, which calls into question its assertion of homogeneity as the basis for community [...] Even if secular time is stripped of its “high points” of religious significance [,] if a segment

⁷¹ Chakrabarty, 86.

⁷² Asad, *Formations of the Secular: Christianity, Islam, Modernity*, 43.

⁷³ Asad, 179.

⁷⁴ See also Vanessa Ogle, *The Global Transformation of Time: 1870–1950* (Cambridge, Massachusetts: Harvard University Press, 2015).

⁷⁵ See, for instance, Timothy Mitchell, ed., *Questions of Modernity*, Contradictions of Modernity Series (Minneapolis, MN: University of Minnesota Press, 2000); Partha Chatterjee, ‘The Nation in Heterogenous Time’, *Futures* 37, no. 9 (2005): 925–42; Bruce W. Holsinger, ‘Medieval Studies, Postcolonial Studies, and the Genealogies of Critique’, *Speculum* 77, no. 4 (2002): 1195–1227.

⁷⁶ Byron Ellsworth Hamann, ‘How to Chronologize with a Hammer, Or, The Myth of Homogeneous, Empty Time’, *HAU: Journal of Ethnographic Theory* 6, no. 1 (June 2016): 261–92, <https://doi.org/10.14318/hau6.1.016>.

⁷⁷ Homi Bhabha, ‘Dissemination: Time, Narrative and the Margins of the Modern Nation’, in *The Location of Culture* (Abingdon; New York: Routledge, 2005), 199–244.

of [it] is made up of all the members experiencing the same instant, at that very moment, there exists a multiplicity of temporal perspectives, multiple pasts that are being called on and jostled into the present, multiple appropriations of the future that are pulled up by a diversity of expectations that impact the present.⁷⁸

In his 2011 book *The Politics of Time: Modernity and Avant-Garde*, Peter Osborne argues that modernity is founded on a distinction between the manifestations of historical *qualities* and the mapping of these manifestations along an ‘empty’ series of *chronological time*. In short, modernity acknowledges that the chronologically ‘next’ and the qualitatively ‘new’ are not necessarily the same and, on this basis, gives rise to a range of totalizing ‘politics of time’ which ultimately enables colonialism’s comparison between *chronologically simultaneous* yet *geographically and culturally diverse* societies as being *non-contemporaneous*.⁷⁹ Modernity is in other words constituted by a temporal dialectic: there are two distinct kinds of time in play here that are not simply coexistent, but dialectically interdependent as modernity’s constitutive contradiction. The homogenizing definition of an ‘empty’ simultaneous present is premised upon one differentiating move, which is then, in a second differentiating move, negated by associating certain elements within it with historical qualities belonging to a (usually) earlier present.

The postcolonial deconstruction of secular time and the role it plays in the writing of modern (Western) history have come together with increasing reflection among theoretically inclined historians on the temporal foundations of their discipline.⁸⁰ In the 1960s, Fernand Braudel famously put forward a theory of multiple temporalities on different scales—long term or short term—overlapping in people’s social life. ‘History exists at different levels’, he writes, ‘I would even go so far as to say three levels but that would be ... simplifying things too much. There are ten, a hundred

⁷⁸ Smita A. Rahman, *Time, Memory, and the Politics of Contingency*, 1st edition (Routledge, 2014), 97.

⁷⁹ Peter Osborne, *The Politics of Time: Modernity and Avant-Garde* (London and New York: Verso, 1995).

⁸⁰ Marcus Colla, ‘The Spectre of the Present: Time, Presentism and the Writing of Contemporary History’, *Contemporary European History* 30, no. 1 (February 2021): 124–35, <https://doi.org/10.1017/S096077732000048X>.

levels to be examined, ten, a hundred different time spans'.⁸¹ Similarly, in the 1980s, Reinhart Koselleck theorized 'sediments of time'—layers of past memories, present experiences, and future expectancies—entangled in any one particular location or moment.⁸² In these and other ways, historians have sought to challenge the notions of unidirectional progress and a singular capitalized History.⁸³

More recently these individual voices have merged into a chorus. According to the editors of one recent anthology, overcoming the modern understanding of historical time as a singular monolith is currently a 'main challenge' facing historians.⁸⁴ While not uncommon topics of interest for late twentieth-century historians, the number of academic historical publications dealing with temporality and related subjects such as memory have increased substantially since the early 2000s.⁸⁵ The modern assumption of capitalized History as unidirectional progressive improvement is cracking at the seams as historians analyse how different communities—including their own professional one—organize the relation between past, present, and future.⁸⁶ Some explore how the widely shared experience of

⁸¹ Fernand Braudel, *On History*, trans. Sarah Matthews (Chicago: University of Chicago Press, 1982), 74.

⁸² Reinhart Koselleck, *Futures Past: On the Semantics of Historical Time*, trans. Keith Tribe (New York: Columbia University Press, 2004). For a discussion of Koselleck's theory of sediments or layers of time and its relation to modernity, see Helge Jordheim, 'Against Periodization: Koselleck's Theory of Multiple Temporalities', *History & Theory* 51, no. 2 (May 2012): 151–71, <https://doi.org/10.1111/j.1468-2303.2012.00619.x>; Juhan Hellerma, 'Koselleck on Modernity, Historik, and Layers of Time', *History and Theory* 59, no. 2 (2020): 188–209, <https://doi.org/10.1111/hith.12154>.

⁸³ The recognition of historical consciousness as an effect of social and technological developments, as in Koselleck's works, has sometimes led to the misunderstanding that the non-Western world has lacked this kind of consciousness before the arrival of Western colonizers. For one demonstration of how flawed this perception is, see Velcheru Narayana Rao et al., *Textures of Time: Writing History in South India 1600-1800*, First Edition (New York: Other Press, 2002).

⁸⁴ Marek Tamm and Laurent Olivier, eds., 'Introduction: Rethinking Historical Time', in *Rethinking Historical Time: New Approaches to Presentism* (London, UNITED KINGDOM: Bloomsbury Academic, 2019), 4.

⁸⁵ Berber Bevernage et al., 'Philosophy of History After 1945: A Bibliometric Study', *History and Theory* 58, no. 3 (2019): 406–36, <https://doi.org/10.1111/hith.12124>.

⁸⁶ See, for instance, Karin Tilmans, Frank van Vree, and Jay Winter, eds., *Performing the Past: Memory, History, and Identity in Modern Europe* (Amsterdam University Press, 2010), <https://www.jstor.org/stable/j.ctt45kdkk>; Berber Bevernage and Chris Lorenz, *Breaking up Time: Negotiating the Borders Between Present, Past and Future* (Göttingen: Vandenhoeck & Ruprecht, 2013); Harry Jansen, *Hidden in Historicism*, 1st edition (Routledge, 2020).

social, political, and geographical dislocation following in the wake of revolutionary events in the eighteenth and early nineteenth centuries spurred new experiences of the meaning of living in history, loss and nostalgia for the world that was lost, and trepidation before an uncertain future. For others, the trauma of a painful past's refusal to be left behind, and the associated impossibility of imagining a truly different future, has left modern culture stranded in an eternal present.⁸⁷ Some see instead the intrusion of a truly unprecedented future—of anthropogenic climate change, artificial intelligence, bio-engineering, and so on—exploding our long-held historical assumptions of continuity.⁸⁸ Others again find encouragement in how the realization that we have to actively construct the relation between the past, present, and future provides promising opportunities for our social identity and collective memory.⁸⁹

Many have pointed out the material dimension of these shifting and overlapping time regimes; again, the material and temporal turns go together. Modernity is haunted by the presence of objects and people(s) categorized as belonging in a past from which it was supposed to have made an absolute and irreversible break. As some have put it,

[t]he vestiges of historical pasts gone by subsist as material remains and are always in the here and now of the futures that follow. They can reappear in different forms or be put to different uses. They do not belong to the unilinear time of conventional history.⁹⁰

Material things might, for instance, serve as reminders of past pleasure or pain, but also as melancholic monuments to historical roads not taken. And they do so, paradoxically, here and now. Things are not just traces or residues of former presents, but effectively engaged in assembling and hybridizing periods and epochs. As durable matter, things make the past present and tangible; they constantly resist the regime that has subjugated

⁸⁷ François Hartog, *Regimes of Historicity: Presentism and Experiences of Time*, trans. Saskia Brown, Translation edition (New York: Columbia University Press, 2016).

⁸⁸ Zoltán Boldizsár Simon, *History in Times of Unprecedented Change: A Theory for the 21st Century* (London: Bloomsbury Academic, 2019); See also Jenny Andersson, *The Future of the World: Futurology, Futurists, and the Struggle for the Post Cold War Imagination* (Oxford, New York: Oxford University Press, 2018).

⁸⁹ Aleida Assmann, *Is Time out of Joint?: On the Rise and Fall of the Modern Time Regime, Is Time out of Joint?* (Cornell University Press, 2020), <https://doi.org/10.1515/9781501742446>.

⁹⁰ Tamm and Olivier, 'Introduction', 14.

time to the prevailing image of it as instantaneous and irreversible.⁹¹ As Graham Harman puts it, paraphrasing Bruno Latour: ‘[a]ll countries are “lands of contrast”, mixing elements from different periods of history.’⁹² We might say that the existence of multiple material cultures also means the existence of multiple materially mediated times.⁹³

In short, there is an emerging consensus also among historians that the time of modernity is not as monolithic or singular as we assumed. ‘The dominant time conception has changed from a linear, irreversible, and progressivist time conception to a non-linear, reversible and non-progressivist one’, writes one main proponent of these shifts diagnosing the current state of play.⁹⁴ ‘[I]f we accept that there are innumerable times, but also that the phenomenological meanings of these times are relationally constituted, then it is not difficult to imagine that a given individual or community may move through/enact/experience several times simultaneously.’⁹⁵ As John Bender and David Wellbery summarizes:

The thematization of time in contemporary research draws to some degree on the insights of historicism and phenomenology, but is distinguished from those theoretical antecedents by the emphasis it places on plurality and complexity. Time ... is not a single medium of consciousness or a unified movement in history. It is manifold. Numerous chronotypes intertwine to make up the fabric of time. The social and cultural processes of temporal construction rely on and also re-elaborate antecedent rhythms and articulations. These multiple times can become objects of contention because individuals experience them differently and because they bear ideological implications. Time asserts itself in contemporary inquiry less as a given than as a range of problems, the solutions to which are constantly open to renegotiation.⁹⁶

⁹¹ Bjørnar Olsen, *In Defense of Things: Archaeology and the Ontology of Objects*, Reprint edition (Lanham Md.: AltaMira Press, 2013), 108–9.

⁹² Graham Harman, *Prince of Networks: Bruno Latour and Metaphysics* (Melbourne: re. press, 2009), 68.

⁹³ William Gallois, *Time, Religion and History*, ed. Alun Munslow, *History: Concepts, Theories and Practice* (London: Pearson Education Limited, 2007).

⁹⁴ Chris Lorenz, ‘Blurred Lines: History, Memory and the Experience of Time’, *International Journal for History, Culture and Modernity* 2, no. 1 (28 March 2014): 46, <https://doi.org/10.5117/HCM2014.1.LORE>; Quoted in Tamm and Olivier, ‘Introduction’, 12.

⁹⁵ Stefan Helgesson, ‘Radicalizing Temporal Difference: Anthropology, Postcolonial Theory, and Literary Time’, *History & Theory* 53, no. 4 (2014): 545–62.

⁹⁶ John Bender and David Wellbery, eds., *Chronotypes: The Construction of Time*, 1st edition (Stanford, Calif: Stanford University Press, 1991), 15.

Deconstructing the notion of ‘an underlying and fundamentally singular modernity, modified by local circumstances into a multiplicity of “cultural” forms’, as so many variations upon a generic (Western) theme,⁹⁷ there are increasing calls for a ‘[r]adical polytemporality [that acknowledges] all the different modes of time [...] that continuously give shape and meaning to human life’.⁹⁸ It is as if history itself is becoming less solid, more ‘liquid’,⁹⁹ so that the task facing historians interested in time will now consist in untangling and accounting for multiple temporal sediments’ constitution, respective directionality, and uneven rate of change.¹⁰⁰

CONFUSING TIMES

The point here is not to elaborate all the implications of the postcolonial analyses of the modern temporal dialectic and its global political, cultural, and social repercussions, but only to point out that the narrative of a singular monolithic modern temporality (of which Taylor’s secularization thesis is one version) fails to account for the temporal dynamics that together constitute modernity because it conflates several kinds of time into one. This conflation of times is equally evident (though largely unacknowledged) in the historiography of secular time. A few examples must suffice to demonstrate the ensuing confusion.

Sociologist Richard Fenn explicitly relates modernity to the experience of time, and writes: ‘By “modern” I simply mean the employment of an abstract, uniform, and continuous notion of time, typified by clocks and Newtonian physics.’¹⁰¹ Secularity as Fenn conceives it rejects transcendence, here understood as any attempt to stand outside of time’s passage. Therefore, ‘the social order itself, the state and the larger society, is itself

⁹⁷ Timothy Mitchell, ‘Introduction’, in *Questions of Modernity*, ed. Timothy Mitchell, Contradictions of Modernity Series (Minneapolis, MN: University of Minnesota Press, 2000), xii.

⁹⁸ Helgesson, ‘Radicalizing Temporal Difference’, 557. See also Heidrun Friese, ‘Times, Histories and Discourse’, *Rethinking History* 14, no. 3 (1 September 2010): 405–20, <https://doi.org/10.1080/13642529.2010.482795>.

⁹⁹ Stephen Clucas, ‘Liquid History: Serres and Lucretius’, in *Mapping Michel Serres*, ed. Niran Abbas, Studies in Literature and Science 17 (Ann Arbor: University of Michigan Press, 2005), 72–83.

¹⁰⁰ Juhan Hellerma, ‘Negotiating Presentism: Toward a Renewed Understanding of Historical Change’, *Rethinking History* 24, no. 3–4 (1 October 2020): 442–64, <https://doi.org/10.1080/13642529.2020.1848132>.

¹⁰¹ Fenn, *Time Exposure: The Personal Experience of Time in Secular Societies*, 27.

too open and complex, too subject to uncertainty and change, to maintain the trappings of transcendence over time... the future is unpredictable and each moment may bring something new'.¹⁰² Note how Fenn defines secular time as at once the uniform and abstract time implied by the use of mechanical clocks *and* an unpredictable force generating new qualities. In the first instance, secular time transcends change (its abstract uniformity is what allows clocks to measure it); in the next, it *is* change itself. These two kinds of time should not be confused. The very premise of clocks' function is that the kind of time with which they concern themselves is uniform and predictable and does not unexpectedly turn into something qualitatively different and 'new'.

C. John Sommerville, describing the emergence of periodical news as disciplining the masses to 'see the world in terms of an undifferentiated and secular time',¹⁰³ similarly claims that the same temporality invoked by mechanical clocks is equally characterized by qualitative change and 'newness'.

Work time, national holidays, the selling of time in the form of legal usury, the measurement of time in minutes and daily editions, all helped dispel sacred rhythms and sacred history. "Primitive", "decade", "progressive", "epoch", "century", "contemporary", "antiquated", all date from this period. The term "new" became prevalent in book titles in the seventeenth century, as authors expressed secular restlessness. In short, change was becoming the only constant in England's life.¹⁰⁴

It might be correct that these were important temporal terms circulating in the period. But, again, the all-encompassing 'undifferentiated' time of seriality cannot be the same kind of time as the one where 'change' is 'the only constant'. In an empty and undifferentiated time, where would the sense of newness come from? There simply cannot be question of only *one* kind of time here.

Finally, Benedict Anderson describes how the modern 'nation' becomes conceivable as a community premised on a specific kind of temporality he calls (somewhat confusedly borrowing from philosopher Walter Benjamin) 'homogenous, empty time'. But throughout his argument, he also calls it

¹⁰² Fenn, 37.

¹⁰³ Sommerville, *The Secularization of Early Modern England: From Religious Culture to Religious Faith*, 41.

¹⁰⁴ Sommerville, 43.

‘serial’, ‘horizontal’, ‘transverse’, ‘historical’, ‘clocked’, ‘calendrical’, and ‘secular’. At first sight, these might all seem compatible. Surely we might understand the simultaneity necessary for what Anderson is describing as ‘transversing’ several layers of time moving in parallel. But is it these lines of development that are ‘serial’ and ‘horizontal’, or the otherwise ‘empty’ and ‘transverse’ intervals through which they move, and which measures their relative speed and direction? The term ‘historical’ connotes the generating of new qualities distinguishing historical periods from one another (which makes them not particularly empty or homogenous), while ‘calendrical’ at least partly suggests recurring cycles rather than linearity.

In summary, scholars (including Taylor) concerned with the concept of secular time have typically associated it with the kind of monolithic and all-encompassing temporality found in a form of modernization narratives that other scholars have for the past decades thoroughly dismantled. As historians, archeologists, social psychologists, and human geographers have now long demonstrated, modern temporality is not as singular as Taylor and his interlocutors make it out to be, not even on the level of the social imaginary. Far from an ‘empty, homogenous’ time, modernity’s temporalities—from modern imperialistic notions of ‘progress’ to individual bodies and their mundane habits—remain as multiple and materially mediated as ever.

This was certainly the case in nineteenth-century England. Victorians lived in as complex a temporal environment at the turn of the century as did anyone in the centuries before or after. In addition to the standardized, uniform time embedded in Cowell’s time chart and Fleming’s global time zones, Victorians shared a peculiar preoccupation with historical periodization and ‘progress’. They saw the establishment of a range of new sciences—uniformitarian geology, nebular astronomy, evolutionary biology, sociology, anthropology, and of course history—all fundamentally occupied with questions of time, change, development, and the marking of different ages, periods, or eras.¹⁰⁵ Many were interested in the question of the inherent character of their own present ‘age’ being an age of this, an age of that. In their politics, arts, medicine, religion, and every

¹⁰⁵Trish Ferguson, ed., *Victorian Time: Technologies, Standardizations, Catastrophes*, Palgrave Studies in Nineteenth-Century Writing and Culture (Basingstoke: Palgrave Macmillan, 2013); Adelene Buckland and Sadiya Qureshi, eds., *Time Travelers: Victorian Encounters with Time and History*, First edition (Chicago: University of Chicago Press, 2020).

other social domain, they invoked, in the word of one historian, multiple futures and multiple pasts:

In terms of the former, we find invocations of progress and immense future possibilities; in terms of the latter, increasingly elaborate recoveries of the past, from the discoveries of geology to new histories and idealisations of the ancient, medieval, and early modern worlds. And what Jerome Buckley once termed the “triumph of time” was also manifest in new practices: among others, the advent of a public culture of museums and exhibitions; organised, professionalized archiving; and the growing popularity of personal autobiography and diary keeping.¹⁰⁶

Across Britain, as railway excavations made way for a new world, Victorians literally unearthed ancient strata of forgotten pasts, together with the alien creatures who had inhabited them.¹⁰⁷ Erasing former urban centres from the map or cutting through old farmlands, the railway could equally lead to unprecedented concern for local places and their potential futures, or inspire popular interest in the peculiar Victorian activity of heritage conservation.¹⁰⁸ The time of history did not, for the Victorians, progress linearly from savagery to civilization. Towards the end of the century, the temporal mapping of populations in colonies abroad as well as in urban areas at home seemed to reveal multiple civilizations progressing and regressing throughout history, and pockets of future, present, and ancient qualities folded into each other within the same population or people.¹⁰⁹ The temporal dimension of their social imaginaries was multilayered and full of paradoxes, times of varying intensities moving at different speeds in multiple, sometimes even opposite, directions.

¹⁰⁶ Tom Crook, *Governing Systems: Modernity and the Making of Public Health in England, 1830-1910* (Oakland, California: University of California Press, 2016), 18.

¹⁰⁷ Michael Freeman, ‘Tracks to a New World: Railway Excavation and the Extension of Geological Knowledge in Mid-Nineteenth-Century Britain’, *The British Journal for the History of Science* 34, no. 1 (2001): 51–65.

¹⁰⁸ Charles Dellheim, *The Face of the Past: The Preservation of the Medieval Inheritance in Victorian England* (Cambridge et al.: Cambridge University Press, 1982).

¹⁰⁹ Peter Mandler, “Race” and “Nation” in Mid-Victorian Thought’, in *History, Religion, and Culture: British Intellectual History 1750-1950*, ed. Stefan Collini, Richard Whatmore, and Brian Young (Cambridge: Cambridge University Press, 2000), 224–44; Peter Mandler, ‘The Consciousness of Modernity? Liberalism and the English National Character, 1970-1940’, in *Meanings of Modernity: Britain From the Late-Victorian Era to World War II*, ed. Martin J. Daunton and Bernhard Rieger (Oxford: Berg, 2001), 119–44.

RETHINKING SECULARIZATION

What is the consequence of interjecting these transdisciplinary insights and theoretical turns into the historiographies of Victorian secularization? Does this mean that we can no longer speak of such a thing as secular time at all, but only a multiplicity of different times whose internal relation it now falls on historians to explicate?

I want to suggest that historians concerned with secular time must simply be more precise and less sweeping in our claims than we have typically been. Secular time certainly exists, but it has never been hegemonic in the way so many of our stories imagined. To properly account for its emergence and persistence will require locating it more accurately and tracing it more methodically, while acknowledging that it is just one of many modern times. This is an important diversion from Taylor's secularization thesis: I am neither assuming nor arguing that other kinds of time were somehow peeled away as a result of secularization. No Victorian temporality disappeared simply because the networks described in the following chapters mediated a concept of secular time on a particular level. Offering no new 'master narrative' of secularization or its ultimate meaning, then, I assume instead that whenever and wherever secular time did emerge and persist, it did so amidst a multiplicity of other temporalities.

Few have summarized and sought to operationalize these theoretical perspectives as thoroughly as geographers Paul Glennie and Nigel Thrift do in their 2009 book *Shaping the Day: A History of Timekeeping in England and Wales, 1300-1800*.¹¹⁰ Their topic is 'clock time', which is different from secular time, but there is still much to learn from their approach. Glennie and Thrift look to reconceptualize 'clock time' in line with the contention that multiple kinds of time emerge in multiple contexts of technologies and practices. In contrast to narratives of modernization as the oppressive imposition of a monolithic and universal temporal frame on human cultures, they seek to document 'pockets' of clock time, specific networks of temporal practices—often 'with their own notions of what constitutes clock time' in the first place—in various episodes and

¹¹⁰Paul Glennie and Nigel Thrift, *Shaping the Day: A History of Timekeeping in England and Wales 1300-1800* (Oxford: Oxford University Press, 2009); For a critical appraisal of the book, see Jonathan Martineau, 'Making Sense of the History of Clock-Time, Reflections on Glennie and Thrift's *Shaping the Day*', *Time & Society* 26, no. 3 (1 November 2017): 305–20, <https://doi.org/10.1177/0961463X15577281>.

periods.¹¹¹ Clock times are communally constituted, they argue, and distinguished, for instance, by what skills, know-how and expertise are required for (and acquired through) participating in the associated practices.¹¹² This may range from understanding Einsteinian physics in order to time the arrival of a space shuttle on the moon, to the knowledge of the socially accepted delay for a dinner party. Clock times are as multiple as the collectives through which they are constituted, and they always operate in relation to other times emerging in overlapping collectives.

In a second point useful to my argument in this book, Glennie and Thrift maintain that clock times are constituted through embodied practices, and therefore precede consciously held beliefs or ideas. All temporalities, including clock time, stem from mundane practices and as such are ‘the result of vital behaviour’.¹¹³ In several case studies, they demonstrate how clock time has operated according to ‘a whole set of sensory registers that belong to the body’—sound, touch, and smell in addition to vision—often several at once. People learn to follow clock time not because they actively use clocks, but because the way they move in specific environments that tacitly encourage certain conducts incorporates (literally) clock time into ‘who they are’.¹¹⁴ When studying the history of various temporalities, we need, Glennie and Thrift suggest,

to consider the history of body practices which have a strong temporal element and which are an essential part of the history of many forms of clock time [and how these have been] gradually written into the very gait of the body, aided by changes in the [environment] which allow these gaits free range.¹¹⁵

One implication of this is that for Glennie and Thrift, clock time is no less ‘human’ or ‘natural’ than any other kind of temporality, since it is carried in bodily gaits, stances, and conducts that are performed collectively in habitual patterns, which again might change and mutate when new devices are introduced, or the network is otherwise interrupted. The

¹¹¹ Glennie and Thrift, *Shaping the Day*, 96.

¹¹² This is contrary to accounts of modernity and technology assuming instead that technology *as such* instigates homogenous clock time. See, for instance, Simpson, *Technology, Time, and the Conversations of Modernity*.

¹¹³ Glennie and Thrift, *Shaping the Day*, 68–72, 74.

¹¹⁴ Glennie and Thrift, 68–71, 81–89.

¹¹⁵ Glennie and Thrift, 86–87.

effects of isochrony associated with clock time are produced *inside* the respective human-technological networks, not imposed from outside.

Finally, and in general agreement with the ‘material turn’ discussed above, Glennie and Thrift point out that the networks mediating clock times include non-human objects as well as humans, and that the notion of ‘agency’ should not be reserved for human participants alone. The mundane practices embedding various temporalities include technologies and devices that, while not deterministically, still assert a certain influence on the ‘conducts of time’ characterizing the network. These devices are not external instruments applied to a human sphere, but elements of the same ecology, ‘components of numerous material-semiotic networks [within which] particular understandings of time circulate according to the uses to which devices are put in particular practices with their own form of timekeeping expertise’.¹¹⁶

From this, we can summarize at least three points that together challenge the current historiographies of secular time, and provide, if not a complete theoretical framework, at least a set of useful navigational points for historians interested in secular time:

Firstly, the confusion in the historiography of secular time as to what exactly are its defining properties is untenable. It no longer suffices to list adjectives—‘empty’, ‘homogenous’, ‘calendrical’, ‘serial’, ‘representational’, ‘transverse’, ‘clocked’, ‘linear’, ‘industrial’, ‘historical’, ‘uniform’, ‘chronological’, ‘standardized’, ‘singular’—and applying them to a single temporality claimed to exclusively characterize modernity. Moving forward, we need a more precise working definition of secular time that articulates its properties and what they entail, so that we can distinguish it from other modern temporalities.

Secondly, the historiography of secular time tends to jump too easily from the presence of technologies associated with timekeeping (clocks, factories, trains, calendars, communications media, and so on) to abstract concepts with an assumed global reach and power to subdue entire civilizations. We need instead to operationalize the concept of secular time so that it will be possible to trace precisely how and where it appears, and with what specific effects. While we conceive secular time as abstract and global, its realization is always a local and material achievement.

For this reason, thirdly, we must acknowledge that secular time is not singular, but varies somewhat between the material networks mediating it.

¹¹⁶ Glennie and Thrift, 73.

The secular time mediated in one network might differ slightly from the secular time mediated in another. And yet, with a clear understanding of the concept's defining properties, and a way of operationalizing it in case studies, we would be able to recognize the temporality we are tracing as distinctly secular.

OVERVIEW OF THE BOOK

In Chap. 2, I develop these three points, and offer what I consider a more precise definition of secular time, one which does a better job of articulating its characteristic properties so we can avoid confusing or conflating it with other kinds of time. Locating its conceptual roots in the theological and philosophical debates of late medieval scholasticism, secular time is best associated with the kind of time known as *aevum*, or indeed sometimes *saeculum*—a time independent of motion, placed somehow between the eternity of God and the multiple temporalities of the created world. While this medieval philosophical backdrop might not at first sight seem the most relevant to a book about modern history, the characteristics of this kind of time as the scholastics conceived it are very much so indeed. The scholastics described secular time as infinite and isochronic: always already everywhere and uniform. It was abstract and independent from the various temporal turbulences of the material world, constituting a sphere populated by immaterial creatures. The concept was a philosophical and theological response to questions surrounding the nature and properties of angels. In short, secular time was the kind of time that allowed angels to move without undergoing change.

This conceptual backdrop will not only be helpful in clarifying the properties of secular time. It is also useful on a practical level because it allows us to operationalize the concept in specific case studies. Drawing on some of the insights associated with Actor-Network Theory (ANT)—a theoretical and methodological approach developed in the 1980s and designed precisely to undermine the illusion of irreversible historical progress—the chapter argues that the concept of *immutable mobiles* captures the same characteristics as did the angels conceived in medieval scholasticism. Just as the scholastics inferred the presence of secular time from the (conceived) presence of angels, so we might infer the mediation of secular time in networks that centre on creating and supporting entities stable enough to endure rapid long-distance movement without deterioration.

This conceptual relationship between secular time and immutable mobiles is something of a cornerstone in the book's argument. The second chapter prepares the ground for the following case studies, stating that the successful mediation of secular time is relative to the construction and maintenance of immutable mobiles in socio-technological networks. When a network aspires to make specific entities move without changing, and this operation is a premise for the network's proper function, then to the degree that it succeeds in making and sustaining immutable mobiles, it also mediates a concept of secular time.

Chapters 3–5 explore three technological networks emerging in England during the nineteenth century. Chapter 3 discusses the development of the Victorian public railway system, arguing that its function centred on moving passengers without them undergoing physical or psychological change. Chapter 4 describes the rise of the Victorian public sphere, arguing that at the heart of its performance lay an intense pursuit of immediacy and temporal synchronicity, dependent on and relative to the frictionless long-distance transfer of news. Chapter 5 describes the emergence of state-sanctioned paper money from the Napoleonic Wars and through the gradual concentration of note issuing authority with the Bank of England, focusing on the latter's effort to monopolize the ability to create inimitable notes able to circulate without losing value.

The three networks all saw an almost incredible growth in the number of people performing and taking part in their respective associated practices. At the beginning of the century, no one at all travelled by train, very few read daily newspapers (even if this includes listening to someone reading the paper aloud), and though people were forced to use paper money during the restriction period between 1797 and 1821, they did so with great reluctance. At the end of the century, however, people from every social class travelled by train, if not daily then weekly, daily newspapers had become 'established as a part of the normal furniture of life for all classes',¹¹⁷ and when the Bank of England printed their Currency Notes at the dawn of the Great War, these circulated everywhere barely prompting any questions.

All three networks, finally, were centred on the careful construction and maintenance of immutable mobiles, to the degree that their relative success in this regard determined whether they could function as intended. Turning travellers into immutable mobiles was the implicit goal of the

¹¹⁷ Lucy Brown, *Victorian News and Newspapers* (Oxford: Clarendon Press, 1985), 7.

public railway network, from the construction of a near frictionless ‘Newtonian road’ to the regular publishing of pocket size timetables. And what is ‘news’ if not particular events that are being translated and moved without deterioration through various mediating technologies from a distant place into the immediate presence of a consumer, who then experiences and observes the events as occurring simultaneously to them and their imagined community? Finally, the construction of the human-technological networks mediating Bank of England paper notes can be seen as centred on imparting to the notes the characteristic properties which had led people to consider gold an adequate substance for embodying a fixed standard of value—immutability, uniformity, divisibility, and mobility—hence allowing banknotes to pass as real money and anchor the entire national economy.

This will take us far from the dominant narratives of Victorian secularization and contemporary debates about the meaning of the secular. Though some readers are probably disappointed or confused by this, I believe this apparent diversion is a good thing. The historiographies of British secularization with their conclave of scholars fighting over identity markers appear stuck in a conceptual deadlock. With this book, I am trying to offer a clear alternative without simply reworking old themes. By connecting the historiography to two theoretical ‘turns’ historians of secularity have until now neglected—one material, one temporal—and by offering a more rigorous definition of secular time together with a more precise way of locating it in technological-practical networks, I want to establish a new possible entry point for discussions both about Victorian concepts of time and the location of secularity in Victorian modernity.

Here the term ‘secularization’ does not denote a process characterizing an entire ‘age’, ‘era’, ‘period’, or ‘epoch’ (if after the temporal turn anyone is still speaking of such things). Neither is secular time seen as a defining feature of an imagined monolithic ‘modernity’ whose precise definition remains elusive. I am making no claim as to whether any all-encompassing process of secularization in such a sense began, culminated, or ended in Victorian England, simply because on the level with which this book is concerned it makes no difference.

To return to Cowell’s time chart: whether the users of the chart (or Cowell himself) identified as ‘secular’ is obviously irrelevant to the chart functioning as intended. Neither do we need any of them to consciously reflect on the nature of time, or poetically describe their experience of being encroached upon by a modern ‘homogenous, empty’ temporality.

The concept of time implicit in Cowell's chart is simply there, irrespective of anyone's experience, belief, or intention. It is a condition of possibility, a basic assumption whose presence can be inferred from the fact that the chart 'works' only if certain entities—in this case travellers, news, and money—can be imbued, at least for a while, with both mobility and immutability. The following chapters will argue that such entities' ability to move predictably between spatial points without deterioration presupposes and implies a time that is always and everywhere the same, abstract from material processes, and therefore able to measure their flight even while they are themselves at rest. A time independent of motion. A secular time.

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CHAPTER 2

Secular Time: Origin Story and Operationalization

Given the multiple times associated with Victorian modernities, how can we trace the mediation of the one we call secular time? As argued in the first chapter, if we want to avoid the confusion currently characterizing the historiography of secular time, we need a working definition of the concept that articulates its exact properties and what they entail. Secondly, we need to operationalize this definition so we can trace how specific networks mediate a distinctly secular time. This is what this chapter sets out to do, thereby establishing the theoretical navigation points for the case studies in the following three chapters.

Secular time is an isochronic, abstract, and infinite time independent of motion. That is not meant to be an absolute and final definition, but it articulates the concept's characteristic properties in a useful way. In the following, I will try to clarify what precisely these properties entail by attending to the context where the concept was originally developed. What follows here, then, is a kind of origin story of secular time, one conceptual rather than etymological, which will also enable us to operationalize the concept.

The concept of secular time, as defined here, was originally articulated in recognizable form in medieval scholasticism, as a response to a tension between biblical interpretation and a widely held misunderstanding about Aristotle's statements on the nature of time. I say the *concept* was articulated, because as I argued in the first chapter and will elaborate in this one,

the actual mediation of secular time in specific contexts has never depended on anyone explicitly articulating it. But if we intend to locate secular time in modernity, we need to understand precisely what kind of time we are looking for. And to determine its exact properties, what better place to start than a context where increasingly nuanced answers to precisely that question were debated because something very important was felt to be at stake?

The chapter proceeds in two sections. The first describes the philosophical and theological disputes that spurred the perceived need for conceptualizing a time of this kind. While the tension between the Scriptures and the works of Aristotle took centre stage in most scholastic debates on this topic, another important issue was the existence of angels: created and (crucially) immaterial beings who as such (on the Aristotelian understanding) in contrast to other creatures did not undergo change. In a term borrowed from modern scholars, angels were ‘immutable mobiles’, and from this strange combination of properties the scholastics inferred the existence of a time independent of angelic movement.

The second section of the chapter argues that the theoretical and methodological approach known as Actor-Network Theory offers insights that bear directly on the question of how to locate secular time in modernity: namely by focusing on the construction and maintenance of immutable mobiles in specific networks. As we will learn from the medieval scholastics presented in this chapter, where there are immutable mobiles there is also secular time. Of course, imparting the joint properties of immutability and mobility to specific entities requires constant work, and no socio-technological network succeeds perfectly in this endeavour. Sometimes things get stuck, or their assumed immutability turns out to be only apparent, and so the kind of time mediated will always be only approximating the perfect concept. But drawing on the understanding of the relation between immutable mobiles and secular time developed by the scholastics allows us to nevertheless recognize the time mediated by these networks as distinctly secular.

In the case studies presented in Chaps. 3–5, the immutable mobiles whose flight secular time measures are no longer angels, of course, but railway passengers, news, and banknotes. Yet the concept of time inferred from their function as immutable mobiles remains the same: on this level, networks centred on the construction and maintenance of immutable mobiles also mediate an isochronic, abstract, and infinite time independent of motion.

ORIGINS OF THE *SAECULUM*

When Stephen Tempier, bishop of Paris, published a list of 219 condemned propositions in 1277, these were neither the first nor last of such condemnations. And while there is some doubt as to whether this particular list constituted any radical watershed in medieval thought (for instance, as the beginning of an open confrontation between science and religion), most scholars agree it at least manifested and helped shape the intellectual environment where schoolmen across Europe conducted their research and teaching.¹ The thirteenth century saw the recovery (to the West) of many of Aristotle's writings, supplemented by the works of his Arab commentators, and these had to be integrated into the already-existing synthesis of Neo-Platonism and patristic Christian theology dominating the intellectual culture of the day.² This work of translation and innovation would have been demanding enough for any scholar, without in addition having to keep an eye on clerical edicts declaring certain conclusions heretical. The intellectual debates of the period were characterized by arguments over minor conceptual details and honing of newly invented concepts so they might better combine the philosophical insights of Aristotle, the Islamic thinkers who had commented on and sometimes modified his work, with revealed Christian Scripture and official church doctrine. It was in this intellectual culture that Franciscan scholars (in particular) conceived of secular time.

Among Tempier's condemned propositions, number 200 was particularly relevant to what we are concerned with here. It stated as erroneous the notion '[t]hat "aevum" and time are nothing in things, but [exist]

¹Luca Bianchi, 'New Perspectives on the Condemnation of 1277 and Its Aftermath', *Recherches de Théologie et Philosophie Médiévales* 70, no. 1 (2003): 206–29. I am no scholar of medieval or scholastic philosophy, so in this section I rely completely on the work of others. Intellectual historians such as Piero Ariotti and Pierre Duhem are frequently quoted in works on medieval precursors to modern concepts of time—though a case could be made, as Emmaline M. Bexley convincingly does in her unpublished PhD thesis 'Absolute Time Before Newton' (2007, University of Melbourne), that the two occasionally misrepresent their sources and misunderstand vital parts of the scholastic debates. In addition to Bexley, I rely particularly on the work of Rory Fox, Cecilia Trifogli, the contributors to Pasquale Porro's 2001 edited volume on medieval concepts of time, and a few others who are referenced throughout.

²John F. Wippel, 'Condemnations of 1270 and 1277 at Paris', *Journal of Medieval and Renaissance Studies* 7, no. 2 (1977): 169–201.

only in the understanding [of the mind]'.³ Apart from being obscure, the statement posed several philosophical and theological difficulties. It seemingly made it compulsory to affirm the Aristotelian understanding of time as a measure of motion, or change. According to Aristotle, whose philosophical authority few medieval thinkers would question, time did not exist prior to or independent of material changes but denoted a measure or number of such changes.⁴ This meant that time, ontologically speaking, had no existence on its own, but had to be grounded in something other than itself. But in what? On this, the Aristotle known by the scholastics was frustratingly ambiguous. Some of his writings seemed to locate time in the mind performing the measuring of material changes. This suggested time might not be a real feature of created reality at all—precisely the conclusion targeted by Tempier's proposition number 200. In order to avoid this heretical conclusion, the grounding of time in creation had somehow to be affirmed.

But how could one do this without implying that there was no unity of time, but instead as many times as there were material changes in the world? This question was raised by Averroes, the most important and influential Arab commentator on Aristotle's works at the time when these arrived in the West. Averroes himself had grounded the unity of time in the *Primum Mobile*, the realm of the fixed stars and outmost sphere of the geocentric universe, which was understood to be moving in perfect circularity and so as being uniform, continuous, and everlasting. On his interpretation, not only was time a measure of the motion even of this highest realm, but this primary movement was the origin of time as such. This did not necessarily have to become a problem—this was Averroes, after all, not Aristotle. But Averroes occasionally merged his commentary with Aristotle's original texts, and sometimes his commentaries were the only access scholastics had to the latter, and as a

³Translated in Piero Ariotti, 'Celestial Reductionism Regarding Time: On the Scholastic Conception of Time from Albert the Great and Thomas Aquinas to the End of the Sixteenth Century', *Studi Internazionali Di Filosofia* 4 (1972): 93–103. For a translation of the entire list, see Joshua Parens and Joseph C. Macfarland, eds., 'Condemnation of 219 Propositions', in *Medieval Political Philosophy: A Sourcebook*, trans. Ernest L. Fortin and Peter D. O'Neill (Ithaca, NY: Cornell University Press, 2011), 335–54.

⁴For a discussion of the paradoxes arising from Aristotle's definition, see Cecilia Trifogli, *Oxford Physics in the Thirteenth Century (Ca. 1250 - 1270): Motion, Infinity, Place and Time*, Studien Und Texte Zur Geistsgeschichte Des Mittelalters (Leiden, Boston and Köln: Brill, 2000), 203–61.

result most of them ascribed this view to the ‘Philosopher’ himself rather than his ‘Commentator’.⁵ Most scholastics assumed it was Aristotle who despite himself had grounded the ontology of time in the *Primum Mobile*.

To the scholastics, then, it seemed the otherwise respectable Aristotle was posing a direct challenge to revealed Scripture. This was a problem. For had not God made the sun and moon stand still in the heavens while Joshua led the Israelites in battle against the Amorites, winning because this divine tactical move gained them the necessary time to overcome their enemies? Even hundreds of years earlier, Augustine had given this Old Testament story as reason to reject the Greek understanding of time as grounded in celestial motion, and many scholastics were still alluding to this argument in their own discussions of the matter. Additionally, there was the question of time ‘before’ the creation of the world and ‘after’ the final judgement. St Paul’s formula from Titus 1:2, ‘*ante tempora aeterna*’ (‘in hope of eternal life, which God, who cannot lie, promised *before the world began*’), suggested the existence of a kind of time before the creation of the material world and its multiple temporalities. Like the story of Joshua’s battle under an unmoving sky, this seemed to call for the conceptualization of a time that existed apart from and above all other created times, including that of the *Primum Mobile*.

In some cases, there were ways around such problems. The Neoplatonism of earlier centuries had already distinguished between different kinds of time, which the scholastics denoted using several different terms. Scripture, on its part, provided a useful distinction between Creator and creation. This meant that they could accept the Averroan/Aristotelian definition of time and its grounding in the world on the part of *creation*: the term *tempus/tempora* denoted the time/times of a material and changeable world made and sustained by God. On the other hand, the term *aeternitas* (one, but not the only Latin translation of the Greek *aion*) denoted an attribute of—and was therefore strictly reserved for—the immutable Creator. It was God’s own time. The metaphysical system of Thomas Aquinas is one well-known example of combining Greek philosophy and Christian theological concepts in this way. The Neo-Platonic notion of ‘participation’ allowed Aquinas to say, for instance, that God’s act of creating (or ‘causing’) the

⁵Emmaline Margaret Bexley, ‘Absolute Time Before Newton’ (Unpublished PhD Thesis, Melbourne, Australia, University of Melbourne, 2007), 7–29.

world did not necessarily imply any temporal ‘beginning’; it merely pointed to the ultimate dependence of creation upon God for its existence.⁶

Then, there was the question of what to do about a certain queer category of non-material creatures: angels.⁷ Scriptural stories of angels opening prison doors or in other ways intervening in the sublunar material world seemed to suggest that these were creatures able to move between different times and places without ageing or in other ways changing. Crucial here was the fact that angels were at once created and immaterial. As created, they were not to be worshiped on par with the Creator, which is to say, they did not share in God’s time of *aeternitas*. But since matter, on the Aristotelian view, is that which undergoes change or motion in the created world, their immateriality meant they were not subject to the kind of changes or motions measured by the multiple *tempora* characterizing this worldly realm. What kind of time could measure the motion of unchanging creatures? Conceptually speaking, there was no time for that.

The ensuing debates saw multiple conceptualizations of time, angels, and creation, and none more original or important than the kind of time conceived as infinite, abstract, isochronic, and independent of motion. This temporality was infinite in the sense that it was distinct from *aeternitas* and so did not coincide with God’s eternity; it was an ‘improper eternity’, enveloping all other created times in equal measure. While the times of the world were reducible to material changes, as Aristotle had insisted, this concept of time was abstracted from concrete material things and would exist even if no changes were occurring. In other words, it was independent of motion, including that of the *Primum Mobile*. It was part of created reality. Yet being independent from the varying motions of the material world, it was also isochronic, uniform, everywhere the same. As such, it could measure the progress of Joshua’s battle even if the sun was standing still, account for the time existing before and after the creation or end of the world, and allow the frictionless motion of angelic creatures moving while at rest.

⁶Rory Fox, *Time and Eternity in Mid-Thirteenth Century Thought*, Oxford Theological Monographs (Oxford: Oxford University Press, 2006), 95–129.

⁷More than 50 of Tempier’s prohibited propositions were connected to angels in some or other way. Isabel Iribarren and Martin Lenz, ‘Introduction: The Role of Angels in Medieval Philosophical Inquiry’, in *Angels in Medieval Philosophical Inquiry: Their Function and Significance*, ed. Isabel Iribarren and Lenz, Martin (Aldershot and Burlington: Ashgate, 2008), 4.

Naming this new concept of time was no simple matter. Scholastic texts are full of ambiguous semantics and internally inconsistent vocabulary. It was not uncommon to use several Latin synonyms for the same Greek term in order to distinguish different philosophical and theological concepts, a practice which could cause some confusion even among contemporaries.⁸ The Greek term ‘*aion*’ is the common root of *aeternitas*, *aevum*, and *saeculum*, even if these were occasionally used to denote very different concepts of time. Both *aevum* and *saeculum* were used to denote long stretches of *tempora*. But some, such as Franciscan scholar Bonaventure, denoted the newly conceived time independent of motion by using both *aevum* and *saeculum*.⁹ ‘In time’, he wrote, ‘there is [...] before and after with aging (*inveteratione*) and renewal (*innovatione*)’. In this newly conceptualized kind of time, by contrast, ‘there is truly the before and after which implies the extension of duration, but which does not imply variation or renewal’.¹⁰ This, in simpler terms, is a kind of time that distinguishes past and present only in terms of succession, not development.

This *saeculum* was neither the *aeternitas* of God, nor one of the multiple *tempora* of creation, but located somehow in between these two. As one scholar summarizes the view of another Franciscan, John Duns Scotus (who called it the *aevum*):

Time is the measure of change in corruptible being; eternity, because it is completely removed from time and is a feature of God’s perfect, unchanging being, cannot be measured. Between time and eternity is the *aevum*, which governs such created beings as angels and heavenly bodies which have a

⁸ Henryk Anzulewicz, ‘Aeternitas-Aevum-Tempus: The Concept of Time in the System of Albert the Great’, in *The Medieval Concept of Time: The Scholastic Debate and Its Reception in Early Modern Philosophy*, ed. Pasquale Porro, vol. 75, Studien Und Texte Zur Geistgeschichte Des Mittelalters (Leiden, Boston and Köln: Brill, 2001), 83–129.

⁹ Guido Alliney, ‘The Concept of Time in the First Scotist School’, in *The Medieval Concept of Time: The Scholastic Debate and Its Reception in Early Modern Philosophy*, ed. Pasquale Porro, vol. 75, Studien Und Texte Zur Geistgeschichte Des Mittelalters (Leiden, Boston and Köln: Brill, 2001), 189–219.

¹⁰ Quoted in Richard Cross, ‘Angelic Time and Motion: Bonaventure to Duns Scotus’, in *A Companion to Angels in Medieval Philosophy*, ed. Tomas Hoffmann, Brill’s Companion to the Christian Tradition (Leiden, Boston: Brill, 2012), 129.

beginning in time, but only potentially an end, because they do not pass in and out of existence as earthly creatures do.¹¹

Note how Duns Scotus associated creatures that do not undergo change (angels) with this kind of time. Before this, Henry of Ghent, deeply influenced by Bonaventure's theology, had already suggested that *aevum/saeculum* might measure even sublunar entities 'at rest', that is, things that did not change.¹² Duns Scotus later radicalized these ideas, proposing that *aevum/saeculum* measured not only created substances, but everything created and uncreated. What enabled him to make this claim was a reversal of the Aristotelian relation between actuality and potentiality: Contrary to thinkers such as Thomas Aquinas, Duns Scotus allowed the potential priority over the actual. This meant, among other things, that one might speak of time *as such*, conceiving of it as *really existing* even if it was only a formal possibility. A time existing as pure potentiality does not depend on there being actual motion anywhere, be it in the mind, the world, or the heavens.

Even in the case that the first celestial movement did not exist [or were stopped] the very repose that the heavens would have through the cessation of that movement would be measured potentially by the time which measures that first movement when this movement exists in a positive and actual way. And by means of this same potential time all other movements which exist in an actual manner can also be measured. Thus, the movement measured in this way does not depend necessarily for its existence on the movement of the first sphere.¹³

Granting formal potentiality priority over actuality allowed Duns Scotus to avoid locating time in the soul (bypassing the condemned proposition number 200 from 1277) without having to accept Averroes' (or as he

¹¹ Quoted in Edith Wilks Dolnikowski, *Thomas Bradwardine: A View of Time and a Vision of Eternity in Fourteenth-Century Thought*, Studies in the History of Christian Thought (Leiden, New York, Köln: E.J. Brill, 1995), 71.

¹² Pasquale Porro, 'Angelic Measures: Aevum and Discrete Time', in *The Medieval Concept of Time: The Scholastic Debate and Its Reception in Early Modern Philosophy*, ed. Pasquale Porro, vol. 75, Studien Und Texte Zur Geistgeschichte Des Mittelalters (Leiden, Boston and Köln: Brill, 2001), 131–59.

¹³ John Duns Scotus, *Scriptum Oxoniense*, lib. II, dist. II, quaest. XI. Quoted in Ariotti, 'Celestial Reductionism Regarding Time: On the Scholastic Conception of Time from Albert the Great and Thomas Aquinas to the End of the Sixteenth Century?.'

assumed, Aristotle's) ontological grounding of time in the *Primum Mobile* which was so difficult to square with revealed Scripture. Later Franciscans, such as John Marbres, would continue to develop these points. And their views were gaining ground. Indeed, intellectual historian Pasquale Porro argues that the fourteenth century eventually saw a subtle but general shift among schoolmen to treating this kind of time as the absolute measure of all kinds of change and motion.¹⁴

There is some scholarly consensus that the concept of time independent of motion developed by medieval Franciscans has continued to echo through the history of philosophy,¹⁵ at least down to Isaac Newton's version of absolute time, which would always '[remain] the same, whether motions are swift, or slow, or none at all'.¹⁶ Francisco Suárez (himself a Jesuit), publishing in 1597 one of the earliest long treatises devoted to the subject of time, defended the notion of an 'imaginary succession' or potential time able to account for the simultaneity of two distinct events each carrying its own temporality.¹⁷ His work was one of the most comprehensive discussions of scholastic philosophy in his day; it was in use in most universities both Catholic and Protestant, and remained influential for the following 200 years. Among its readers was seventeenth-century atomist Pierre Gassendi, who argued that even if 'God would wish to recreate the universe, time would flow in the interval between its destruction and recreation'.¹⁸ In his *Syntagma Philosophicum*, published posthumously in 1658, he asserted that

¹⁴ Pasquale Porro, 'The Duration of Being: A Scholastic Debate (and Its Own Duration)', in *Das Sein Der Dauer*, ed. Andreas Speer, vol. 34, *Miscellanea Mediaevalia* (Berlin and New York: Walter de Gruyter, 2008), 75–88.

¹⁵ See, for instance, Fox, *Time and Eternity in Mid-Thirteenth Century Thought*, 265; Piero Ariotti, 'Toward Absolute Time: The Undermining and Refutation of the Aristotelian Conception of Time in the Sixteenth Centuries', *Annals of Science* 30, no. 1 (1973): 31–50; Porro, 'The Duration of Being'; Porro, 'Angelic Measures: Aevum and Discrete Time'; Éric Alliez, *Capital Times: Tales From the Conquest of Time*, trans. Georges Van Den Abbeele, *Theory Out of Bounds* (Minneapolis and London: University of Minnesota Press, 1996), 225.

¹⁶ Isaac Newton, *Mathematical Principles of Natural Philosophy*, trans. Robert Thorp (London: Dawsons of Pall Mall, 1969), 12. Italics mine.

¹⁷ Emmaline Bexley, 'Quasi-Absolute Time in Francisco Suárez's "Metaphysical Disputations"', *Intellectual History Review* 22, no. 1 (March 2012): 5–22, <https://doi.org/10.1080/17496977.2011.636927>.

¹⁸ Quoted in Bexley.

[i]t seems that Aristotle ...correctly guessed the true nature of time, but he missed it when he defined time as the number of motion. For if time is a kind of flow, ...it is independent of motion no less than of rest.¹⁹

For Gassendi, though, there is no *aeternitas* beyond the created realm. In this, his philosophy breaks radically from the modified Aristotelianism handed down to him by the scholastics. For him, time independent of motion is simply *time*, and it envelops even God, who he conceived as entirely immanent.

But these early modern examples are simply that, and I am not intending this to be a comprehensive conceptual genealogy of the *saeculum* or other precursors to early modern varieties of absolute time. Nor am I suggesting that all these thinkers conceived of time in the same way, nor that concepts have somehow trickled from the minds of medieval thinkers, down through the ages, eventually asserting a mysterious influence on modern technologies and practices. The point of this detour through medieval scholastic debates is to offer a better working definition of secular time for inquiries into the question of secularization in modernity. It helps us avoid the confusion about its specific properties that today characterizes the relevant historiographies. For instance, the above discussion should make clear that secular time does not belong on *any* side of a dichotomy between worldly, 'ordinary' times on the one hand and higher, sacred times on the other. Secular time is not 'ordinary' time; it is abstract and independent of the ever-changing flux characterizing worldly *tempora*. But since it measures the movement of created entities, secular time is equally distinct from divine eternity; there is nothing 'otherworldly' or 'divine' about it. It is isochronic, everywhere the same, representable as a line infinitely divisible into intervals between geometric points, and as such it has nothing to do with notions of historical development, growth, progress, regression, ascent, or decline. While possessing durational instants (so that it might measure 'before' and 'after'), its mode of differentiation is entirely quantitative; it entails, in Bonaventure's words, 'no newness or oldness'.²⁰ When I speak of secular time in this book, I am referring to this infinite, abstract, and isochronic time independent of motion.

¹⁹ Quoted in Bexley, 'Absolute Time Before Newton', 121.

²⁰ Quoted in Fox, *Time and Eternity in Mid-Thirteenth Century Thought*, 265.

IMMUTABLE MOBILES

Turning to the question of how to operationalize secular time so that we can avoid simply asserting its presence across all things modern, we should note how secular time was a response to a distinct set of questions, a solution to specific philosophical conundrums, apart from the doctrinal questions related to the Scriptures. In scholastic texts, angels feature as a kind of thought experiment meant to highlight features of human nature, similar to the way philosophers of mind in our own day might use thought experiments involving ‘zombies’.²¹ For medieval scholastics, the possible existence and function of creatures ‘moving while at rest’, that is, moving without material change (since matter simply is what undergoes change), seemed to imply some hidden unarticulated condition of possibility; there must somehow be a kind of time that makes possible the existence of creatures with the paradoxically joint properties of immateriality and motion. In other words, the scholastics started with postulating immutable mobiles and arrived at secular time through inference: if some things are immutable and mobile, then by implication the time that measures their potential movement must have very distinct properties compatible with this premise. Or, in short: where there are immutable mobiles, there is also the *saeculum*.

Just as the concept of ‘immutable mobiles’ was central to the conceptual development of secular time, it is key to locating the latter in modern technological networks. While the term does capture the defining features of angels as conceived in medieval angelology, it was originally French philosopher and sociologist Bruno Latour who coined it in his 1986 book *Science in Action: How To Follow Scientists and Engineers Through Society* (translated to English in 1987). Latour initially invoked it to account for the ways modern scientists keep control over their data as they move these between various spaces.²² Communication and reproduction of experimental results are made possible by scientists’ meticulous construction of formalized inscriptions on paper—graphs, diagrams, abstracts, images, and so on—which can be moved between spatial locations without introducing error or modification in the process, and which allow one to backtrack and reverse the process if something fails along the way. However, as

²¹ Linda Fisher-Høyrem, ‘Zombies and Angels: Human Nature in Light of the Unnatural’, in *Bigger Than Bones*, ed. Haley Jenkins (Freeland: Inter-Disciplinary Press, 2016), 1–10.

²² Bruno Latour, *Science in Action: How To Follow Scientists and Engineers Through Society* (Boston: Harvard University Press, 1987).

Latour has later emphasized, the term *immutable mobile* might be applied to all entities that manifest ‘the properties of being mobile while also being immutable’, that is, all things that have been isolated from the surrounding processes of change so that they might be transported as if without transformation or deterioration.²³

This early part of Latour’s work is associated with a precursor to the material turn discussed in Chap. 1, namely so-called Actor-Network Theory (ANT), a theoretical and methodological social scientific approach developed in the 1980s and 1990s.²⁴ Classic ANT centres on the question of how socio-technological networks ensure the stability of their elements, and posits that this happens through the mobilization and integration of multiple heterogeneous actors.²⁵ These actors might be human or non-human, concrete or imaginary—institutions, ideas, bodies, natural forces, or technologies. On the network perspective, they are all treated in the same way, insofar as they have actual effects and contribute to the intended function of the network.²⁶ Indeed, a recurring theme in ANT is that no distinction can be made a priori between spheres of human culture, nature, or technology.²⁷ From the network perspective, all such distinctions emerge from particular ways of ordering particular elements or

²³ Bruno Latour, ‘Drawing Things Together’, in *Representation in Scientific Practice*, ed. Steve Woolgar and Michael Lynch (Cambridge, MA: The MIT Press, 1990), 19–68.

²⁴ Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory*, New ed (Oxford and New York: Oxford University Press, 2007); Bruno Latour, ‘Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts’, in *Shaping Technology/Building Society: Studies in Sociotechnical Change*, ed. Wiebe E. Bijker and John Law, 1 (Cambridge, MA. and London: The MIT Press, 1992), 225–58; M. Callon, ‘Actor Network Theory’, in *International Encyclopedia of the Social & Behavioral Sciences*, ed. Neil J. Smelser and Paul B. Baltes (Oxford: Pergamon, 2001), 62–66, <https://doi.org/10.1016/B0-08-043076-7/03168-5>.

²⁵ John Law, ‘Technology and Heterogeneous Engineering: The Case of Portuguese Expansion’, in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas Parke Hughes, and Trevor Pinch, Anniversary edition (Cambridge, Mass: The MIT Press, 1989); Michel Callon, Arie Rip, and John Law, *Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World* (Springer, 1986).

²⁶ Callon, Rip, and Law, *Mapping the Dynamics of Science and Technology*; Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts* (Princeton, NJ: Princeton University Press, 1979).

²⁷ See also Martin Reuss and Stephen H. Cutcliffe, eds., *The Illusory Boundary: Environment and Technology in History* (Charlottesville and London: University of Virginia Press, 2010).

‘actants’—a term introduced in order to more equally distribute a form of agency among humans and non-humans.

The network perspective places the concept of immutable mobiles front and centre, together with the question of how their distinct properties are imparted and sustained. One classic example might help clarify what this looks like. In a series of articles, sociologist John Law has explored the innovations that enabled the Portuguese expansion during the fifteenth and sixteenth centuries, innovations that allowed unprecedented levels of long-distance control.²⁸ For Law, these innovations can only be properly accounted for if we are willing to suspend, for the sake of analysis, the boundaries between the natural, the social, and the technological, and consider the innovations instead as networks being mobilized in order to move specific entities—in Law’s case, ships—between distant points without deterioration.

Law focuses his analysis on Portuguese sailing vessels. Surpassing the single-masted vessels operating in European waters from medieval times, the new *carreira*, the carrack, was central to the Portuguese long-distance control of the Indian Ocean. Law describes the carrack as combining a range of heterogeneous elements to overcome various forms of resistance in its environment. Castles in bow and stern incorporated in the ships well-known terrestrial defense systems, making them ‘virtually impenetrable to attack by boarding’.²⁹ Smaller triangular and square sails reduced the number of hands needed on deck, while also making it possible to benefit from otherwise overpowering currents and shifting winds. Extension of cargo spaces—combined with the systematic training of marine navigators in how to apply instruments and principles formerly reserved for astronomers—allowed the vessel to stay far from the coast and reduced the need to enter dangerous and expensive ports along route.

Within the networks of the carracks themselves (because on this perspective these can of course also be analysed as networks), other entities were circulating. Documents with inscriptions, combining and preserving the efforts of generations of astronomers; instruments likewise combining in themselves the knowledge and skills of past generations and modified

²⁸ John Law, ‘On the Methods of Long-Distance Control: Vessels, Navigation and the Portuguese Route to India’, *The Sociological Review* 32, no. 1_suppl (May 1984): 234–63, <https://doi.org/10.1111/j.1467-954X.1984.tb00114.x>; Law, ‘Technology and Heterogeneous Engineering’.

²⁹ Law, ‘On the Methods of Long-Distance Control’, 4.

for marine purposes; and people, protected by the carrack from the surrounding hostile environment and trained to perform certain tasks. ‘The right documents, the right devices, the right people properly drilled – put together they would create a structured envelope for one another that, ensured their durability and fidelity.’³⁰ This joining of forces, the network’s collective overcoming, mobilizing, and even incorporating of resistances in the carrack’s environment, accounts for their unprecedented capacity for moving to (and not least return safely from) the other side of the globe without deterioration. On this perspective, the carrack functioned as an immutable mobile, and this was the premise for the entire operation working as intended.

Actor-Network Theory is not the topic nor the ‘theoretical framework’ of this book, but as a theoretical and methodological perspective it offers several insights that are useful for operationalizing secular time defined as an infinite, abstract, and isochronic time independent of motion by utilizing the associated concept of immutable mobiles.

First, it posits that all elements of a network, human or non, can themselves be seen as conglomerates of heterogeneous elements; that is, each of them might be viewed as itself a network combining and associating forces and entities in particular ways, shapes, and forms. This irreducibility implies that for every object retaining its stability while in long-distance transit, some collective work is being performed, even if this work takes place behind the scenes. Making specific entities behave in this way requires hard work³¹; immutability and mobility are contingent properties that must be continuously imparted. In a sense, what is at stake here is how the entities *function* within a larger context, how they relate to other objects and nodes in the network. Since these relations are always changing, even if almost imperceptibly, there is a constant need for small innovations, adjustments, shifts, and rebalancing if the immutable mobile is to remain functional in changing environments.³²

Second, the network perspective is designed to challenge the modern notion of an all-encompassing and homogenous time of irreversible progress, which as we have seen has been problematized in the

³⁰ Law, 14.

³¹ Bruno Latour, ‘Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern’, *Critical Inquiry* 30, no. 2 (2004): 225–48.

³² Marianne de Laet and Annemarie Mol, ‘The Zimbabwe Bush Pump: Mechanics of a Fluid Technology’, *Social Studies of Science* 30, no. 2 (2000): 225–63.

historiographical temporal turn discussed in Chap. 1. Tracing the heterogeneous processes where natural forces, technological instruments, and generations of trained persons are mobilized to create and maintain local stability in ever-changing environments, the network perspective undermines any ‘regime of historicity’ ordering temporality in a way that leaves the past irretrievably behind. If certain entities—technological inventions, or even individual inventors—are seen as fully autonomous and inherently stable, it is as if they appear on stage without pretext, creating the effect of a qualitative shift between the ‘before’ and ‘after’ of their appearance. In this way, the past appears irretrievably left behind, the future wide open (since anything might suddenly appear *ex nihilo*), and the present an empty interval of transition between the two, while the actual work involved in these processes is denied or suppressed. As Latour puts it:

[m]odern time is a succession of inexplicable apparitions [...] The present is outlined by a series of radical breaks, revolutions, which constitute so many irreversible ratchets that prevent us from ever going backward.³³

The network perspective, by contrast, looks to unveil and describe the processes involved in creating and maintaining this effect. In these processes, there are no abrupt breaks, no irreversible revolutions, no sudden forward or upward leaps. Time, on this view, ‘is not a general framework but a provisional result of the connection among entities...it is the sorting [of entities] that makes the times, not the times that make the sorting’.³⁴

Seen as networks [...] the modern world, like revolutions, permits scarcely anything more than small extensions of practices, slight accelerations in the circulation of knowledge, a tiny extension of societies, miniscule increases in the number of actors, small modifications of old beliefs. When we see them as networks, Western innovations remain recognizable and important, but they no longer suffice as the stuff of saga, a vast saga of radical rupture, fatal destiny, irreversible bad or good fortune.³⁵

The network perspective seeks to show that behind the appearance of revolutionary leaps what is really occurring is an extension of the chain of

³³ Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993), 67–69, 72–76.

³⁴ Latour, 74, 76.

³⁵ Latour, 48.

mediators, which enables increased long-distance control by assembling and maintaining immutable mobiles.

Any kind of time is an effect of the work performed as part of these network operations, and in the case of secular time the construction of immutable mobiles is particularly significant. Bruno Latour explains why in his 2005 essay *Trains of Thought: Piaget, Formalism and the Fifth Dimension*. With deliberate allusion to Einstein's 'twin paradox', he compares the journeys of two twins between the same two destinations, one cutting her way through a thick jungle, her brother travelling by high-speed train. In order to move their respective bodies between locations through a resistant environment, work must be performed. This work takes its toll, and the sister's body, argues Latour, pays more for its passage than her brother's does for his. The jungle offers more, and more kinds of, resistance than the railway track, and her body needs to overcome these while burning its own energy and absorbing every shock.

Her twin brother, by contrast,

[sits] quietly in his first-class air-conditioned carriage and read[s] his newspaper... [Afterwards, h]is body does not bear any trace of the voyage, except for a few wrinkles on his trousers and maybe a few cramps because he did not stretch his long legs often enough... [t]he trip for him was like nothing.³⁶

In the brother's case, the required work has been outsourced. Protective walls are set up between him and the forces of the weather, smooth iron rails remove nearly all friction, and cushions protect his spine from the minuscule repetitive jolts of the carriage. An extensive network—mostly invisible to him—of engineers, iron rails, gravel banks, financial investors, machinists, electric currents, and embroidered cushions cooperate for the purpose of stabilizing his body enough for it to undergo transportation without transformation.

Time passes differently for these two travellers. Or better, less we be tempted to think of it as a case of 'subjective' experiences of a nevertheless 'objective' temporality, the networks they are part of *pass different kinds of time*. For the sister braving the jungle, the journey is one of intense bodily transformation. Her skin has scratches, and her muscles and joints ache

³⁶ Bruno Latour, 'Trains of Thought – Piaget, Formalism and the Fifth Dimension', in *Thinking Time: A Multidisciplinary Perspective on Time* (Toronto: Hogrefe & Huber, 2005), 175.

with pain. The environment interrupts her at every turn, slowing her down. Processes of ageing progress at a higher rate due to the resistance her body must negotiate. In her brother's case, the environment consists of well-aligned elements, all working together to impart to him the properties of immutability and mobility. The assembled instruments and people perform all the work, collectively creating and maintaining a local effect of movement without friction. As a result, time makes no mark on him, for he moves independently of it. The network mediates a time independent of his motion.

In this way, the secular time we conceptualize as isochronic is really a local 'effect of isochrony' mediated by networks creating and sustaining immutable mobiles. Even if conceptualized as all-enveloping and uniform, secular time does not exist independently of concrete networks; it *only* comes into being through finite and concrete mediations. Like anything 'global' (literally 'spherical', denoting an all-enveloping surface, but one geometric and entirely abstract), secular time's actual existence is always mediated through connections that can never be anything but local. Every little element counts for something, and every minute modification or extension of the network makes a difference. Secular time is relative to the successful alignment of elements in particular networks. If the function of the network is premised on successfully imparting immutability to a moving object, then to the degree that this operation is successful, the network mediates a time independent of motion.

VICTORIAN NETWORKS

This chapter has developed the theoretical navigation points needed in order to challenge as well as advance (albeit in a very different direction) the historiography of secular time. Drawing on the intellectual origins of the concept of *aeivum* or *saeculum* in medieval scholasticism and combining it with insights borrowed from perspectives developed under the umbrella of Actor-Network Theory, it offers a clear working definition of secular time as an abstract and isochronic time independent of motion. This time is conceptually connected, in scholasticism as well as in the network perspective, to immutable mobiles: where there are immutable mobiles, there is secular time. This enables us to focus on specific networks centring on creating and sustaining immutable mobiles, thereby locating precisely where and how secular time is being mediated.

The following chapters describe three networks emerging and expanding in England between 1800 and 1900, connecting an unprecedented large proportion of the population and range of geographical spaces. These networks all involved new technologies whose significance and implications were subject to intense debate, and all were increasingly part of people's everyday world across the country and all social classes.

Crucially, each of the networks centred on creating and sustaining immutable mobiles and had to integrate or overcome multiple forms of resistance in their environments in order to succeed in this and function as intended. The railway network could not move passengers safely between cities without mobilizing navigators, iron and steel rails, cushions, time-tables, steam engines, electric currents, gravel banks, and the passengers themselves, to create a 'Newtonian road' along which human beings could be moved without resistance. Hills were tunnelled or cut through, valleys were raised or crossed by bridges, and even the physical conduct of passengers was mobilized, monitored, and guided in order to successfully achieve their frictionless flight.

Similarly, the news network could not move information about events from imperial peripheries to newspaper pages without overcoming resistances such as shifting weather on land or sea, which had always threatened to slow down the import of news from continent or colonies. To do so, rotary presses, moveable types, journalistic principles, Morse code, ships, Malayan rubber trees, railways, news correspondents, editorial offices, stenographic symbols, and telegraph clerks had to be assembled and put to specific tasks.

Finally, the Bank of England, whose network connected country banks and lent local notes a sense of legitimacy beyond regional borders, had to find a way of making paper notes as reliable, immutable, mobile, and impossible to counterfeit as the gold they represented. Achieving this depended on mobilizing artists, chemicals, heavy and expensive machinery, locked chests, newly invented inks, and booksellers. Their joint efforts would eventually overcome the resistances—social, technological, and natural—that had for so many years made banknotes untrustworthy and their intended function dependent solely on the state's punitive system.

All three networks centred on constructing and sustaining immutable mobiles and hence mediated secular time. But it is worth repeating that this does not mean secular time was the only kind of time associated with railways, newspapers, and money. Indeed, contemporaries sometimes cast all three networks as manifestations of irreversible and revolutionary

historical breaks between the past, the present, and the future. Cutting through ancient rural landscapes, the railways embodied a new industrial world laying waste to the old pastoral one. The newspaper press was full of temporal paradoxes and ambiguities, for instance related to questions of how journalists might be ‘ahead of’ the public opinion manifested in their written texts. Bank of England notes were at the heart of debates over political economy and questions of whether paper currencies represented a progressive upgrade from an outdated metallic standard, or a dangerous fall from the golden zenith of civilization. In short, they were all associated with many different temporalities.

Yet on the level with which this book is concerned, as the networks gradually succeeded in overcoming the various forms of environmental resistance and sustaining certain entities as they moved them across increasingly longer distances, the networks also mediated with increasing success a time recognizable as isochronic, abstract, infinite, and independent of motion. This is how this concept of time gradually became a part of particular ‘social imaginaries’, how it came to be established as an unarticulated idea implicit in specific collective practices. This is secularization.

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CHAPTER 3

Railways: Tracks, Trains, and Travellers

One afternoon in the early 1860s, a gentleman disembarking from an express train arriving in Southampton suddenly realized he would not make it to the public restroom in time. The moment his feet landed on the platform,

his sphincter was taken by surprise, gave way, and then followed a deluge, with which he went to the water-closet, and there he left his drawers and stockings.¹

The gentleman's doctor, Mr Hilton, would later seek to recount his anonymous patient's embarrassing experience to as large an audience as possible, first in a lecture at the College of Surgeons and later in the pages of leading medical journal *The Lancet*. It was a matter of public interest; to the medical authorities the gentleman's predicament exemplified a certain kind of 'reflex paralysis of the lower extremities' seemingly suffered by many ordinary railway travellers.

The Lancet had set down a commission to examine all evidence of railway travelling's effect on public health, and throughout the 1860s this topic filled its pages with similar examples, as well as theories, diagnoses,

¹ *The Influence of Railway Travelling on Public Health: From the Lancet* (London: Robert Hardwicke, 1862). *The Influence of Railway Travelling on Public Health: From the Lancet*, 100.

and remedies to railway-related ailments psychological or physical. The commission highlighted, for instance, the ‘vague dread of certain undefined consequences to health resulting from influences peculiarly produced by this mode of travelling’.² The ‘almost incessant repetition of mere vibrations’,³ together with chilling draughts,⁴ the anxiety of being ‘in constant hurry’,⁵ the loud rattling sound of wheels on tracks⁶—in short, the constant jolts and starts of the moving railway carriage that the travelling body had to absorb—could cause nausea, headaches, fatigue, strained muscles, and weakened bones, in particular in those who were already unhealthy.⁷ Furthermore, declared the medical experts, the ‘constantly present ... possibility of collision’ often caused a general ‘condition of uneasiness’ in season-ticket holders and other habitual travellers.⁸ Describing a case of such ‘railway sickness’, a travel guide book published the same year as the *Lancet*’s report concluded that ‘the performance of a journey of a hundred miles within so short a space of time, and at such a rapid pace, had too greatly excited the nervous system [of one passenger], and had otherwise disturbed the functions of a delicate organisation and a debilitated frame’.⁹ The traveller might not be consciously aware of the ‘thousands of successive jolts which he experiences’, warned the *Lancet*, ‘but every one of them tells upon his body’.

It is idle to say that journeys from one end of London to the other occupy as long or a longer period of time; for as you well know, and no doubt have carefully made out, the hurry, anxiety, rapid movement, noise, and other physical disadvantages of railway travelling, are peculiar to that method of conveyance, and a railway journey of an hour, at the rate of fifty miles an hour, is almost as fatiguing as half a day’s journey on the road.¹⁰

This extensive concern for railway-related health hazards represented a remarkable mid-century shift in perspective on public railways and their

² *The Influence of Railway Travelling on Public Health: From the Lancet*, 4.

³ *The Influence of Railway Travelling on Public Health: From the Lancet*, 26–29.

⁴ *The Influence of Railway Travelling on Public Health: From the Lancet*, 33–37.

⁵ *The Influence of Railway Travelling on Public Health: From the Lancet*, 38–40.

⁶ *The Influence of Railway Travelling on Public Health: From the Lancet*, 45–46.

⁷ *The Influence of Railway Travelling on Public Health: From the Lancet*, 52.

⁸ *The Influence of Railway Travelling on Public Health: From the Lancet*, 43–45.

⁹ Anon., *The Railway Travellers’ Handy-Book of Hints, Suggestions, and Advice, Before the Journey, on the Journey and After the Journey* (London: Lockwood and Co., 1862), 7.

¹⁰ *The Influence of Railway Travelling on Public Health: From the Lancet*, 80.

effect on human bodies. In preceding decades, the dominant assumption had been that the railways had an unparalleled potential to transport humans over long distances not only quickly but also without their bodies or minds undergoing any deterioration whatsoever. The earliest extension of the railway network ‘coincided with recurrent outbreaks of public disorder’¹¹; during the 1840s, army personnel were being rushed from district to district in order to put down Chartist disturbances. Already in 1830, just after its opening as the first public railway line in the country, the Liverpool and Manchester Railway carried soldiers on active duty in order to save them a two-day march. According to one contemporary estimate, between 1841 and 1843 no less than 118,000 soldiers together with 12,000 dependents were moved between districts by rail.¹² Testifying before the Committee on Railways, Quartermaster-general Sir J.W. Gordon was asked by Chairman William E. Gladstone about the potential cost benefit of transporting military troops by railway instead of having them walk on foot. The officer dutifully responded to the financial concern at the heart of the question, but interjected what to him was a more pressing matter, namely the influence of railway travelling on the soldiers themselves—or rather, its lack of influence:

[...] I should say, that this mode of railway conveyance has enabled the army (comparatively to the demands upon it, a very small one) to do the work of a very large one; you send a battalion of 1000 men from London to Manchester in nine hours; that same battalion marching, would take 17 days; *and they arrive at the end of nine hours just as fresh, or nearly so, as when they started.* By moving troops to and fro by that mode of conveyance, you do most important service to the public, so much so, that without that conveyance, you could not have done one-tenth part of the work that it was required of the troops to do, and necessarily do, in the year 1842.¹³

For the military, and so for the state and the public, the railway system’s ability to move human bodies over long distances, fast and without friction, was at least as important as any of its money-saving potentials.

¹¹ Edward M. Spiers, *Engines for Empire: The Victorian Army and Its Use of Railways*, First Edition edition (Manchester U.K.: Manchester University Press, 2015), 1.

¹² Spiers, 10.

¹³ Anon., *Fifth Report from the Select Committee on Railways; Together With the Minutes of Evidence, Appendix and Index*, 1844, 144–45. My emphasis.

Of course, this potential would be difficult to actualize. The earliest noted death directly caused by a public railway happened at the official opening of the very first one. When attending the opening of the Liverpool and Manchester line in 1830, MP William Huskinson had his leg crushed under Stephenson's locomotive, and later died from the injuries.¹⁴ After having tried the same journey, merchant and politician Thomas Creevy declared that while travelling by railway was exhilarating, 'it is impossible to divest yourself of the notion of instant death to all upon the least accident happening. It gave me a headache which has not left me yet'.¹⁵

The following decades saw an unprecedented investment of money, equipment, and human energy in an effort to evacuate all snags and frictions from the journey. The railway was offering a historical opportunity to turn human bodies into 'entities moving while at rest' as the medieval scholastics discussed in Chap. 2 might have put it. So when artist John Ruskin in 1889 complained that '[the railway] transmutes a man from a traveler into a living parcel', meaning to lament a technology reducing humans to something less, he was also articulating the very vision of early railway enthusiasts, thereby giving testament to what had been achieved over the course of a century.¹⁶

Ever since Wolfgang Schivelbusch's seminal study of *The Railway Journey* (1986), scholars interested in the cultural impact of nineteenth-century railways have been more concerned with the phenomenology of travelling—passengers' *experience* of travelling at higher speeds, for instance—than with exploring the particular ways in which the railway network as such mediated specific temporalities.¹⁷ Michael Freeman's *Railways and the Victorian Imagination* (1999) investigated the railway as an embodiment of economic and social changes and hence as a catalyst of novel artistic and intellectual expressions. Similarly, the essays in his and Matthew Beaumont's edited volume *The Railway and Modernity* (2007) spoke of the railway's many and various impacts across Victorian culture,

¹⁴ David Bawden and Toni Weller, 'The Social and Technological Origins of the Information Society: An Analysis of the Crisis of Control in England, 1830–1900', *Journal of Documentation* 61, no. 6 (2005): 781. For an account of the accident, see L.T.C. Rolt, *Red for Danger: The Classic History of British Railway Disasters* (Stroud: Sutton Publishing Limited, 1998).

¹⁵ Thomas Creevy, *The Creevy Papers*, ed. John Gore, Rev. ed. (London: B.T. Batsford Ltd, 1963), 256.

¹⁶ John Ruskin, *The Seven Lamps of Architecture*, 6th ed. (Kent: George Allen, 1889), 121.

¹⁷ Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19th Century* (Leamington Spa, Hamburg and New York: Berg Publishers Limited, 1986).

arts, medicine, and economy. Literature scholars such as Charlotte Mathieson or Anna Despotopoulou have further explored the gendering of the practices and images associated with railway travelling.¹⁸

Generally speaking, these studies tend to treat railway *time* the same way Schivelbusch did: they contrast the artificial standardized (and *spatialized*) temporality of the railway machine ensemble to its phenomenological impacts on humans participating in its coordinated movements. As it did for so many of the Victorians, the railway becomes for these scholars a technological manifestation of the modern capitalist system and its reductive framing of the human. The question of what *kind* of temporality (or indeed temporalities!) mediated by the Victorian railway system itself remains largely unexamined.

This chapter, by contrast, attends to the question of precisely *how* the human-technological assemblage of the railway instituted a concept of time independent of motion, even regardless of what people were capable of consciously registering. It reads the extensive work done in terms of train coordination and timetables, track construction, carriage design, the creation of norms for passenger behaviour, and so on as aiming towards one and the same goal: turning the railway passenger into an immutable mobile. The argument is that the railway network mediated a time independent of motion—secular time—to the extent that it succeeded in moving human bodies without physical or psychological trauma. This approach allows us to locate this kind of temporality more precisely in the human-technological railway network (and also to discuss more precisely *how* its characteristic phenomenological experiences were generated and managed) rather than simply echoing the Victorians in declaring the railway a manifestation of a monolithic modernity.

Starting from the foundation developed in the two previous chapters—namely that there is a conceptual connection between a network moving an entity without deterioration and that network mediating a secular concept of time—this chapter presents the Victorian railway network as a prime site of secularization in the period. It should go without saying that apart from those who refused to join excursion trips on the Sabbath (but who gladly travelled on the other six days of the week), Victorians used the railway system regardless of their professed religious belief or lack of

¹⁸ Charlotte Mathieson, *Mobility in the Victorian Novel: Placing the Nation* (Basingstoke: Palgrave Macmillan, 2015); Anna Despotopoulou, *Women and the Railway, 1850–1915* (Edinburgh University Press, 2015).

such.¹⁹ It was a site of secularization in the specific sense that secular time was actively invested in and materially mediated through the multiple movements and elements comprising the network as a whole. The network was at once premised upon and underpinning a conception of secular time, and this kind of time was implicitly assumed by whoever participated in its associated technologies and collective choreographies.

MOVING BODIES

In his 1830 history of the Liverpool and Manchester Railway—which he with characteristic confidence published several months before its official opening the same year—its secretary and treasurer Henry Booth proclaimed that ‘perhaps the most striking result produced by the completion of this Railway, is the sudden and marvellous change which has been effected in our ideas of time and space’.²⁰ At the time of writing, Booth admitted, this pertained only to the Liverpool-Manchester line, but he maintained that the new experience of time would soon come to ‘pervade society at large’. And indeed, railways did turn out a crucial technology in the process of distributing uniform time throughout the national territory.²¹ In 1884, *The Times* commented that ‘[f]ifty years ago ... it was the custom of each town to keep its public clocks regulated in accordance with its own local time; and it was only the development of the railway system which brought about the abandonment of the practice’.²² ‘Railways have

¹⁹Susan Major, ‘Observing “Saint Monday”: Variations in the Potential for Leisure Mobility for Workers in the North of England in the Mid-Nineteenth Century’, in *Transport and Its Place in History: Making the Connections*, ed. David A. Turner, Routledge Studies in Modern British History (London and New York: Routledge, 2020), 34–53.

²⁰Henry Booth, *An Account of the Liverpool and Manchester Railway, Comprising a History of the Parliamentary Proceedings, Preparatory to the Passing of the Act, a Description of the Railway, in an Excursion from Liverpool to Manchester, and a Popular Illustration of the Mechanical Principles Applicable to Railways*. (Liverpool: Wales and Banes, 1830), 89–90.

²¹However, the proposal to synchronize all clocks according to a universal standard was originally made in relation to astronomical observations, nautical navigation, and postal distribution. See, for instance, Derek Howse, *Greenwich Time and the Longitude* (London: Philip Wilson Publishers Ltd, 1997); Ian P. Lyman, *Railway Clocks* (Ashbourne: Mayfield Books, 2004). And as Ian Bartky has shown in the American context, this was in no way a straightforward process. Ian R. Bartky, ‘The Adoption of Standard Time’, *Technology and Culture* 30, no. 1 (1989): 25–56; Ian R. Bartky, *One Time Fits All: The Campaigns for Global Uniformity* (Stanford, CA: Stanford University Press, 2007).

²²Anon., ‘Editorial’, *The Times*, no. 31254 (2 October 1884): 9.

made the uniformity of time within narrow belts of longitude a necessity', declared Scottish geographer Hugh Robert Mill in 1892, 'and so largely does the railway effect modern civilized life that railway time soon comes to regulate all affairs'.²³

Echoing these late-nineteenth-century voices, twentieth-century historians have often continued to describe 'railway time' as an instance of a modern, all-encompassing frame imposed on 'local' times, and/or as a catalyst of peculiar 'subjective' experiences spurred by modernity's monolithic 'objective' temporality. Likewise, scholars concerned with modern temporalities have often commented on the importance of the Victorian railway network in instituting or at least advancing an 'annihilation of space and time'²⁴; that it helped create an integrated national space through drawing far places near and making distant times present; and that it constituted new phenomenological experiences of time's passage, its speed and imposition of straight lines reducing landscapes to fleeting panoramas.²⁵ It has become almost mandatory for historians concerned with modern temporalities to assert that prior to the extension of the Victorian railway network, every English town followed its own local time,²⁶ and to present this as a qualitative historical shift between premodern and modern temporalities.

It certainly makes for a powerful narrative. The new 'railway time' can be cast as representing a generic modernity, and 'local times' as more natural and irreducibly complex elements increasingly forced into (or out of)

²³ Hugh Robert Mill, 'Time Standards of Europe', *Nature* 46, no. 1182 (1892): 174–76.

²⁴ The term stems from the nineteenth century but has been adopted by twentieth-century historians. See Michael Freeman, *Railways and the Victorian Imagination* (London: Yale University Press, 1999), 21, 247, n75.

²⁵ These dynamics have been critically explored in Di Drummond, 'Railway Space(s) and the Creation of New Forms of Nationhood in Britain 1830–1900', in *Victorian Spaces*, vol. 8, Leeds Centre Working Papers in Victorian Studies (Leeds Centre for Victorian Studies, 2006). Many accounts, historical or sociological, tend to overplay both the impact of the railway in a 'major shift' in time conception during the nineteenth century and the extent and suddenness of this shift. For a critical analysis of this tendency, see Jon May and Nigel Thrift, 'Introduction', in *TimeSpace: Geographies of Temporality*, ed. Jon May and Nigel Thrift, *Critical Geographies* 13 (London: Routledge, 2001), 1–46.

²⁶ Schivelbusch, *The Railway Journey*, 42–44; Eviatar Zerubavel, 'The Standardization of Time: A Sociological Perspective', *The American Journal of Sociology* 88, no. 1 (1982): 1–23; Jack Simmons, *The Victorian Railway* (London: Thames & Hudson Ltd, 1991), 345–47; Simon Bradley, *The Railways: Nation, Network and People* (London: Profile Books, 2016), 18–22.

modernity's procrustean frame. Yet while a case could be made that the establishing of English society as a precisely synchronized whole through conscious organization of homogenous 'clock-time' was a Victorian accomplishment, the experience of time during train travel is much more complex than allowed for by the narrative of temporal 'compression' or 'acceleration'.²⁷ Furthermore, it was not as new as is often assumed. A concept of secular time was already emerging through the gradual establishment of local civic times during the seventeenth and eighteenth centuries.

For what exactly *is* local time? It is a kind of time seen as belonging to or rather covering a geographical area in its entirety, enveloping all the diverse interests and movements found there. This means that in principle 'local' time is distinguished from the 'national' time historians have often associated with railways only by its geographical extension and by the synchronized social entity (citizenry or nation) seen as inhabiting it. In other words, it is a shift only in terms of *scale*. 'Local' and 'national' (or indeed 'global') times both involve the postulation of an empty temporal interval which might in principle be extended indefinitely, and which contains or envelopes multiple spatial and temporal movements. The role played by the railway in this story was not to institute something entirely new, but rather to extend developments already emerging in pockets in the preceding centuries.

The following describes how local civic times were established and eventually expanded beyond parish and city borders through the construction of railways, temporal coordination, time tables, and telegraphically synchronized station clocks and finally through the integration of a national network. Crucially, the motivation behind this temporal integration and standardization was preventing passengers from experiencing physical and psychological trauma. In other words, this is not a story of imposing a universal frame from above using technology, but rather one of mobilizing workers, metallic wires, soft cushions, and informative wall posters in order to secure the immutability of human bodies in motion over long distances at unprecedented speeds. The uniform temporality mediated by the Victorian railways was an effect of the work performed in order to transform human travellers into immutable mobiles.

²⁷Laura Watts, 'The Art and Craft of Train Travel', *Social & Cultural Geography* 9, no. 6 (2008): 711–26, <https://doi.org/10.1080/14649360802292520>; Sarah Sharma, *In the Meantime: Temporality and Cultural Politics* (Durham: Duke University Press Books, 2014).

LOCAL TIME

There never was an abrupt or all-encompassing horological revolution where mechanical clocks were introduced and everyone's sense of time changed into something characteristically 'modern'. As Paul Glennie and Nigel Thrift have demonstrated in their 2009 book *Shaping the Day*, modern scholars have tended to underestimate premodern people's capacity for precise measurement of hours prior to the creation of mechanical clocks, as well as exaggerate the effect on entire populations of technological innovations that was really only relevant to a few, such as navigators or astronomers. Different networks of technologies and practices mediated different kinds of time as well as different levels of precision and accuracy. The fact that mechanical clocks were developed primarily within networks of specialized experts meant that the level of accuracy achievable within these specific contexts was high above what most people expected or needed. The development of clock technology was not synchronous with the development of most people's skill sets or experience of time.

Long before the invention of personal clocks, most people navigated their daily lives with remarkable temporal precision and accuracy. Already in the sixteenth and seventeenth centuries, for instance, several decades before the development of mechanical minute and second hands on clocks, compilers of almanacs presumed their readers' familiarity with minutes and even seconds.²⁸ Seventeenth-century diarists such as Samuel Pepys often sought to be specific about the time of birth or death of family members, doctors developed complex appointment systems, and facilitators of gambling activities used stopwatches long before these came to be applied in modern factories.²⁹ For quotidian tasks, people usually told time by drawing on a number of skills and embodied movements, irrespective of owning a timekeeper or being able to account for time in an abstract register. Carriage hire rates were determined in terms of time intervals (for instance, one shilling for 45 minutes), the daily departure and arrival of

²⁸ Paul Glennie and Nigel Thrift, *Shaping the Day: A History of Timekeeping in England and Wales 1300–1800* (Oxford: Oxford University Press, 2009), 253–58.

²⁹ Glennie and Thrift, 264–72. This in opposition to the famous article by E.P. Thompson, who argued that 'the availability of precise clock time' depended on 'who owned... clocks and watches'. Paul Glennie and Nigel Thrift, 'Reworking E.P. Thompson's "Time, Work-Discipline and Industrial Capitalism"', *Time & Society* 5, no. 3 (1996): 275–99; E. P. Thompson, 'Time, Work-Discipline, and Industrial Capitalism', *Past & Present*, no. 38 (1967): 56–97.

post and passenger coaches were advertised and timetabled according to the hour, and the movement of postmen was coordinated according to these timetables; letters addressed to other cities had to arrive at the office in time for the coach's departure.³⁰ For instance, in eighteenth-century Bristol, the post offices were open between 7.00 am and 9.00 pm, its postmen making deliveries at 8.30 am, 12.00 pm, and 5.30 pm. Effective use of the postal system thus required some sense of 'timing' and tacit understanding of when to do what. In other words, people were navigating a temporal multiplex with adequate levels of precision, and did not need the high level of accuracy offered by mechanical clocks in the coordination of their daily lives.

Within this temporal multiplex, scholars have identified a number of related developments vital to a more collective everyday technological performance of secular time on a local (rather than national) scale: the establishment of a single time signal representing the town as a whole rather than specific interests within it; and a shift from aural to visual time signalling, which required a higher level of abstraction and encouraged a shift in people's general time reading skills. Together, these developments constituted a shift towards a conception of time as abstract, isochronic, and independent of motion.

Before the seventeenth and eighteenth centuries, time signalling was primarily aural.³¹ Medieval clocks told (or tolled!) the time with bells. And rather than being automated and coordinated to strike at equal hours, these bells were rung manually to cue a number of communal events or occasions: the opening of city markets, the approaching of a church service, working times for various guilds, royal births, mustering of militia to face imminent dangers, or calls for celebration after military victories. Signals were distinguished by the physical location of the bell, and by the patterns and styles of striking ('sharply', 'hard', 'softly'), and could vary considerably between parishes. Indeed, the borders and internal distances of parishes were marked by specific territorial 'acoustic regimes'. These regimes might envelop quite extensive areas, and the shared experience of a particular sonic environment partly constituted the habitus—a 'culture of the senses'—of the individuals and groups located within the

³⁰ Glennie and Thrift, *Shaping the Day*, 106. Glennie and Thrift, *Shaping the Day*, 106.

³¹ Glennie and Thrift, 141, 226.

soundscape.³² In urban areas, where churches' soundscapes overlapped and confused parochial boundaries, the resulting cacophony could as such become a defining characteristic of the city's 'acoustic profile'.³³ In 1602, for instance, Philip Julius, Duke of Stettin-Pomperia, visited London, and was amazed by its distinctive sound.

On arriving in London we heard a great ringing of bells in almost all the churches going on very late in the evening, also on the following day... we were informed that the young people do that for the sake of exercise and amusement, and sometimes the lay considerable sums of money as a wager, who will pull a bell the longest or ring it in the most approved fashion... the old Queen is said to have been pleased very much by this exercise, considering it a sign of the health of the people.³⁴

Occasionally, there were deliberate attempts to bring the acoustic chaos of the city as a whole into harmonious unity. As Bruce R. Smith puts it, '[t]he installation of a new Lord Mayor, for example, gave foreign visitors a chance... to hear [the city's] ordinary chaos of sounds brought into consonance'.³⁵ The cacophonous soundscape itself became an expression of local character, a manifestation of civic identity.

During the period between 1300 and 1500, pragmatic town authorities increasingly attempted to encourage some sense of order in the sonic chaos by introducing public mechanical clocks.³⁶ The new mechanical style of signalling was not always popular, and in many places the ringing of 'equal hours' was switched off at least during the night. Far from an anonymous process of modernization, its introduction was a 'partisan and... conscious act of self-definition' on the part of city authorities over against local guilds and their respective time signals. Historian Chris Humphrey argues that the introduction of equal hours was often coupled with a conscious endeavour to establish 'a new "mean time" that was public and city-owned, both for the practical purpose of organising daily life

³² Glennie and Thrift, 82–83; Alain Corbin, *Village Bells: Sound and Meaning in the Nineteenth Century French Countryside*, trans. Martin Thom (Basingstoke: Papermac, 1999).

³³ Bruce R. Smith, *The Acoustic World of Early Modern England* (Chicago and London: The University of Chicago Press, 1999), 50–58.

³⁴ Quoted in Smith, 52–53.

³⁵ Smith, 70.

³⁶ Gerhard Dohrn-van Rossum, *History of the Hour: Clocks and Modern Temporal Orders* (Chicago and London: The University of Chicago Press, 1996), 203.

and as symbolic of a distinctive urban identity'.³⁷ The sound of the town as a totalised and synchronous entity was deliberately distinguished from the cacophony of its overlapping interests. Humphrey gives the example of York, where in 1483 butchers were ordered to keep their shops open on Sundays, until 'eight of the bell of the clock of commonalty on Ouse Bridge', and to close them again according to the signals of their local parish churches. This is one of the first recordings in York of a time 'of the clock'—that is, the bell on Ouse Bridge did not mark the time of specific guilds or groups (nor of course a global time of the world), but the time of *York*. In this way, the establishment of a time independent of specific local interests and movements went together with the political assertion of urban autonomy.

The introduction of bell signals based on equal hours during this period marked another tentative step towards the practice of a secular time whose abstract nature allowed it to envelop the entire urban community in equal measure. In most instances, municipal clocks were given a privileged position within the existing system. Whereas all other time signals represented specific interests, events, and movements, civic time stood as if above the cacophony, and would soon be considered the common background allowing the accurate measuring of all the other time signals. In cases of conflict, civic clocks, whether located in churches, town halls, or courthouses, were singled out as neutral points of reference; if in doubt, refer to the town clock. Gradually, as Rossum puts it, 'times of council sessions, of market, or of work could be tied to the clock time signal instead of a [particular] bell signal', thereby reducing the urban cacophony while also taking over its role as marker of civic identity.³⁸

Together with the establishment of a time signal representing the town as a whole came an increasing tendency to signal time by visual rather than aural means. Between 1300 and 1800, most towns in England saw a gradual interweaving of aural with visual representations of time, from which we might infer a certain mutation in the population's sensory experience and embodied habits. There is after all an immense difference between reading time aurally or visually. Aural signals have a ubiquity to them that visual signals lack. Turbulent sound waves immerse entire bodies all at

³⁷ Chris Humphrey, 'Time and Urban Culture in Late Medieval England', in *Time in the Medieval World*, ed. Chris Humphrey and W.M. Ormrod, York Medieval Press (York: York Medieval Press and The Boydell Press, 2001), 105–17.

³⁸ Rossum, *History of the Hour: Clocks and Modern Temporal Orders*, 214.

once, arresting the attention of everyone within their spatial reach, spurring bodies from rest to action. By contrast, visual signals demand active decoding, a conscious shift in attention, a deliberate turning of body and mind, as well as sophisticated skills of mental abstraction: One must be able to imagine time as continually passing, without constantly being made (bodily) aware of it. A dial, especially one featuring both hour and minute hands, presents time as having a continuous presence, mechanical clocks with dials give the impression of measuring a time independent of the worldly flux. They represent a kind of time that passes uniformly, even when not measuring anything in particular, and whether or not anyone can sense its passage.³⁹

The effect of these developments was a gradual and subtle but nevertheless fundamental shift from the idea that the parish border lies wherever one can no longer hear the local church bells, or that the identity of a town is manifested in the cacophony of all its sounds. It required a conception of time abstracted from the world, enveloping everything in equal measure. Again, this does not entail that the concept of secular time simply replaced other forms of time with the introduction of visual dials on churches and town halls, which measured the time of a given civic community—as noted above, people did not need visual dials in order to ‘know’ the time or navigate the temporal schema of their daily lives. But such technologies were still important in that they ‘expanded the physical space in which a temporal order was applicable beyond the zone delineated by acoustic or even optical time indication: they made possible the coordination of temporal fixations independent of the time signal’.⁴⁰ The visual signalling of mechanically measured hours, minutes, and seconds carried the implicit assumption of a time independent from such signals, and so time could be measured even beyond the physical reach of the signal itself. The secular time mediated here had a potentially infinite reach.

While the spatial reach of secular time was unlimited in principle, the technologies and associated practices mediating it were still limited to urban areas and peripheries. Only towards the late eighteenth century was the general population becoming aware of the possibilities of coordination beyond ‘the boundaries of the “urban monads”’.⁴¹ Earlier, the only way to extend the reach of a local time beyond its aural or visual borders (i.e.

³⁹ Glennie and Thrift, *Shaping the Day*, 42.

⁴⁰ Rossum, *History of the Hour: Clocks and Modern Temporal Orders*, 281.

⁴¹ Rossum, 282.

beyond the reach of visible public dials or audible bells) had been to manually transport a timekeeper from one place to another, while trying to ensure that it remained completely stable throughout its passage. By contrast, the Victorian achievement of successfully extending the secular present so as to envelope the entire national territory (and beyond this, the entire globe) was accomplished through mobilizing a range of technologies and forces, and through the active work of temporal coordination, synchronization, and standardization. In this expansion of secular time to national and global scales, one specific technological network became crucial, one centred on moving a new kind of immutable entities between spatial locations without deterioration: public railways carrying human passengers.

Writing in the 1840s, during the first ‘railway mania’, Henry Booth—ever the hyperbolic visionary—saw no reason not to extend the shared sense of civic simultaneity beyond city borders. Indeed, he stated, the rapidly evolving railway network had already made this a practical necessity. ‘All ordinary measurements, whether of time or distance, will soon become obsolete ... We have discovered that twelve does not mean twelve, nor ONE, ONE. P.M. in the east is A.M in the west.’⁴² This temporal incongruity was made increasingly felt in everyday life by the use of railway travel and transport, he argued, and would only increase with the establishment of telegraphic networks, which he expected would soon be extended throughout the country. For Booth, this national temporal synchronicity was more than a pragmatic necessity; it was a thing of beauty. Peaceful and safe coexistence was at stake: ‘instead of confusion, there would be harmony; instead of complexity, simplicity; instead of multiplicity, unity.’⁴³

[B]ehold the portrait as it might be. The great bell of St. Pauls strikes ONE, and, simultaneously, every City clock and Village chime, from John of Groat’s to the Land’s End, strikes ONE, also ... There is sublimity in the idea of a whole nation stirred by one impulse; in every arrangement, one common signal regulating the movements of a mighty people.⁴⁴

⁴² Henry Booth, *Uniformity of Time, Considered Especially in Reference to Railway Transit and the Operations of the Electric Telegraph, in a Letter to the Right Hon. Edward Strutt, M.P., Chairman to the Railway Commissioners* (London and Liverpool: John Weale in London; Thomas Baines in Liverpool, 1847), 13.

⁴³ Booth, 16.

⁴⁴ Booth, 10–11.

One other technology besides railways would be particularly important in achieving this, he argued. '[I]f the introduction of railways, from the multiplication of travelers and increased rapidity of transit, add a five-fold strength, by practical illustration, to the necessity which is more and more felt, for *uniformity of Time*, the urgency will be rendered infinitely more glaring, by the establishment of the Electric Telegraph.'⁴⁵

Booth's predictions were largely correct: The electric telegraph did come to play an important role in the process of integrating and synchronizing the nation in a uniform time. And as he had argued, it was indeed the rapidly extending railway network that enabled and necessitated the expansion of civic time beyond city borders.

BRANCHING OUT

In terms of its material extension, the beginnings of the national railway network were humble: the earliest public railways connected only two or sometimes three towns. An obvious early example is the Manchester and Liverpool line,⁴⁶ which opened in 1830, after the Parliamentary Act to authorize it had been stalled for two years by local canal companies.⁴⁷ For the first time, steam locomotives provided the exclusive means of traction. George Stephenson's 'Rocket' had won the preceding Rainhill Trials, demonstrating a speed of 29 mph, as well as the required ability to pull a load at least three times its own weight. Such impressive feats, combined with tracks made from wrought rather than cast iron, secured the regularity and reliability needed to attract investors. Though initially intended for transport of goods, the new railway carried 460,000 passengers in its first

⁴⁵ Booth, 12. Emphasis in original.

⁴⁶ A railway is considered modern if it combines a 'specialised track, mechanical traction, facilities for public traffic, and provision for passengers'. Some name the Stockton and Darlington line (1825) the first modern British railway. Its traction was only partially mechanical, however; horses were still being used. See, e.g., T.R. Gourvish, *Railways and the British Economy, 1830–1914*, Studies in Economic and Social History (Basingstoke: MacMillan, 1986). For a discussion of this definition of modern railways, see Michael Robbins, *The Railway Age* (London: Routledge & Kegan Paul, 1962), 1–9. For an account of the use of railways as a means of transport before the 1830s, see C.F. Dendy Marshall, *A History of British Railways Down to the Year 1830*, vol. 2nd (London: Oxford University Press, 1971).

⁴⁷ Christian Wolmar, *Fire and Steam: A New History of the Railways in Britain* (London: Atlantic Books, 2007), 24–30; Robert Carlson, *The Liverpool and Manchester Railway Project 1821–1831* (Newton Abbott: David & Charles, 1969).

year alone—four times the number of people making the same journey by stagecoach the year before. Indeed, at the introduction of the line, the stagecoaches between the two cities ceased to run with immediate effect.⁴⁸

National integration of the network was a relatively rapid though somewhat chaotic process. Between 1825 and 1835, Parliament passed no less than 54 acts authorizing the construction of railways similar to the Manchester and Liverpool line. The network's first real growth spurt came in the early 1840s.⁴⁹ By this time, most of its major arteries were in place, such as the London-Birmingham line (1838), which connected to the Liverpool-Manchester line by the Grand Junction line (1837), and to Sheffield, Leeds, and Newcastle by other lines; the London-Bristol line (1841); and the London-Southampton (1838–1840) and London-Brighton (1841) lines that connected the capital with the southern ports.⁵⁰ The network's growth reached a preliminary peak in the infamous 'railway mania' in the mid- and late 1840s.⁵¹ By the end of 1844, a total of 2235 miles of railway were in operation in Britain, three quarters of which had been built after 1839.⁵² In the year 1845 alone, a total mileage of 2896 was sanctioned, with an authorized capital of £59.5 million. Only one year later, the numbers were 4540 miles and £132.5 million, sanctioned through more than 200 individual Parliamentary acts.⁵³ While many new lines were authorized (despite the bad financial climate), almost two-thirds of the mileage authorized between 1844 and 1847 was never built,⁵⁴ and hundreds of proposed schemes did not even get a first reading.⁵⁵ By the

⁴⁸ Robert Routledge, *Discoveries and Inventions of the Nineteenth Century*, 14th ed. (London: George Routledge and Sons, Limited, 1905), 102–3.

⁴⁹ Henry Parris, *Government and the Railways in Nineteenth-Century Britain*, Studies in Political History (London: Routledge & Kegan Paul, 1965), 28–102.

⁵⁰ Ian N. Gregory and Jordi Marti Henneberg, 'The Railways, Urbanization, and Local Demography in England and Wales, 1825–1911', *Social Science History* 34, no. 2 (1 June 2010): 199–228.

⁵¹ Henry Grote Lewin, *The Railway Mania and Its Aftermath, 1845–1852*, Rev. ed. (London: David & Charles; Newton Abbot, 1968), 1.

⁵² Philip S. Bagwell, *The Transport Revolution, 1770–1985* (London: Routledge, 1988), 80–81.

⁵³ Bagwell, 82.

⁵⁴ Jack Simmons and Gordon Biddle, eds., *The Oxford Companion to British Railway History from 1603 to the 1990s* (Oxford: Oxford University Press, 1997), 311.

⁵⁵ Bagwell, *The Transport Revolution, 1770–1985*, 82.

end of the mania in 1852, the total route mileage was approximately 7500 miles.⁵⁶

The early railways were relatively short and held primarily regional or local significance. Since many of them were only used for carrying coal, they had no need for high speeds; on many lines, horses remained the primary source of traction power. Most railways built before 1850 were treated as additions to the existing canal networks, which remained the primary system for transporting goods.⁵⁷ Furthermore, the pre-1850 railway network was not yet as integrated as had been the coach network it was abruptly replacing. Because the changeover was so swift, most rural areas ended up having *less* regular contact with urban centres than before. ‘It is even possible’, argues historian Andrew Charlesworth, ‘that the village world of the 1840s and 1850s had a more restricted horizon than had the village in 1830’.⁵⁸

Still, already by 1842 most of Britain’s major industrial centres were connected by rail directly or indirectly to London,⁵⁹ already then giving the country ‘the semblance of a national railway system’.⁶⁰ By the mid-1850s, half of the population lived in parishes boasting at least one station,⁶¹ and from then on until the mid-1870s, innumerable small branch lines were opened. Apart from another ‘mania’ in the 1860s, the latter half of the century generally saw railway companies focusing on connecting small urban centres and towns to the existing main arteries of their own network. By now the network was extensive enough to restore the contact

⁵⁶The figures of mileage often vary between sources. Sometimes new schemes incorporated schemes that had been approved at an earlier point, and the relation between the two is seldom made clear. Wolmar estimates a total route mileage of 9500 as early as in 1847, but this is probably an exaggeration; Lewin estimates that between 1845 and 1852 approximately 5000 miles were authorized and opened in addition to the already-existing 2325 miles. Wolmar, *Fire and Steam*, 88; Lewin, *The Railway Mania and Its Aftermath, 1845–1852*, 473.

⁵⁷Indeed, most new tracks were put down alongside existing canals. David Turnock, *Railways in the British Isles: Landscape, Land Use and Society* (London: Adam & Charles Black, 1982), 14–19.

⁵⁸Andrew Charlesworth, *Social Protest in a Rural Society: The Spatial Diffusion of the Captain Swing Disturbances of 1830–1831*, Historical Geography Research Series 1 (Norwich: Geo Books, 1979), 46.

⁵⁹Gregory and Henneberg, ‘The Railways, Urbanization, and Local Demography in England and Wales, 1825–1911’, 201–2.

⁶⁰Freeman, *Railways and the Victorian Imagination*, 1.

⁶¹Gregory and Henneberg, ‘The Railways, Urbanization, and Local Demography in England and Wales, 1825–1911’, 211.

it had temporarily disrupted between rural and urban areas (for instance, through its importance for daily newspaper distribution, as we will see in Chap. 4). Not everything went back to the old normal, however. Rural villages that lay close to a main line were more likely to be connected and hence get a station of their own—which in most cases could lead to substantial population growth. The 1860s and 1870s saw the emergence of completely new ‘railway towns’, such as Crewe and Swindon, as well as the decline of established urban centres such as Exeter and Norwich: the latter for various reasons deciding not to be connected to a main line, the former vying to get that much-desired railway station which promised to put their town on the map. From the 1870s, the number of stations opened grew about 10 per cent every decade.⁶² This was also a result of the new demand for leisurely railway excursions and seaside trips; a railway connection could boost the life of a seaside town to an extraordinary degree. When the railway eventually reached Bournemouth in 1870, the following decade saw the population grow from 5896 to 16,859, before reaching 78,674 in 1911.⁶³ Openings of branch lines were celebrated on a grand scale by the affected towns and villages, the station constituting a new gateway to the world and its goods for a whole generation.⁶⁴ For an older generation who remembered the ‘old’ map, however, it could be a sobering sight. ‘Much as we love them’, wrote Thomas Carlyle in his 1850 essay *Hudson’s Statue*, ‘an unexpected and indeed most disastrous result [of the railways is how they] shift ... all the Towns of Britain into new places’.⁶⁵ In less than half a century, the railway network had changed the topographical face of the nation.

The railway network was a machine ensemble not constrained by factory walls, a technological monster extending its metallic tentacles through countrysides and cities until it was almost omnipresent. And yet, it was paradoxically inaccessible to the general public. For safety reasons, railway companies increasingly secured the tracks and associated equipment with embankments, fences, and walls, creating what one historian calls ‘an otherworld’ increasingly distant from people’s everyday lives.⁶⁶ This is an

⁶²Gregory and Henneberg, 211.

⁶³Bagwell, *The Transport Revolution, 1770–1985*, 116.

⁶⁴Wolmar, *Fire and Steam*, 125.

⁶⁵Thomas Carlyle, ‘No. VII Hudson’s Statue’, in *Latter-Day Pamphlets* (London: Phillips, Sampson, and Company, 1850), 320–21.

⁶⁶Oliver Betts, ‘Maintaining the Connections: A Social and Cultural History of the Permanent Way’, in *Transport and Its Place in History: Making the Connections*, ed. David A. Turner, Routledge Studies in Modern British History (London and New York: Routledge, 2020), 99–113.

important point to note, because so-called railway time—the uniform temporality that would soon become associated with modern railways—was mediated primarily *inside* the network. It was not imposed on society simply because there were more railways around. Unless people entered the machine ensemble through stations as passengers, the public was literally fenced out from the network’s mysterious inner logic, including its temporal dimension.

As passengers, the population soon became familiar with the railway network through regular use. Already by the mid-1830s it was accepted as given that each new railway opened would generate at least twice as many travellers as before on the same (coach) route, and that all social strata would be included among them.⁶⁷ Indeed, an important element in the railways’ popularity was their apparent socially ‘levelling’ effect; anyone—in theory—could travel by train. The royal family were regular users. The Queen’s first journey was from Windsor to London in 1842—an event that, according to one historian, opened a ‘new chapter in the history of the British monarchy’—and she continued using trains as a means of travel, in particular when visiting her holiday home at Balmoral.⁶⁸ Following Gladstone’s *Railway Regulation Act* in 1844, even the relatively poor could travel ‘at moderate Fares, and in Carriages in which they may be protected from the Weather’, for no more than ‘One Penny for each Mile travelled’.⁶⁹ Railway companies were now legally obliged (generally against their expressed preference) to provide so-called Parliamentary Trains, which were to include a third class designated for the ‘lower orders’ on at least one day of the week. By 1860, most travellers were found in this third class.⁷⁰ This relative inclusiveness proved profitable. The Midland Railway deliberately fostered third-class travel, even upholstering the seats in the carriages for increased comfort, and several competing companies followed their example—no doubt because of the financial benefits of increased passenger numbers. Many companies likewise reduced the fares for children under certain ages, and began making price distinctions between more and less comfortable accommodation.

⁶⁷ Bagwell, *The Transport Revolution, 1770–1985*, 95.

⁶⁸ Simmons and Biddle, *The Oxford Companion to British Railway History from 1603 to the 1990s*, 427.

⁶⁹ *An Act to Attach Certain Conditions to the Construction of Future Railways*, vol. 7 & 8 Vict., Cap. LXXXV (London: Eyre & Spottiswoode, 1845).

⁷⁰ David Henshaw, *The Great Railway Conspiracy: The Fall and Rise of Britain’s Railways since the 1950s* (Buttersett: Leading Edge Press and Publishing, 1991), 18.

The growing network of branch lines made it possible for workers to live further away from their work place, providing means to commute to work as well as leisurely trips to the seaside. After opening the underground railway between Paddington and Farringdon, the Metropolitan Railway started running affordable so-called workmen's trains in the mornings.⁷¹ The Great Eastern Railway saw the commercial potential in catering to the lower classes, and advertised itself as 'the poor man's line', bringing workers from suburbs to city on a daily basis. The early 1840s saw the establishment of travel agencies such as the Thomas Cook & Son, originally trying to make 'the newly-developed powers of railways and locomotion [...] subservient to the promotion of temperance'.⁷² Trains chartered for the occasion—some of them carrying more than 2000 passengers—would take middle-class urban dwellers on excursions to historic sites or day trips to seaside resorts. The relatively cheap excursion tickets allowed everyone but the very poorest or the most remote to travel and develop leisure habits. The Great Exhibition of 1851 constituted something of a breakthrough in this respect, bringing the provincial population into the metropolis for their pleasure and edification. It is estimated that more than five million people travelled to the exhibition by railway, which was close to a third of the population in England and Wales at the time.⁷³ In 1854 alone, over 90 million railway journeys were made.⁷⁴

From the mid-1870s until 1914, the larger railway companies⁷⁵ consolidated and regulated their territorial monopolies rather than investing in new construction schemes⁷⁶: few new lines were opened, and the few that were mostly covered distances already covered by rival companies.⁷⁷

⁷¹ Wolmar, *Fire and Steam*, 133.

⁷² Quoted in Arthur Jordan and Elizabeth Jordan, *Away for the Day: The Railway Excursion in Britain, 1830 to the Present Day* (Kettering: Silver Link Publishing, 1991), 13.

⁷³ Bagwell, *The Transport Revolution, 1770–1985*, 116; Wolmar, *Fire and Steam*, 112.

⁷⁴ Wolmar, *Fire and Steam*, 113.

⁷⁵ During the expansive decades between 1850 and 1870, many smaller companies struggling to maintain the expected standards were absorbed into larger companies, and several medium-sized companies amalgamated to form relative territorial monopolies, such as the North Eastern and the Great Eastern. Jack Simmons, *The Railways of Britain* (London: Sheldrake Press Limited, 1986), 26–27.

⁷⁶ Gregory and Henneberg, 'The Railways, Urbanization, and Local Demography in England and Wales, 1825–1911', 203.

⁷⁷ This has led some historians to lament the inefficiency of the system as a whole, and the way the government managed its growth. See, for instance, Mark Casson, *The World's First Railway System: Enterprise, Competition and Regulation on the Railway Network in Victorian Britain* (Oxford: Oxford University Press, 2009).

Inter-company competition shifted to explicitly focusing on moving passengers at higher speeds. The increase in speed further caused an increase in both the number and severity of accidents, which again—together with growing unpopularity and so diminishing profits—became an incentive for technological innovation in the areas of temporal coordination, synchronization, and standardization on a national scale. It was through these developments that the railways became a prime site for the dissemination of secular time to the nation as a whole. And it was all about turning travellers into immutable mobiles.

TEMPORAL TRAUMA

With the expansion of the railway network, the civic time enveloping distinct towns and cities could be expanded and made manifest across larger geographical areas. But with new possibilities came new challenges. The most prominent of these was to maintain the immutability that human bodies required in order to move at railway speed across long distances without deterioration. In the railway network, fragile human bodies encountered machines of (at least outside of factories) unprecedented size and force. These encounters turned out to cause a range of enigmatic conditions at once physical and psychological, conditions demanding new definitions, diagnoses, and treatments, as well as spurring new genres of fictional as well as journalistic and medical literature (like the *Lancet* and its public health commission) concerned with the topic of ‘railway trauma’.⁷⁸

The 1870s saw 394 passengers lose their lives, making it the deadliest decade in British railway history.⁷⁹ By this time, trains could reach a speed of 80 mph, double what was possible a decade earlier. Railway companies remained as reluctant to provide proper braking systems as the government was to intervene in their free competition. The Royal Commission held on railway accidents in 1874 spent three years collecting a mass of evidence, but accomplished near to nothing. In the 1880s, a series of spectacular accidents culminated with the 1889 Armagh disaster, in which a set

⁷⁸Thomas Keller, ‘Railway Spine Revisited: Traumatic Neurosis or Neurotrauma?’, *The Journal of the History of Medicine and Allied Sciences* 50, no. 4 (1995): 507–24; Nicholas Daly, ‘Railway Novels: Sensation Fiction and the Modernization of the Senses’, *Journal of English Literature History* 66, no. 2 (1999): 461–87; Robert Dingley, ‘Closely Observed Trains: The Railway Compartment as a Locus of Desire in Victorian Culture’, *Cahiers Victorians et Edouardiens* 53 (2001): 111–39.

⁷⁹Wolmar, *Fire and Steam*, 329 n6.

of carriages lacking automatic brakes became detached from the train, rolled backwards, and smashed into another train on its way up the hill. Eighty people were killed and 250 injured (most of them Sunday school children). Only after this event were automatic brakes and block working made compulsory by law.⁸⁰

Railway trauma could also be the result of encounters between human bodies inside the machines. Locking strangers of both genders into the enclosed and claustrophobic space of the railway compartment led to endless discussions of proper inter-class conduct, and inspired new theories of human psychology. The awkwardness and excitement associated with being thrown into the proximity of strangers and forced to spend hours together in the aphrodisiacal ‘rocking and rolling’ of the carriage underpinned widespread anxieties of (sexual) violence—soon a common topic in melodramatic plays, pornographic short stories, and morally indignant letters to editors of major newspapers.⁸¹ By the 1860s, keeping carriage doors locked from the outside had become accepted practice on most lines, and women were encouraged to purchase their own keys for those occasions when the porter could not make it in time should they need his assistance.

Railway trauma was often cast in temporal terms; railways threw the body’s time off its tracks. The serious and sometimes long-lingering effects of what became known as ‘railway shock’ raised a range of questions as to the latter’s particular nature and possible treatment, both in physical medicine and in the emerging disciplines of psychiatry and psychology.⁸² What would today perhaps be classified as post-traumatic stress disorder came to be considered a ‘disease of time’: a failure to recognize the past as past, mistaking it for (an element of) the present.⁸³ According to the *Lancet*, the intense work the body had to perform in order to absorb the

⁸⁰ Wolmar, 166–71.

⁸¹ Dingley, ‘Closely Observed Trains: The Railway Compartment as a Locus of Desire in Victorian Culture’; Peter Bailey, ‘Adventures in Space: Victorian Railway Erotics; or Taking Alienation for a Ride’, *Journal of Victorian Culture* 9, no. 1 (2004): 1–21; Nicholas Daly, ‘Blood on the Tracks: Sensation Drama, the Railway, and the Dark Face of Modernity’, *Victorian Studies* 42, no. 1 (1999): 47–76.

⁸² For some of these, see Keller, ‘Railway Spine Revisited’; Danuta Mendelson, ‘English Medical Experts and the Claims for Shock Occasioned by Railway Collisions in the 1860’s. Issues of Law, Ethics, and Medicine’, *International Journal of Law and Psychiatry* 25, no. 4 (2002): 303–29.

⁸³ Jill L. Matus, ‘Trauma, Memory, and Railway Disaster: The Dickensian Connection’, *Victorian Studies* 43, no. 3 (2001): 432.

unfamiliar impacts of the carriages' constant rocking caused regular travellers to process time differently than they otherwise would have. 'I have had a large experience in the changes which the ordinary course of time makes on men busy in the world, and I know well to allow for their gradual deterioration by age and care', declared one physician, 'but I have never seen any set of men so rapidly aged as these [particular regular railway travellers] seem to me to have done in the course of few years'.⁸⁴ On these scientific grounds, the medical journal warned its middle-class readers to think twice before buying a seaside house with the intention of commuting there to sleep in the healthy sea air; the journeys back and forth and the bodily hardships associated with railway travelling might defeat the intended purpose.

If railway trauma was cast in temporal terms, so were its proposed remedies. '[P]erfect regularity in the time of the departure from and arrival at each station by the trains ... would appear to be a material element of safety in railway travelling', declared *The Lancet*. Unfortunately, '[a]bsolute punctuality in arrival of trains is the exception, not the rule; and the anxiety and urgent hurry on arrival thus entailed on men of business especially tend to increase any ill effects that the long and rough railway journey may have produced'.⁸⁵ 'What would not be thought of a Government which could contrive to render railways universally safe, generally punctual, and always moderate in their charges?' asked a *Times* editorial rhetorically in 1853.⁸⁶ 'With strict punctuality, and careful management, railway accidents ought to be almost unknown', declared another writer in 1862. 'The most frequent cause of railway accidents is want of punctuality...Nine-tenths of the collisions which have occurred since the first railway was opened have been occasioned by neglecting to keep up to the time fixed for departure or arrival...collisions would be impossible if each train was despatched at the proper time, and travelled at the proper speed.'⁸⁷

In this way, after its initial rapid expansion, and motivated partly by the increase in violent human-machine encounters and accidents, the railway

⁸⁴ Jill L. Matus, *Shock, Memory, and the Unconscious in Victorian Fiction*, Cambridge Studies in Nineteenth-Century Literature and Culture 69 (Cambridge: Cambridge University Press, 2009), 79–80.

⁸⁵ *The Influence of Railway Travelling on Public Health: From the Lancet*, 141.

⁸⁶ Anon., 'Editorial', *The Times*, no. 21343 (4 February 1853): 4.

⁸⁷ Anon., 'Railway Accidents', *The Threepenny Magazine*, 1862. For an introduction to the Victorian concern with temporal punctuality and a survey of the many clocks available to them, see Richard Goods, *Victorian Clocks* (London: British Museum Press, 1996).

network as a whole regained, at least implicitly, the *raison d'être* articulated by its early proponents: namely, moving human bodies across long distances without deterioration, whether physical or mental. Its prime concern became removing snags and irregularities that might hinder the frictionless flight of passengers increasingly insulated from the resistances of their environment.

THE TRANSPORT MACHINE

One could regard the railway as a

[...] transport machine, one part of which is movable, consisting of the rolling stock, and the other part fixed, comprising the permanent way and its auxiliaries, the whole thing being governed and regulated by traffic requirements.⁸⁸

In addition to these two aspects, we might add what is being transported. Inanimate cargo can be strapped down, but human bodies must be encouraged and guided to (at least ideally) voluntarily comply with new movements and predicaments. Tracks, trains, and travellers—each of these was vital to the network, and each of them required the mobilization of a range of technological, natural, and cultural elements in order to enable the network to move passengers without harming them.

Tracks

With respect to the tracks, the initial concern had been how to ensure they could bear the weight of steam locomotives. Early railways were ‘shaken and battered to pieces’ because the iron rails, iron chairs, and stone sleepers constituted a support structure that turned out to be far too rigid and unyielding. Over the course of the century, resilience beat rigidity, and the winning ‘formula, with refinements, lasted for about a hundred years’.⁸⁹ The second half of the century saw an unparalleled degree of technological experimentation and innovation. There was no abrupt or great change,

⁸⁸ Harold Holcroft, ‘Some common points of interest on rolling stock and permanent way’, *I Loco E 1928*, quoted in Andrew Dow, *The Railway: British Track Since 1804* (Barnsley, South Yorkshire: Pen & Sword Transport, 2014), viii.

⁸⁹ Dow, xvii.

but a gradual merging of various developments and inventions, which towards the end of the century were (to varying degrees) settling into industry standards. Iron rails were strengthened by welding layers of steel onto their upper surface in the 1850s. Companies experimented with different ores, different manufacturing processes, and different procedures for testing. In the 1860s, the North Western laid the first tracks using steel rails only. Another example: by the mid-1880s, ready-cut rectangular pine and redwood sleepers sourced from purpose-planted forests in Danzig or Memel and creosoted in companies' own sleeper plants replaced earlier metallic and concrete sleepers, before Australian Jarrah wood eventually became a preferred material around the turn of the century.⁹⁰ Similar developments were taking place in material elements large and small across and in all parts of the network. As one historian summarizes, the railway network of the mid- and late-Victorian period saw innovations in the areas of

[...] switch and crossing work, without which not even the simplest railway system could be of the slightest use; the form and length of rails; means of fastening the rails to the sleepers and to each other; the design of sleepers, including the selection of the best timber and its treatment as well as experiments with steel; matters of geometry such as superelevation and transition curves; the adoption of superior materials and manufacturing methods for rails; and the form and best use of ballast.⁹¹

The successful construction of the permanent way, and therefore the mobilization of bodies and instruments needed for performing the actual construction work, was crucial to the new experiences of movement associated with railway travelling. Consider, for instance, the work that went into digging tunnels and raising viaducts in order to create 'unnaturally' straight lines cutting through the countryside.

The forces mobilized in order to build the Settle and Carlisle line serve to illustrate the point. In 1866, the Midland Railway Company received permission to build a line from Settle to Carlisle, through the Yorkshire Dales and the North Pennines, allowing them to connect London to

⁹⁰ Dow, 144–47.

⁹¹ Dow, xvii.

Scotland without interference from rival companies.⁹² Work began in 1869, and quickly turned out to be more difficult than expected. The line's 72 miles ended up costing £47,500 each, adding up to a staggering £2.3 million. When it opened, it had taken six-and-a-half years to complete its construction, two-and-a-half years longer than scheduled. From Settle, the first 16 miles of tracks climbed more than 700 feet at a gradient of 1:100—the so-called Long Drag. At some points, the line had to be raised more than 100 feet above the ground; in other stretches, it had to pass through mountains ten times that height. The unexpected capriciousness of the strata through which the more than 6000 hired 'navvies' would have to dig, together with bad weather, floods, snow drifts, and frozen ground, soon turned proposed cuts into deep and long tunnels, and planned embankments into giant viaducts. Furthermore, many of the latter often had to be lengthened or heightened in order for the feet to be sunk deep enough for the necessary stability. Some of the viaduct piers were sunk 55 feet through peat-washing and clay before hitting solid rock. The Ribbleshead Viaduct, the greatest on the line, was carried by 24 arches, of which every sixth arch was made extra strong, 'so should [it] ever fall, only five arches would follow'.⁹³ Similarly, the famous Blea Moor tunnel—a staggering 2629 yards long—required the construction of a curve inside a tunnel, which posed new challenges for engineers and diggers alike. In order for more men to work on the tunnel simultaneously, seven shafts were sunk on the line of the tunnel, at equal distance so that they would eventually meet at approximately the same time. First, however, winding engines for lifting workmen in and spoils out had to be dragged to the top and installed. These engines, weighing approximately six tons each, were pulled up a makeshift road either by the help of windlasses or manually, on

⁹²The major historical work on the Midland Railway is Frederick S. Williams, *The Midland Railway: Its Rise and Progress—A Narrative of Modern Enterprise* (London: Strahan & Co., 1876). Williams travelled the line himself as soon as it was finished, interviewing workers and contractors. Other works about the line include W.R. Mitchell, *The Long Drag: A Story of Men Under Stress During the Construction of the Settle-Carlisle Line* (Settle: W.R. Mitchell, 1962); Frederick W. Houghton and W. Hubert Foster, *The Story of the Settle-Carlisle Line*, 2nd ed. (Huddersfield: The Advertiser Press Limited, 1965); O.S. Nock, *The Settle and Carlisle Railway: A Personal Story of Britain's Most Spectacular Main Line* (Sparkford: Patrick Stephens Limited, 1992); David J. Williams, *The Settle and Carlisle Line: A Nostalgic Trip Along the Whole Route From Hellifield to Carlisle*, The Nostalgia Collection (Kettering: Past & Present Publishing Ltd, 2010).

⁹³Williams, *The Midland Railway*, 497–98.

a ‘four-wheeled timber wagon sort of thing’, as one work leader put it.⁹⁴ After the diggers and dynamiters had connected their ‘headings’, the tunnel had to be secured with masonry, and three of the shafts were preserved for ventilation. In the end, the line between Settle and Carlisle required 22 viaducts and 14 tunnels of this sort. It was indeed—and remains to our day—a comparatively straight line running through series of cuttings, embankments, tunnels, and viaducts, its journey so frictionless that it has later become known as much for its majestic panoramic views as for the amount of work required for its construction.⁹⁵

The effect on travelling human bodies of construction projects and technological innovations such as these was unprecedented. The irregularities and snags experienced inside the old stagecoach were being exercised; instead of the passenger’s body wearing out from being tossed about, it was now the surrounding landscape that was shifting, tumbling, and turning before the gaze of the stable observer. Already in 1830, Henry Booth had drawn attention to this potential effect of railway travelling.

⁹⁴Williams, 495.

⁹⁵Sometimes, the process of levelling hills and lifting up valleys involved inter-company competition. In 1842, the Railway Clearing House was launched, initially for the purpose of coordinating passenger transitions between companies and to ensure the settling of inter-company debt. In the following decades, it would become the central hub of an increasingly integrated and synchronized network. By the mid-nineteenth century, there were approximately 100 railway companies, of which a dozen controlled approximately half of the lines. The coordination of such a complex system was a daunting task, but the increasing level of interconnectivity left no doubt about its necessity. One example was the so-called Battle of the Gauges during the early decades of the railway network. These were remarkably fierce disputes between prolific engineers working for different companies over what should be the standard distance between the rails. George Stephenson decided to stick to what was commonly called ‘narrow gauge’ (4 ft. 8½ in.) and mostly used in the coal industry. But when traders in Bristol sought to connect their growing town to London in 1833, their (later Great Western Railway) engineer, Isambard K. Brunel, constructed a gauge of 7 ft in order to gain greater speed and steadiness. The resulting lack of uniformity between different lines soon caused inconvenience to merchants in towns such as Birmingham, which lost traffic from the ‘break of gauge’ at Gloucester. In 1846, the Gauges Act was passed, making it illegal to ‘construct any railway for the conveyance of passengers on any other gauge than 4 feet 8½ inches in Great Britain.’ *An Act for Regulating the Gauge of Railways*, 9 & 10 Vict., Cap. LVII (London: Eyre & Spottiswoode, 1846). Though the Great Western and other companies continued constructing ‘mixed’ lines where trains of both gauges could run, these were the initial steps towards national standardization of railway gauge. Conversion of broad and mixed gauge into the now-standard narrow gauge continued and was finalized in 1892. One of its by-products was a national standardized ticket system, which spread throughout the world and lasted for more than 150 years until the introduction of computer-generated tickets. Wolmar, *Fire and Steam*, 104.

[T]he whole character, structure, and appearance of the Railway is altogether different from the general aspect of the turnpike road. Instead of a uniform, flat and uninteresting country, the line of Railway is diversified continually by hill and dale, offered to the contemplation of the traveler in a sort of inverse presentment; the passenger by this new line of route having to traverse the deepest recesses, where the natural surface of the ground is the *highest*, and being mounted on the loftiest ridges and highest embankments, riding above the tops of the trees, and overlooking the surrounding country, where the natural surface of the ground is the *lowest*—this peculiarity and this variety being occasioned by that essential requisite in a well-constructed Railway—a level line—imposing the necessity of cutting through the high lands and embanking across the low; thus, in effect, presenting to the traveler all the variety of mountain and ravine in pleasing succession, whilst in reality he is moving almost on a level plane, and while the natural face of the country scarcely exhibits even those slight undulations which are necessary to relieve it from tameness and insipidity.⁹⁶

In a treatise republished throughout the century, Irish professor and popular science writer Dionysius Lardner described the railway as the closest one could get to an ideal road: ‘absolutely smooth, absolutely level, absolutely hard, and absolutely straight’. A carriage travelling on such a road, he wrote, would pass without meeting any frictional resistance other than the air surrounding it; and, he added, ‘[o]n railways the resistance is extremely small’.⁹⁷ The railway, as Wolfgang Schivelbusch would later put it, constituted a Newtonian road ‘realized without compromise’.⁹⁸ The steam-driven locomotive’s mechanical motion along the smooth tracks was uniform and regular, making the train compartment a confined space-within-a-space, detached from the irregularities of rolling hills and unpredictable weather. One historian summarizes it this way: A well-constructed track ‘carries, it guides, it provides stability and predictability in ways that the road, the air, and the water do not, and its use is largely unaffected by the weather’.⁹⁹ It allows a train to move in straight lines through the rolling countryside while its interior remains relatively stable throughout its journey.

⁹⁶ Booth, *An Account of the Liverpool and Manchester Railway*, 47–48. Emphasis in original.

⁹⁷ Dionysius Lardner, *The Steam Engine, Steam Navigation, Roads, and Railways, Explained and Illustrated*, 8th ed. (London: Taylor, Walton, and Maberly, 1851), 315–16, 327.

⁹⁸ Schivelbusch, *The Railway Journey*, 22.

⁹⁹ Dow, *The Railway*, xvii.

Trains

Equally important for creating this effect was the *moving* part of the railway machine ensemble. In the latter half of the century, first-class passengers saw carriages gradually turn into ‘parlours on wheels’ where railway luncheon baskets, railway rugs, and railway foot warmers soon helped form a new ‘psychic layer’ shielding them from physical and emotional shocks alike.¹⁰⁰ The short-bodied four-wheel carriages that remained in use for most of the nineteenth century was known to ‘work up an uncomfortable waggle at any speed’ on the short lengths of rail common at the time. In 1876, 12-wheel bogie carriages distributing the weight more evenly were constructed, and by the 1880s 8-wheel carriages came into use in several places. By 1900, such measures were applied on most main-line trains.¹⁰¹ Carriages were made increasingly inviting, and, for instance, provided with cushions to absorb the jolts during transit. Toilets started appearing, allowing shorter stops at intermediate stations. In some carriages, electric lighting was installed, though this did not become standard until after 1918.

The increasing comforts gradually accustomed passengers to living with the known risks of railway travelling, even—according to some contemporary commentators—conditioning them to mentally detach from the material danger they were actually in. As one traveller put it already in 1860:

[T]he railway carriage is ... the safest and most luxurious conveyance. While the train is almost on the wing,—rivalling the eagle in its flight, rushing along the narrow embankment or the lofty viaduct, or above the precipice with the sea raging at its base,—the passengers are reclining on their easy couch, reading or writing, thinking, or sleeping, or dreaming, as if they were under their own roof-tree, and safer in many respects than there, for the highwayman cannot rob them by day, nor the burglar alarm them at night.¹⁰²

Another pamphleteer had declared in 1853:

¹⁰⁰ Robin J. Barrow, ‘Rape on the Railway: Women, Safety, and Moral Panic in Victorian Newspapers’, *Journal of Victorian Culture* 20, no. 3 (3 July 2015): 341–56, <https://doi.org/10.1080/13555502.2015.1057390>.

¹⁰¹ Philip Unwin, *Travelling by Train in the Edwardian Age*, Steam Past (London, Boston, and Sydney: George Allen & Unwin Ltd, 1979), 51–52.

¹⁰² Anon., ‘Railway Accidents’, *The North British Review* 34 (61 1860/61 1860): 399–427.

we seem to travel, in a remarkable and special manner, at all times, but more particularly at the extremes of speed, under an Almighty direction for the benefit of man. It is true we are reminded of the mechanism which aids, and in some sense, still, under the same direction, controls; and that the fracture of a rail, or the tyer of a wheel, or an axle would, and occasionally (though not within my own experience) does disarrange the machinery, and throw a train off the line; and so we must acknowledge ourselves dependent as a means on mechanical contrivance; but when we reflect that this occurs so seldom, and so many tens of thousands of miles are traversed without damage or hindrance, the regularity and safety of railway travelling seems next to, nay, quite miraculous.¹⁰³

The effect these insulating measures had on the human mind was a recurrent topic in Charles Dickens' railway journalism. As Daniel Martin has shown, Dickens' many essays on railways portray a fragile system whose ideal of perfect and frictionless movement was ultimately illusory and potentially dangerous, but which nevertheless instilled in passengers a sense of transcending their own present material environment with all its dangers.¹⁰⁴ His observations and analyses of the railways' effect on passengers' experience suggest the degree to which the railway network succeeded in imparting the joint properties of mobility and immutability to human travellers. In pieces such as 'A Flight' or 'Railway Dreaming', for instance, Dickens depicted the effect of the railway's rhythmic jolting of bodies as creating for passengers a perpetual somatic sense of spatial and temporal displacement. For Dickens, events labelled 'accidents' were in fact *not* accidental features of the expanding machine ensemble, but essential to its very expansion. Since any local accident will have global repercussions in the form of legal, technological, or other forms of improvements across the entire network, he argued, such events should be considered 'not local nuisances to be eliminated, but rather glimpses of the potential for travellers to imagine the fanciful and terrifying experiences of becoming unbounded from local geography'.¹⁰⁵ Dickens saw travellers as largely unaware of how the various parts of the railway system thus worked in

¹⁰³ William Peters, *Railway Dangers; and How to Avoid Them* (Effingham Wilson, Royal Exchange, 1853), 45.

¹⁰⁴ Daniel Martin, "'Affirmative Signalling": Dickens's Railway Journalism and Victorian Risk Society', *Journal of Victorian Culture* 22, no. 4 (2 October 2017): 427–49, <https://doi.org/10.1080/13555502.2017.1353434>.

¹⁰⁵ Martin, 449.

order to turn them into passive parcels dreaming of detachment and isolation from the flux of their material localities. Railway bureaucrats, engineers, porters, and navvies, as well as every small technological element of the railway, all contributed to this illusory sense of moving safely at high speeds. As such, they were, as Martin puts it:

symptomatic of an emerging passivity in modern industrial culture, in which operators and passengers alike rely unthinkingly on an unseen system [...] for their safety.¹⁰⁶

Travellers

Finally, insulating passengers from their environment required mobilizing the passengers themselves, inviting them to take an active role in their own transfiguration into parcels being sent to and fro, as John Ruskin put it. Passengers could only function as immutable mobiles if they were guided towards allowing their bodies to be put in motion without themselves introducing friction or interruptions. The *Railway Traveller's Handy Book* reminded them that their assigned place was within the confines of the carriage.

Some persons, when travelling by railway, have a knack of continually thrusting their heads out of the window. Nothing can be more dangerous than this, and numerous are the accidents that have resulted in consequence. The proper place for the head is inside, not outside the carriage, and so long as it is kept there, the chances are that it will remain whole.¹⁰⁷

The *Handy Book* also warned travellers that ‘the eye is apt to be greatly deceived in [...] the relative pace at which the train travels’.

Few persons are experienced in the rate of railway travelling, and when the train is moving at the rate of twenty miles an hour, it appears not to be travelling faster than five or six miles an hour, and with this miscalculation it is easy to understand that a false step may be made, and the body thrown off its equilibrium.¹⁰⁸

¹⁰⁶ Martin, 434.

¹⁰⁷ Anon., *The Railway Travellers' Handy-Book*, 93.

¹⁰⁸ Anon., 97.

Socially speaking, there was an unavoidable tension associated with travelling in close proximity with strangers. In order to smooth out any awkward wrinkles in the social fabric, passengers were encouraged to engage in pastimes such as light conversation (obviously avoiding contentious topics), sleeping, card-playing, chess-playing, smoking, ‘musing’, and of course reading.¹⁰⁹ Indeed, the habit of reading while travelling developed partly as a response to the experience of social friction, also because it might help divert the reader’s attention from the otherwise constant awareness of potential accidents. Other crucial ‘tactics of travelling’ included such skills as being able to find one’s way through crowded platforms without ‘causing a stir’, or understand when and where it was acceptable to leave one’s luggage. Passengers were expected to use public railway timetables to plan and prepare for their journey, internalizing where they had to be at particular times—to board a train, to make a connection, to meet travelling companions.¹¹⁰ In short, they had to be taught how to move in synchrony with the gigantic collective choreography of the entire railway network, whose principal purpose was to make their passage perfectly smooth and free from physical, psychological, and social friction.¹¹¹

TEMPORAL COORDINATION

It was this collective effort to turn human bodies into immutable mobiles which motivated the extensive temporal coordination, synchronization, and standardization so often associated with Victorian railways and their place in the history of modern temporality.

Already from the early days of public railways, temporal punctuality had been essential. ‘[A] large proportion of the travelers by railway, possess only vague notion of the subject [of longitudinal variation], and many disappointments ensue from their arriving too late, in consequence of their not understanding that their own clocks show one time while the trains work by another’, clock maker and later official time regulator in London, B.L. Vulliamy pointed out in 1845. ‘If one uniform rate of time

¹⁰⁹ Anon., 5. The term ‘tactics of travelling’ belongs to Michel de Certeau. Michel de Certeau, *The Practice of Everyday Life*, trans. Steven Rendall (Berkeley; Los Angeles; London: University of California Press, 1984).

¹¹⁰ Watts, ‘The Art and Craft of Train Travel’.

¹¹¹ Orvar Löfgren, ‘Motion and Emotion: Learning To Be a Railway Traveller’, *Mobilities* 3, no. 3 (2008): 331–51.

keeping was adopted on railways’, he added, ‘it would tend greatly to diminish the risk of collisions on trains’.¹¹² The spatial length of journeys were often measured in temporal terms. In 1842, the *Illustrated London News* wrote of one of the Queen’s journeys that ‘[t]he Royal train left the station at 7 minutes past 1 o’clock, and arrived at Paddington at 35 minutes past, performing the distance in 28 minutes’.¹¹³ But the temporal coordination of different trains was performed by measuring time intervals by independent (i.e. unconnected to each other) clocks, sometimes supplemented with simple hand signals.¹¹⁴ Provided the station clerk was attentive and had been supplied with a clock (neither of which were always the case), the train’s departure would be synchronous with the time displayed on the station clock. Yet this did not guarantee any overall accuracy relative to when other trains left other stations, or that the next departing train would not unexpectedly catch up with the previous one. The relative speed of the respective trains was not taken into consideration together with the time interval,¹¹⁵ and due to the obvious differences in local times, the time of arrival was left out of timetables during the first half of the century.¹¹⁶

The publication and distribution of periodical pocket-size timetables—in a steadily growing number of local, regional, and national versions—increased throughout the century. In a single year in the 1880s, one railway company (out of more than a hundred then in operation) printed 35,000 copies of its summer timetable.¹¹⁷ This did not include winter issues (33,000), posters for station walls, so-called working timetables aimed at railway employees, those produced by other transport providers or private publishers which included the same information, or special timetables for excursion trains (some of which counted more than a thousand pages).

The purpose of portable timetables was to enable passengers to coordinate their bodily movement with the movements of the railway,

¹¹² B.L. Vulliamy, ‘On the Construction and Regulation of Clocks of Railway Stations’, *The Civil Engineer and Architects Journal* 8 (August 1845): 255.

¹¹³ *The Illustrated London News*, May 14 to December 31, 1842: *Supplement to the Illustrated London News*, vol. 1st (London: William Little, 1843), 215.

¹¹⁴ Bawden and Weller, ‘Social and Technological Origins’.

¹¹⁵ Alfred Ogan, *Railway Collisions Prevented* (London: G.J. Pope, 1855), 8.

¹¹⁶ Bawden and Weller, ‘Social and Technological Origins’.

¹¹⁷ Frederick Smeeton Williams, *Our Iron Roads: Their History, Construction and Administration*, 2nd ed. (London: Routledge, 1968), 386.

integrating them in the network long before they embarked on a train. In 1862, *The Railway Traveller's Handy-book* 'assum[ed that] the intending traveller [would] be sitting in his room a day or two previous to his departure, turning his future movements over in his mind, [and] the first things which will commend themselves to his attention are those useful publications known as RAILWAY GUIDES'.¹¹⁸ As historian Mike Esbester points out, it was not unheard of to read timetables simply for leisure, in order to spur the imagination.¹¹⁹ According to the *Handy-book*, '[c]ommercial travelers, and others who pass a great deal of their time on railways' belonged to an emergent class of people 'whose movements in life may be said to be regulated by the time-table'.¹²⁰ In 1885, Rev Edmund Venables, writing to *The Times*, felt that *Bradshaw's Railway Guide* had become nothing less than a 'necessity of life in these days of constant locomotion'.¹²¹ Indeed, figured as part of the extensive railway network, timetables were themselves seen as a defining characteristic of the present age: as *The Times* declared in 1874, it was 'an age of timetables'.¹²²

Railway timetables took different forms—all of which had precursors in other transport professions¹²³—but in the more comprehensive publications two basic representational forms were common, both of which presupposed a time independent of motion. One common format listed selected points chronologically on a time continuum (marked as hours, minutes or seconds) along one axis, and stations marked according to their successive order along the particular line in question along the other axis.¹²⁴ This was the form originally adopted by Bradshaw, and which is perhaps most familiar today. Another representational form was typified by the Alphabetical Railway Guides, or *ABCs*, first published in the early 1850s, where the names of stations appeared in alphabetical order

¹¹⁸ Anon., *The Railway Travellers' Handy-Book*, 10.

¹¹⁹ Mike Esbester, 'Nineteenth-Century Timetables and the History of Reading', *Book History* 12 (2009): 168.

¹²⁰ Anon., *The Railway Travellers' Handy-Book*, 3.

¹²¹ Edmund Venables, 'To the Editor of the Times (Bradshaw's Railway Guide)', *The Times*, no. 31525 (14 August 1885): 10.

¹²² Anon., 'Editorial', *The Times*, no. 28094 (29 August 1874): 9.

¹²³ Esbester, 'Nineteenth-Century Timetables and the History of Reading'.

¹²⁴ *Bradshaw's (Monthly) General Railway and Steam Navigation Guide, for Great Britain and Ireland, The Official Time and Fare Tables of Every Railway Now Open Throughout the United Kingdom Etc.*, 225 (London et al.: W.J. Adams, et al., 1852).

vertically, with the times of arrival or departure printed in adjacent columns.¹²⁵ This format uprooted the named places from their geographical position—the list of places, that is, did not correspond to their location along any actual line (obviously places without a station were ignored). But the alphabetical form made more readily available the kind of information that many passengers were looking for, since it allowed them to first find the desired place names and then negotiate the respective time differences. *ABCs* remained more popular than the *Bradshaw's*, at least among people regularly travelling between London and a single other place who did not need to coordinate multiple journeys.¹²⁶

In general, timetables were still considered difficult to navigate. Comprehensive ones, such as those published by Bradshaw, sought to comprise all companies' various timetables. The various places and times of the whole national territory (or the entire surface of the earth, if the journey extended beyond national borders) were represented to the reader as existing within a singular temporal grid—even if in its material manifestation this grid might be simplified and literally folded back on itself so as to fit conveniently into the reader's coat pocket. This also meant that the timetable, in seeking to provide information about all potential journeys, necessarily included an abundance of information no single reader needed or was indeed supposed to process. Its form therefore demanded a particular mode of reading. The pieces of information the passenger needed were made available through him or her acquiring and applying a set of particular skills, for instance reading vertically as well as horizontally, leafing back and forth between specific pages connected only by certain signs, and decoding different fonts or symbols.

Even for experienced passengers, timetables were not considered particularly reliable. While the *Railway Traveller's Handy-Book* (1862) assured its readers that '[t]he time of departure stated in the table is no fiction; the strictest regularity is observed, and indeed must necessarily be, to prevent the terrible consequences that might otherwise ensue', the relative value of Bradshaw's timetables, for instance, was a constant topic of public debate. Its first edition explicitly acknowledged the difficulty of representing the timings of the entire railway system in a complete manner, and included a caveat—'with such alterations as has been made in the

¹²⁵ *The Birmingham ABC or Alphabetical Railway, Omnibus, & Post-Office Time Table and General Advertiser*, 4 (Birmingham: E.A.W. Taylor, 1853).

¹²⁶ E.H. Dring, 'Early Railway Time Tables', *The Library* 2, no. 3 (1921): 169.

interval’—allowing for temporary misrepresentation whenever the system itself was in motion. Even towards the end of the century, long after the instigation of telegraphic time distribution, Bradshaw’s Railway Guide still displayed several local times, and many passengers had to keep adjusting their clocks as they were moving east or west of Greenwich.¹²⁷ *The Times* called the publication a monthly mass of fiction.¹²⁸ In 1885, one reader complained that during a journey from Canterbury to Faversham, he ‘quite accidentally ... discovered that Bradshaw’s information [on the details of his journey] was worthless, and one of the ticket-collectors, to whom [he] applied, informed [him] that the directors did not acknowledge Bradshaw’s Guide as official, and consequently were not bound by it’.¹²⁹ If this was the case on all the lines, the author continued, Bradshaw’s guide was ‘practically useless’. Perhaps this is why the *Traveller’s Handbook* encouraged passengers to be ready for departure five minutes earlier than the stated time.¹³⁰

Secular time was carried in the timetables’ tabular form, which presupposed a time independent of passengers’ motion as a condition for making coordination possible and distance calculable in temporal terms. The printed numbers indicated points on an abstract and homogeneous time continuum, where the assumption was that time was isochronic—that the temporal intervals between each point were regular and of equal length—so that passengers might calculate the time of travelling in advance, and be sure of their own safety while in motion.

CONCLUSION

In October 1884, the International Meridian Conference proposed that the countries represented adopt the meridian running through the Greenwich Observatory as the initial meridian for longitude. For years, the national uniformity of time had increasingly come to be treated as a given fact whose global realization was merely a question of technological means. When in 1880 the *Statutes (Definition of Time) Act*, seeking to rid legal texts of any lingering confusion, proclaimed that if nothing else was

¹²⁷ Hannah Gay, ‘Clock Synchrony, Time Distribution and Electrical Timekeeping in Britain 1880–1925’, *Past & Present*, no. 181 (2003): 121.

¹²⁸ Quoted in Esbester, ‘Nineteenth-Century Timetables and the History of Reading’, 164.

¹²⁹ F.C. Burnand, ‘The Value of Bradshaw’s Guide’, *The Times*, no. 31522 (11 August 1885): 4.

¹³⁰ Anon., *The Railway Travellers’ Handy-Book*, 28.

stated, GMT was the time referred to, this was a formal acknowledgement of something already considered common sense.¹³¹ Many believed, as noted by lawyer and clock inventor E.B. Denison, that ‘the adoption of Greenwich time was a purely pragmatic matter’, and that local communities should adopt it for its obvious practical advantages.

The Post-office authorities ought to order their local clocks to be kept by Greenwich time, as that and the railway together would soon induce even the cathedral clocks to follow their example. Some of them have already sacrificed their principles so far to put on another minute hand to show Greenwich time; they had better quietly give up the old one altogether.¹³²

The eventual establishment of a global time was of course a far more complex process than Denison’s technological determinism would admit. What this chapter has tried to draw attention to is something that was also recognized in a contemporary leader in *The Times*, namely that the emergence of this time was ultimately ‘thanks to the railways and with a view to the convenience of passengers’.¹³³

The railway network expanded the geographical reach of early modern civic (‘local’) times beyond city—and eventually national—borders. The network’s function was premised on successfully moving passengers between spatial points without them undergoing any physical or mental deterioration. Charles Dickens suggested that due to the constant presence of risk managing actors and technologies the railway system as a whole served to insulate—physically as well as mentally—its ever-increasing number of travellers from the frictions of their environments. Describing how any traveller would need to comply with the rules in order not to ‘annoy his fellow passengers’, the *Handy Book* introduced a striking metaphor of their predicament:

A Person in a railway carriage may be likened to a prisoner of state, who is permitted to indulge in any relaxation and amusement to while away the time, but is denied that essential ingredient to human happiness, personal

¹³¹ ‘An Act to Remove Doubts as to the Meaning of Expressions Relative to Time Occurring in Acts of Parliament, Deeds, and Other Legal Instruments’, 43 & 44 Vict., c. 9 § (1880).

¹³² E.B. Denison, ‘Greenwich V. Exeter—In The Matter Of Time’, *The Times*, no. 20962 (18 November 1851): 6.

¹³³ Anon., ‘Editorial’, *The Times*, no. 31713 (22 March 1886): 9.

liberty. He is, in fact, confined to a certain space for so many hours, and cannot well remove from his allotted endurance without annoying his fellow liberty.¹³⁴

More than a century later, philosopher Michel de Certeau echoed this in his reflections on railway travelling and the tacit changes it works on human passengers.

The unchanging traveller is pigeonholed, numbered, and regulated in the grid of the railway car [...] A bubble of panoptic and classifying power, a module of imprisonment that makes possible the production of an order, a closed and autonomous insularity—that is what can traverse space and make itself independent of local root.¹³⁵

The railway carriage becomes a place where ‘topical liturgies are pronounced, parentheses or prayers to no one (to whom are all these travelling dreams addressed?)’, and railway travelling is

a strange moment in which society fabricates spectators and transgressors of spaces, with saints and blessed souls placed in the halos-holes (*auréoles-alvéoles*) of its railway cars.¹³⁶

For de Certeau, the iron and glass of the railway carriage turns its inhabitants into static observers of silent landscapes passing by—or as he put it, ‘speculative thinkers or gnostics’. To keep with the conceptualization of secular time offered in the preceding chapters, perhaps we could rather say the railway turns passengers into angels. Technologically insulated in carriages moving along a frictionless ‘Newtonian road’, their movement orchestrated and synchronized by handbooks, timetables, and electric signals, Victorian railway travellers took on the defining properties of the immutable mobiles envisioned in medieval Franciscan angelology. Like the heavenly creatures imagined by the schoolmen, railway passengers were moving through a time independent of motion.

In this sense, the Victorian railway network constitutes a highly appropriate case study of secularization. Establishing a uniform time across the nation was a social and technological achievement stemming from an

¹³⁴ Anon., *The Railway Travellers' Handy-Book*, 75.

¹³⁵ de Certeau, *The Practice of Everyday Life*, 111.

¹³⁶ de Certeau, 113.

increasing concern for moving passengers without physical or psychological irregularities or interruptions. What we have here, in other words, is a technological system whose internal workings and associated collective practices mediated the *saeculum*. Secular time was implied whenever railway travellers negotiated timetables whose representational form located all spaces within the same temporal grid, or whenever they found their place in carriages allowing their bodies to be relatively at rest while in transit. Frictionless flight along a ‘Newtonian road’ allowed the calculation of departure and arrival times and coordination of all potential journeys. The telegraph helped towards extending the temporal grid on a national scale, enveloping the entire national (eventually imperial) territory as an increasingly temporally synchronized whole. In this way, and to the degree that it succeeded in moving human bodies without deterioration, the Victorian railway network mediated secular time.

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CHAPTER 4

News: The Pursuit of Immediacy

In 1868, when he was about to be elected prime minister, William E. Gladstone wrote a pamphlet—*A Chapter of Autobiography*—discussing the circumstances of him leaving the Conservative Party.¹ It all, he wrote, came down to certain ‘silent changes [...] advancing in the very bed and basis of modern society’.² These subterranean movements implied nothing less than a shift from an ancient principle of political legitimacy to a modern one:

If we have witnessed in the last forty years, beginning with the epoch of Roman Catholic Emancipation, a great increase in the changes of party, or of opinion, among prominent men, we are not at once to leap to the conclusion that public character, as a rule, has been either less upright, or even less vigorous. The explanation is rather to be found in this, that the public mind has been of a nature entirely transcending former experience; and that it has likewise been more promptly and more effectively represented, than at any earlier period, in the action of the Government and the Legislature.³

¹ Portions of this chapter have been previously published in Stefan Fisher-Høyrem, “‘If It Teaches, It Teaches Imperceptibly’”: Recasting the Secularity of the Victorian Public Sphere’, *The Journal of Religious History* 41, no. 4 (December 2017): 457–475, <https://doi.org/10.1111/1467-9809.12452>.

² W.E. Gladstone, *A Chapter of Autobiography* (London: John Murray, 1868), 7.

³ Gladstone, 5.

It was, in other words, not so much that Gladstone and his fellow party-changing colleagues had changed their minds, as that public opinion—that ‘very bed and basis of modern society’—had itself mutated into a form ‘entirely transcending former experience’.

This evolution of public opinion as a source of political legitimacy manifested in actual events both recent and ancient, Gladstone continued—mentioning changes in the governance of Anglican and Non-conformist churches, for instance, and the changing relation between ecclesiastical and political authorities since the Reformation, since Charlemagne, or even since Constantine. Modern political institutions were, he suggested, mere material manifestations, an ‘outward vesture’, of this ever-evolving agency of the public.⁴ Therefore, while political leaders must always ‘take honour and duty for their guides, and not the mere demand of the passing hour’, the nation’s progressive transition from a ‘stationary to a progressive period’ necessitated corresponding changes in the policies that were now to represent and express the wishes of the public. The evolution of public opinion required changes in policy.

Yet at the same time, political change demanded that politicians actively mobilize public opinion in support of their cause. The statesman was on the one hand to observe the movements of public opinion so as to implement in policy its ceaselessly changing character, while on the other he had to mobilize that very public opinion in order to achieve his own proposed policies. In addition to this, Gladstone stated, public opinion was to a large extent unable to realize or express what it actually wanted, ‘and it would resent and repudiate, if offered to its immature judgement, the very policy, which after a while it will gravely consider, and after another while enthusiastically embrace’.⁵ The eventual disestablishment of the Irish Church, for instance, was—so he argued—the manifestation of an evolving force which during the 1840s had been waiting for its ‘season for action [to] come’. Public opinion would eventually arrive at the position of the policymakers, and ‘gravely consider’ or later even ‘enthusiastically embrace’ the same proposals it at present would only ‘resent and repudiate’.⁶ Until the statesman and public opinion achieved temporal synchronicity, then, ‘premature’ policy proposals would simply have to ‘bide their time’.

⁴ Gladstone, 11–12.

⁵ Gladstone, 12.

⁶ Gladstone, 12.

This left the political leader in a paradoxical position: his role in relation to public opinion was to be at once a follower and a guide. In 1829, Lord Palmerston encountered this problem during a Commons debate. In a revealing section of his speech, he mused on the relation between public opinion and the liberal statesman, comparing the former to the winds and waves of the sea and the latter to the captain of a ship.

Look at one of those floating fortresses, which bear to the farthest regions of the globe, the prowess and the glory of England; see a puny insect at the helm, commanding the winds of heaven, and the waves of the ocean, and enslaving even the laws of nature, as if instead of being ordained to hold the universe together, they had only been established for his particular occasion. And yet the merest breath of those winds which he has yoked to his service, the merest drop of that fathomless abyss which he has made into his footstool, would, if ignorantly encountered, be more than enough for his destruction; but the powers of his mind have triumphed over the forces of things, and the subjugated elements are become his obedient vassals. And so also is it, with the political affairs of empires; and those statesmen who know how to avail themselves of the passions and the interests, and the opinions of mankind, are able to gain an ascendancy, and to exercise a sway over human affairs, far out of all proportion greater than belong to the power and resources of the state over which they preside; while those, on the other hand, who seek to check improvement, to cherish abuses, to crush opinions, and to prohibit the human race from thinking, whatever may be the apparent power which they wield, will find their weapon snap short in their hand, when most they need its protection.⁷

In this passage, Palmerston described public opinion as a mighty force whose power, complexity, and constant fluctuation rendered it stronger (indeed, ‘far out of proportion to’) any political attempt to subdue and master it. And yet, as he saw it, just like the captain of a ship steering his comparatively small vessel through a storm, the statesman might harness its power for his benefit; insofar as he knew public opinion, he could steer it, even whilst relying on it.

Insofar as he knew it, yes—but how could such knowledge be acquired? A Whig commentator writing for the *Edinburgh Review* in 1840 saw it as

⁷ Quoted in Boyd Hilton, *A Mad, Bad, and Dangerous People? England, 1783–1846*, The New Oxford History of England (Oxford: Oxford University Press, 2006), 317–318.

‘a great part of the sagacity of a statesman to discern from a distance what is to be durable, from that which will pass away’. In a striking passage, the author argued that the practice of ‘Open Questions’ in Parliament gave statesmen that direct access to the present condition of public opinion which their vocation required.

Open Questions, debated as such in Parliament, are among the best means for multiplying the *data* for bold conclusions, and for accelerating the natural formation of the new events and reasonings, which, in stirring times, are thrown so abundantly into the great bubbling cauldron of the public mind. It would be easy to find striking instances of the evils of too protracted an unconsciousness of the course of public opinion, on the one hand, and of too precipitate a following of its transient indications, on the other. The former used to be the besetting sin of Governments—the latter may be more threatening at the present—though probably not, if we have wise men to read the signs of the times... [T]here should be Open Questions for this purpose, agitation or discussion, (call it which you will,) and in order to collect, at large and at leisure, authentic materials for proceeding to legislation, *the moment that the public and the subject are both ready for it.*⁸

This implied that public opinion was a totalized and synchronous whole available for detached observation. The practice of ‘Open Questions’ created an abstract empty space in which the abundant ‘events and reasonings’ of present public opinion could be isolated from its ‘great bubbling cauldron’ and accurately gauged. Nevertheless, the author argued, public opinion was still moving and changing even while its present state was being defined—when its present condition was decided, it was already moving on. Open Questions provides an empty space where the politician had immediate access to public opinion and so could ‘read the signs of the times’, that is, discern public opinion’s present state. This immediate access to public opinion was also what allowed the statesman to take up position ‘ahead’ of it, and discern when time is ripe for implementing new policies—‘the moment that the public [was] ready for it’.

⁸ Anon., ‘Art. VI—Speech of the Right Honourable Sir Robert Peel, Bart., in the House of Commons, on Sir J. Yarde Buller’s Motion on Want of Confidence in the Government. 8vo. London: 1840’, *The Edinburgh Review, or Critical Journal* 71, no. 144 (1840): 513–514. Emphasis mine.

TEMPORALITY AND FORM

The above examples illustrate how at the heart of public opinion's emergence as a source of political legitimacy lay an intense pursuit of immediacy and temporal synchronicity. In order to gauge the present state of public opinion, which determined the legitimacy of political leadership, it was necessary to create in practice an empty conceptual space where its developments might be observed in a detached manner, but where public opinion might also be 'guided' towards aligning itself with new policies that—presumably—better represented what would be its future state. It is this paradoxical dynamic, where public opinion is at once something observed and participated in, and where participants/observers are at once ahead of and following its developments, which allows Charles Taylor to describe the notion of a public sphere as a prime example of a modern secular social imaginary: the collective performance of 'a common space in which the members of society are deemed to meet [...] to discuss matters of common interest; and thus be able to form a common mind about these'.⁹ The idea (and ideal) here is that each individual enjoys direct and immediate access to an ongoing discussion where every position must mobilize voluntary popular support in order to gain status as a legitimate option, and that the legitimacy of political authority rests ultimately on this discussion and its tentative conclusions. The outside check of political power is not a transcendent Other (whether a providential Will of God or eternal Laws of Nature), but a fully immanent discourse through which society establishes itself through a discussion with itself about itself, without reference to any 'higher' temporality.¹⁰

The secularity of the public sphere, then, has nothing to do with the (non)religious nature of various topics debated or views expressed within it, but rather with the temporal concepts implicit in its performance. As William D. Rubenstein has observed, '[r]eligious debate, that is the discussion on all aspects of organised religion ... constituted a grossly disproportionate share of all public discussion during the nineteenth century in Britain'.¹¹ While self-proclaimed secularist journals and papers did proliferate, particularly during the latter half of the century, this was often in

⁹ Charles Taylor, *A Secular Age* (Cambridge, MA.; London: Belknap Press of Harvard University, 2007), 185–188.

¹⁰ Taylor, 190–196.

¹¹ W.D. Rubenstein, *Britain's Century: A Political and Social History*, The Arnold History of Britain 2 (London; New York; Sydney; Auckland: Arnold Publishing, 1998).

reaction to the predominance of religious assumptions and articulations.¹² Religious periodicals and magazines far outnumbered those of no particular confession, while openly confessing religious believers equally contributed in papers of the latter type. In 1892, the radical and former newspaper editor Henry W. Massingham, writing a pamphlet for the Religious Tract Society, argued that whatever was printed in newspapers was what the public had ‘ask[ed] for and insist[ed] upon having’, which gave him hope for a future ‘when Christian men will demand even in the Daily Press a larger recognition of Christianity’. In 1908, the Catholic Truth Society (founded in 1868) published a pamphlet giving advice (in the form of listed ‘Don’t’s’) on how devout Catholics might engage in public debate through whichever journal they were habitually reading. Comparing engagement in the public sphere to a soldier’s engagement in battle, it encouraged young Catholics to draw inspiration from the Tractarian ‘heroes’ of the Oxford Movement: ‘[T]he weapons that the English laity have been counselled to take up [...] are those of prayer and pen, of voice and organization’.¹³ It is ‘undoubtedly true’, he concluded, ‘that a newspaper is a kind of neutral ground upon which men of faith and no faith may meet’—presumably for battle.¹⁴

Following Taylor, it is precisely this sense of formal neutrality that indicates the public sphere’s secularity. The modern public sphere exemplifies his claim that religion, in modernity, exists in forms that are compatible with social imaginaries whose temporal dimension is ‘purely secular’. Newspapers could be considered a secularizing technology, then, not because their content is non-religious, but because their *form* implies a secular temporality.

This point echoes media ecologist Marshall McLuhan, who famously declared that ‘the medium is the message’; in other words, that the most important impact of news media comes from their *form*—their particular mode of mediation—rather than their mediated content, and that this form has specific implications both for practical use and for the reader’s possibilities of imagination. For example, ‘[t]he book is a private confessional form that provides a “point of view”’, whereas, by contrast, the

¹²David Nash, ‘Unfettered Investigation: The Secularist Press and the Creation of Audience in Victorian England’, *Victorian Periodicals Review* 28, no. 2 (1995): 123–135.

¹³John (B.A.) Hannon, *The Use of the Pen: Practical Hints on Letters to the Press*, Protestant Controversy (London: Catholic Truth Society, 1908), 1–2.

¹⁴H.W. Massingham, *The London Daily Press*, The Leisure Hour Library—New Series (Oxford: The Religious Tract Society—Horace Hart, printer to the university, 1892).

newspaper ‘provides communal participation’. Here, technological form and habitual collective practices are of much more importance than any ideological or religious/nonreligious content—explicit or implicit—of the printed word itself. It is instead the daily presentation of multiple items in juxtaposition that for McLuhan gives the press its complex dimension of ‘human interest’.¹⁵ Especially after the introduction of the telegraph, according to McLuhan, the particular editorial ‘voice’ of the newspaper was lost as a result of the heterogeneity in correspondents’ reports and the lightning speed of communication. The newspaper page increasingly became an empty, ‘neutral’ space in which a ‘daily mosaic’ of different events were reported ‘objectively’—that is, without any internal relation other than their simultaneous occurrence.¹⁶

In the wake of McLuhan’s analyses, several scholars have drawn attention to the centrality of conceptions of temporality in this material performance of a national public sphere. Most notably, in his much-debated analysis of nationalism, *Imagined Communities*, Benedict Anderson argues that the modern notion of the ‘nation’ ultimately centres on the collective and practical sharing of simultaneous experience.¹⁷ For Anderson, the ‘national’ identity of an imagined community is conceivable only in terms of an ‘homogenous, empty time’.¹⁸ The ‘mass ceremony’ of regular newspaper reading provides for him the most ‘vivid figure for the secular, historically-clocked, imagined community [that] can be envisioned’.

¹⁵ Marshall McLuhan, *Understanding Media*, Routledge Classics (London: Routledge, 2001), 221. For McLuhan, the term ‘human interest’ was closely related to the immediacy brought about by technologies such as the telegraph in particular. McLuhan saw the modern electrical technologies as a (re)turn to ‘auditory’ rather than ‘visual’ societies, and as re-establishing on a grander scale the tribal communal forms of preliterate periods, a phenomenon he famously labelled the ‘global village’.

¹⁶ Marshall McLuhan, ‘Communication Media: Makers of the Modern World’, in *The Medium and the Light: Reflections on Religion*, ed. Eric McLuhan and Jacek Szklarek (Eugene, Oregon: Wipf & Stock, 1999), 39–40.

¹⁷ It is curious that Anderson does not refer explicitly to McLuhan’s work more than he does; most of his arguments about the relation between print culture, news media, and the notion of modern nationalism are already present in McLuhan’s analyses.

¹⁸ The term ‘homogenous, empty time’ as characteristic of the temporal dimension(s) of modernity was famously coined by Walter Benjamin, who unlike Anderson and Taylor—again, a curious omission—coupled it with the notion of a ‘Messianic time’. Walter Benjamin, *Illuminations* (London: Jonathan Cape, 1970).

[Newspaper reading] is performed in silent privacy, in the lair of the skull. Yet each communicant is well aware that the ceremony he performs is being replicated simultaneously by thousands (or millions) of others of whose existence he is confident, yet of whose identity he has not the slightest notion. Furthermore, this ceremony is repeated at daily or half-daily intervals.¹⁹

The community is ‘imagined’ because it is a collective of persons that do not know one another. Having read his morning paper, the reader might walk out and observe copies of the same newspaper in the hands of neighbours, or in shops around the neighbourhood. This, Anderson argues, ‘roots’ the imagined community in everyday life and ‘creat[es] that remarkable confidence of community in anonymity which is the hallmark of modern nations’.²⁰ Here he echoes Victorian contemporary commentators noting the dynamics at play in the collective habits of newspaper reading. In 1850, one early historian of the British press put it this way:

[Newspapers give] us ... day by day, and week by week, the experience of the whole world’s doings for the amusement and the guidance of each individual living man. It is a great mental camera, which throws a picture of the whole world upon a single sheet of paper. But though a great teacher, and an all-powerful instrument of modern civilization, there is no affectation of greatness about it. The Newspaper is the familiar of all men, of all degrees, of all occupations. If it teaches, it teaches imperceptibly.²¹

Anderson argues that this sense of contemporaneous experience is the basic premise of the ‘nation’—that peculiar modern imagined community to which people feel they belong even though they live far apart: an abstract interval of time in which distant and otherwise unrelated events can be seen as happening at once to the same widely dispersed

¹⁹ Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso Editions and NLB, 1983), 40.

²⁰ As described in Chap. 1, Anderson shows little consistency or precision in identifying the kind of temporality in question. At various points he calls it ‘homogenous, empty’ or ‘calendrical’ time, and describes modern societies as ‘[communities imagined as] moving calendrically through homogenous, empty time’, ‘secular historically-clocked, imagined commun[ities]’, and ‘communities of the type “horizontal-secular, transverse-time.”’

²¹ Frederick Knight Hunt, *The Fourth Estate: Contributions Towards a History of Newspapers, and of the Liberty of the Press* (London: D. Bogue, 1850), 1–2.

collective.²² Similarly to McLuhan, he argues that this constitutive temporal simultaneity is carried in the newspaper's form rather than its content. The 'empty' present is embodied in the material pages themselves, where events are juxtaposed that have no other internal relation than happening simultaneously to the imagined 'us' of the nation.²³ The essential connection between reported events is solely the steady onward clocking of homogenous, empty time. 'Within that time', writes Anderson, "'the world" ambles sturdily ahead'.²⁴

But how was this immediacy and temporal synchronicity achieved in practice? How, precisely, was the simultaneity of secular time mediated? This chapter describes the emergence of a public sphere and its primary mediating technologies and practices, namely those of news production, presentation, distribution, and consumption—what I will call the news network—together with some of the many embodied micro-practices associated with them. The temporal dimension is key here: the presentation of news was indeed a present-ing, or a 'making present', of events that were technically speaking not only taking place far away but also some time ago. Only if the reported events were in some sense present and ongoing would the reader be able to observe and participate in the events and their effects on the imagined community. This means that one main challenge for the news network was to move events from the distant places where they occurred, through multiple steps of translation, and onto newspaper pages, all the while making sure that the events remained the same throughout the process so that they would still be 'fresh' on arrival. News are events on the move.

This chapter argues that the *form* news came to take in the Victorian press stemmed from a combination of technological limitations and innovations with the promise and pursuit of immediacy and temporal synchronicity implied in the notion of a public sphere. This was most evident in the case of daily newspapers, which not only involved mass production and distribution, but where short deadlines also made the environmental

²² Anderson's account of nationalism has received forceful critique from post-colonial scholars. See in particular Partha Chatterjee, 'The Nation in Heterogenous Time', *Futures* 37, no. 9 (2005): 925–942.

²³ The other major commodity of Anderson's modern 'print-capitalism', namely the literary novel, operates with the same kind of time: its plots are predicated on the notion of a shared 'meanwhile' in which several events can take place simultaneously. See Anderson, *Imagined Communities*, 25.

²⁴ Anderson, 37.

resistances such as seasons, topographical variations, or bad weather particularly challenging to the promised regularity. Successfully moving daily news rapidly over long distances required developing technologies, changing human conducts, and harnessing natural forces and resources. To the degree that the combination and alignment of these elements was successful, and events could be moved without distortion or interruption to be presented on the newspaper pages for an ever-growing reading public, the news network mediated a secular time independent of motion.

A PRINTED PUBLIC SPHERE

Although pre-1640 England exhibited a complex infrastructure for the transmission and communication of political information and debate—ballads, private letters, and so on—historians generally locate the conceptual beginnings of a ‘public opinion’ and corresponding public sphere in the mid-seventeenth century.²⁵ In his influential thesis on the eighteenth-century emergence of a bourgeois public sphere, Jürgen Habermas famously postulated it as primarily an elite phenomenon.²⁶ By contrast, later historians have emphasized the material infrastructures and performances that—perhaps unintentionally—facilitated continuous debate, as well as direct references to ‘public opinion’ as a recognized part of political processes, long before such ideas were expressed in the formal theories of Whig writers such as John Locke or Algernon Sidney.²⁷ The years both

²⁵ Joad Raymond, ed., *News, Newspapers, and Society in Early Modern Britain* (London and Portland, OR: Frank Cass & Co Ltd, 1999). Some historians have sought to push these origins even further back. Peter Lake and Steven Pincus have argued that the notion of a public opinion has important origins in the Elizabethan court, where it would be invoked as a rhetorical device. Peter Lake and Steven Pincus, ‘Rethinking the Public Sphere in Early Modern England’, *Journal of British Studies* 45, no. 2 (2006): 270–292. See also Sandra Clark, *The Elizabethan Pamphleteers: Popular Moralistic Pamphlets, 1580–1640* (Madison, NJ: Fairleigh Dickinson University Press, 1983); Cyndia Susan Clegg, *Press Censorship in Elizabethan England* (Cambridge et al.: Cambridge University Press, 2004).

²⁶ Jürgen Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society* (Cambridge, MA: Polity Press, 1989).

²⁷ See in particular the historiographical overviews and discussions in David Zaret, *Origins of Democratic Culture: Printing, Petitions, and the Public Sphere in Early-Modern England*, Princeton Studies in Cultural Sociology (Princeton, NJ: Princeton University Press, 2000); Dagmar Freist, *Governed by Opinion: Politics, Religion and the Dynamics of Communication in Stuart London, 1637–1645*, International Library of Historical Studies (London and New York: Tauris Academic Studies, 1997).

during and following the Civil War saw numerous developments on this level, extending the scope and changing the content of political debates formerly reserved for elites initiated in official secrecy.²⁸ Informal distribution networks for private correspondence emerged, independently of the official postal system;²⁹ petitions—a traditional mode of public participation in political life—began referring explicitly to ‘public opinion’ as a tactical measure in a new factional mode of politics;³⁰ and the printing and circulation of popular genres such as ballads, satirical dialogues, and woodcut pictures was professionalized and presented orally in taverns and public houses, their content increasingly centring on contemporary political issues.³¹ Crucially, for the present purposes, changes were also taking place in the practices associated with the notion of ‘news’, and one mediating technology in particular: the newspaper.

Serial publications had appeared in London as early as the 1590s, and by the 1620s pamphlets bearing titles such as *The Weekly News* promised regular publication.³² The latter were, however, designed and sold as ordinary books, their front page displaying their title alone—*Currant*, *Herald*, or *Mercury*, for example.³³ Furthermore, booksellers would occasionally alter the pamphlet title (a common sales strategy—no one wants to buy the same book twice), leaving the printed sequence of dates the only remaining sign of continuity.³⁴

During the civil wars, several changes suggest the emergence of a new dynamic of periodicity. The sheer number of printed material during these

²⁸For a discussion of ‘news networks’ in this period, see the essays in Raymond, *News, Newspapers, and Society in Early Modern Britain*.

²⁹Howard Robinson, *Britain’s Post Office: A History of Development From the Beginnings to the Present Day* (London: Oxford University Press, 1953), 1–50.

³⁰Zaret, *Origins of Democratic Culture: Printing, Petitions, and the Public Sphere in Early-Modern England*, 217–265.

³¹Freist, *Governed by Opinion*, 125–176.

³²We should, as Joad Raymond argues, guard against constructing teleological narratives of a seamless evolution from curantos via newsbooks to later newspapers. These were different genres produced for different readerships. See Joad Raymond, *The Invention of the Newspaper: English Newsbooks 1641–1649* (Oxford: Clarendon Press, 2005). For predecessors to serial news publications in the postal networks, see Marcus Nevitt, ‘Ben Johnson and the Serial Publication of News’, in *News Networks in Seventeenth-Century Britain and Europe*, ed. Joad Raymond (London and New York: Routledge, 2006), 51–66.

³³Allen Hutt, *The Changing Newspaper: Typographic Trends in Britain and America 1622–1972* (London: Gordon Fraser, 1973).

³⁴Stuart Sherman, *Telling Time: Clocks, Diaries, and English Diurnal Form, 1660–1785* (Chicago & London: Chicago University Press, 1996), 117.

decades was unparalleled before 1640. Typographically, the size of the title-matter was reduced, making ‘news’ available at a single glance on the front page. These ‘newsbooks’ bore *two* dates on their title page, to signal the time span covered.³⁵ Already at this point, then, these publications embodied the notion of an empty temporal interval between two abstract points, within which events were unfolding while available to the eye of an independent observer. Such periodical publications became so common that the government came to consider them an ordinary and legitimate feature of political practice and communication. Indeed, in 1665, just as it was putting in motion its extensive surveillance system, the Restoration state itself began publishing its own newspaper *The London Gazette* on a twice-weekly basis.³⁶

The emerging news networks—the printed periodicals themselves as well as the range of institutions associated with their distribution and popular consumption—‘constructed the basis of a series of interlocking and overlapping spheres of political debate and action in different communities of readers’,³⁷ and played an important role in what has been dubbed the ‘urban renaissance’ of the period.³⁸ As Kathleen Wilson affirms, the expansion of news networks was central to the eighteenth-century mobilization of ‘the extra-parliamentary nation’, in London and provincial towns alike.³⁹ C. John Sommerville has shown how a gradual shift from sporadic publication under changing titles to regular and periodical publication under a single title implied both a series of uniform temporal intervals—embodied in the paper pages—independent of their diverse and dynamic content, and a ‘public’ whose opinion became an increasingly recognized political factor in ‘society’s’ progressive movement.⁴⁰

³⁵ Daniel Woolf, ‘News, History, and the Construction of the Present in Early Modern England’, in *The Politics of Information in Early Modern Europe*, ed. Brendan Dooley and Sabrina Baron, Routledge Studies in Cultural History (London and New York: Routledge, 2001).

³⁶ *The Gazette* was designed in the form of a folio half-sheet rather than a book, with a single title heading two columns of text. Hutt, *The Changing Newspaper*, 15–17.

³⁷ Raymond, *News, Newspapers, and Society in Early Modern Britain*, 130.

³⁸ Peter Borsay, *The English Urban Renaissance: Culture and Society in The Provincial Town 1660–1770* (Oxford: Clarendon Press, 1989).

³⁹ Kathleen Wilson, *The Sense of the People: Politics, Culture and Imperialism in England, 1715–1785*, Past and Present Publications (Cambridge: Cambridge University Press, 1998), 11.

⁴⁰ C. John Sommerville, *The News Revolution in England: Cultural Dynamics of Daily Information* (Oxford: Oxford University Press, 1996).

The first *daily* newspaper appeared with Samuel Buckley's *The Daily Courant* in 1702, and introduced at least three important innovations.⁴¹ Firstly, Buckley cited his foreign sources (from which he translated foreign news), with the implicit effect that a multitude of *visibly* temporally and geographically separated events were gathered under a single rubric, printed on a single transportable object, and made to appear as simultaneous on a shared background. Secondly, he attempted to organize the news so that distant or foreign news was presented first, and local news last (the latter having been received by the typographer at the time nearest publication). This, argues historian Stuart Sherman, created a 'centripetal' movement through time and space, as the reader 'moved' from events far away and comparatively long ago towards times and spaces more immediate to the act of reading. Finally, Buckley introduced a visible constant in the current of events by printing the present date at the top of the pages (as well as the imprint of the local bookseller at the bottom of the verso). Being the date of the present day, it was asymptotic—'approached but rarely broached by the events reported'.⁴²

All of these innovations invested in the material pages of the newspaper a concept of time which gathered multiple events within a single 'expanded' interval which remained the same independent of its shifting content.⁴³ The organization of news items in terms of a measurable temporal 'distance' was premised on time being isochronic and divisible into spatialized intervals, as was the regularity of successive issues. Continuities such as recurring titles or names of local booksellers provided a frame in which the reported events appeared to be synchronous. In this way, the newspaper page came to embody a disinterested interval of time independent of shifting events and developments, providing a neutral space in which a variety of political opinions might be expressed, and where otherwise unrelated events might occur together. Through the eighteenth century, newspapers

⁴¹ Sherman, *Telling Time: Clocks, Diaries, and English Diurnal Form, 1660–1785*, 109.

⁴² Sherman, 119.

⁴³ Before the calendar reform in 1752, this would have been defined in terms of a calendar still inhabited exclusively by Britain, which might cause some confusion and even national embarrassment. Sherman suggests that '[s]ince all its continental source papers were dated in the New Style calendar, eleven days later than in England's Old Style, many of the dates that headed reports from Europe were subsequent to that on the top of the paper. With every such discrepancy the English reader would be reminded (however subliminally) of the nation's calendrical insularity and idiosyncrasy'. Sherman, 119.

increasingly distinguished themselves from other print media precisely in this respect.

Towards the end of the eighteenth century, it became more common to print records of parliamentary proceedings and whole speeches given by MPs. These allowed the newspapers to become both independent reporters of as well as interested commentators on political events. On the one hand, named politicians could be evaluated, celebrated, or ridiculed. On the other, editors began feeling pressure to give accurate reports of what had been said.⁴⁴ Through such 'live' parliamentary reports, the newspaper reader was invited to participate in the current of events, where the unknown future was still 'in-the-making'. Yet this was only made possible by granting a permanency and institutional authority to the abstract interval of secular time in which the debate was taking place, much like the Open Questions in Parliament, making this empty temporal interval more stable than any utterance or specific participant contained within it.

Another way that secular time was gradually embedded in the growing news networks was in the emerging notion of a reading 'public' conceived as a single, contemporaneous entity at once participating in and observing the current of reported events. In the 1620s, 'news' had been commonly published under the rubric of recent history; but during the turmoil of the civil war pamphlet writers began drawing a distinction between the permanent nature of history and the ephemeral, not to say vulgar, nature of 'news'. Within the empty secular present established by the newspaper page, events were still in motion, and so could be engaged with before slipping into the past. As one scholar has remarked, '[t]he literate public of the 1640s were aware that the events through which they were living were incomplete ... and that, subject to providence, they would be called upon to shape their final disposition'.⁴⁵ Through establishing an empty interval

⁴⁴Though contemporary letters and papers are full of accusations of other newspapers being political partisan hacks, there is little proof that this was the case. In fact, the evidence suggests that the newspaper business was a lucrative one, and not at all dependent on political subsidy. Newspapers were business ventures dependent on securing a reliable customer base, and far from all editors showed any active interest in politics. Newspapers taking a clear political stand consolidated a specific readership, and often did better financially than more moderate newspapers, whose attempted neutrality could be seen as a 'lack of principle'. See, e.g., Hannah Barker, *Newspapers, Politics, and Public Opinion in Late Eighteenth Century England*, Oxford Historical Monographs (Oxford: Oxford University Press, 1998).

⁴⁵Woolf, 'News, History, and the Construction of the Present in Early Modern England', 96.

in which events could be observed as if from an independent and detached vantage point, the empty interval typographically embodied on the page also invited readers to step into the current of events, possibly even altering its course through their own actions (or indeed inaction). According to Bob Harris, by the 1740s the newspaper press was widely accepted as ‘vital to the exercise of the people’s alleged right to examine “the measures of every administration”’.⁴⁶ For the Restoration government’s official newspaper, this meant that its authority implicitly and paradoxically relied on the active contribution of its readership, in complete accord with the ‘culture of incessant public adulation’ ingrained in the dynamic of periodicity itself.⁴⁷ The synchronised ‘public’ was becoming—at least rhetorically—an acknowledged participant in contemporary political affairs.

EMERGING PUBLICS

After the Napoleonic Wars, public opinion was increasingly spoken of as a supreme authority before which all politics must subject to scrutiny. Historians have associated this shift with the rise of ‘liberal Toryism’ and in particular the statesmanship of George Canning.⁴⁸ According to Jonathan Parry, Canning was central to establishing the idea of public opinion as the ultimate basis and animating force of the state, an idea which came to be generally shared across the political spectrum, and was subsequently maintained by successive Whig governments.⁴⁹

The so-called Queen Caroline affair of 1820 in particular gave the ‘tribunal of the public’ a new place in popular imagination and political debate.⁵⁰ The response to the events surrounding the Queen’s return from exile constituted something of a ‘high-water mark of the post-war agitation’, with high levels of popular involvement, wide coverage in pamphlets, and the occasional radical group threatening revolution. Whereas earlier events such as the Peterloo uprising had served to cast doubt upon the ability of ‘public opinion’ to prevent violent outbreaks, the Queen

⁴⁶ Quoted in Hannah Barker, *Newspapers, Politics and English Society, 1695–1855*, Themes in British Social History (London: Pearson Education Limited, 2000), 13.

⁴⁷ Lake and Pincus, ‘Rethinking the Public Sphere in Early Modern England’.

⁴⁸ Hilton, *A Mad, Bad, and Dangerous People*, 309–317.

⁴⁹ Jonathan Parry, *The Rise and Fall of Liberal Government in Victorian Britain* (New Haven and London: Yale University Press, 1993).

⁵⁰ See for instance John Stevenson, ‘The Queen Caroline Affair’, in *London in the Age of Reform*, ed. John Stevenson (Oxford: Basil Blackwell, 1977), 117–148.

Caroline affair was taken, at least by advocates of reform, as positive proof 'that a widespread agitation could be vehemently oppositional and at the same time protect the basic pillars of the social fabric: namely, those family and matrimonial values on which the opposition to the King was predicated'.⁵¹ The fact that the Queen, legally speaking, lost her case did not quench her supporters' enthusiasm for public opinion's ultimate triumph. 'We have just witnessed the irresistible force of public opinion', wrote physician and political writer Charles MacLean after the Queen's trial, '[and i]t is incumbent upon us to maintain that opinion in activity'.⁵²

In the first book devoted entirely to the question of public opinion (published in 1828), Whig MP William MacKinnon related its 'rise and progress' directly to the present level of civilization achieved in Britain. The emergence of public opinion was, he argued, conditional on a certain 'degree of information and wealth, which together may be styled civilization, and also [...] proper religious feeling'.⁵³ As so many of his contemporaries, MacKinnon considered it crucial that the government of any civilized country be governed by the dictates of public opinion, and not vice versa. Indeed, the mere assumption that 'the form of government in a country [is what] gives freedom and security' was mistaken, he argued; it was rather the strength and prevalence of the 'requisites' of public opinion that underpinned the establishment of 'a liberal government and constitution'.⁵⁴

The young liberal MP John C. Colquhoun advocated similar views in 1831, when he urged peers not to oppose public opinion in the matter of the Reform Act. Public opinion, he maintained, was the tribunal before which Whigs and Tories alike must appear. It was 'the *deliberate opinion of the majority* of reflecting and educated men, of the highest as well as the lowest ... To oppose such an occurrence of opinion, is not only unavailing,

⁵¹ Dror Wahrman, 'Public Opinion, Violence and the Limits of Constitutional Politics', in *Re-Reading the Constitution: New Narratives in the Political History of England's Long Nineteenth Century*, ed. James Vernon (Cambridge: Cambridge University Press, 1996), 119.

⁵² Charles Maclean, *The Triumph of Public Opinion. With Proposed Articles of Impeachment Against the Ministers of the Crown in the Case of Caroline, Queen of England* (London: W. Marchant, 1820), viii.

⁵³ William Alexander MacKinnon, *On the Rise, Progress, and Present State of Public Opinion, in Great Britain, and Other Parts of the World* (London: Saunders and Otley (Printed by William Clowes), 1828), 1.

⁵⁴ MacKinnon, 340.

it is altogether unconstitutional'.⁵⁵ Colquhoun regarded it a 'mere fact' that the present age was one in which 'the influence of the few has given way to the *opinion of the many*'.⁵⁶ For better or worse, he argued, public opinion was 'omnipotent, and present every where [sic]'.⁵⁷

I do not say whether it is well that such a power should govern—this is no longer the question;—it is now established, and whether we like it or not, we must submit to its authority ... to denounce its evils, would appear to me as unprofitable as to condemn the effects of the natural atmosphere.⁵⁷

What was at stake was not whether it existed, but how one could cooperate with it and facilitate its further progress.

But precisely who to include in 'the public' and what should be its relation to the press was not so straightforward. MacKinnon reserved the term 'public opinion' for the articulated views of individuals of good means, a certain level of education, and 'proper religious feeling'.

Public opinion may be said to be, that sentiment on any given subject which is entertained by the best informed, most intelligent, and most moral persons in the community, which is gradually spread and adopted by nearly all persons of any education or proper feeling in a civilized state.⁵⁸

On this understanding, public opinion was the accumulated sum of the informed and well-considered opinions of certain individuals, and clearly distinguished from mere 'popular clamour'. Similarly, legal scholar Hommersham Cox argued that public opinion must be articulated by independent individuals, not least because of how crowds might negatively influence any individual's judgement.

Men who, individually, are humane, tolerant, and sensible, collectively, are comparatively incapable of exercising their feelings and judgement volun-

⁵⁵ John C. Colquhoun, *Reform: The Lords Against the Commons and Public Opinion Over All* (Glasgow: Printed at the University Press for Atkinson & Co.; Wm. Tait, Edinburgh; and James Ridgway, London, 1831), 15. Emphasis in original.

⁵⁶ Colquhoun, 27–28. Emphasis in original.

⁵⁷ Colquhoun, 28.

⁵⁸ MacKinnon, *On the Rise, Progress, and Present State of Public Opinion, in Great Britain, and Other Parts of the World*, 15. MacKinnon, *On the Rise, Progress, and Present State of Public Opinion, in Great Britain, and Other Parts of the World*, 15.

tarily. By mutual pressure their thoughts are wont to become confluent, like many waters mingling in a current and flowing all by one way—often by a very devious way, through barren plains—often by a self-destructive way, over vortices insatiable, and treacherous quicksands—often by a dark way, through gulfs and chasms which the light of heaven does not penetrate—often by a way of violence and destruction down mountain steeps, through rocky barriers, and over sudden precipices; sometimes by a right way, a noble stream flowing calmly and magnificently onwards, fertilizing the earth, and bearing rich freights of blessings for the whole human race.⁵⁹

For Cox, and others who shared the view that the ‘public’ was really a collective of the best informed and most rational individuals, the purpose of the press was therefore to provide readers with reliable reports and facts for their individual consideration (as well as to offer guidance as to which conclusions might be considered truly ‘rational’).

These views exemplify what historian Mark Hampton has called an ‘educational’ ideal of the press, entailing that the mission of the press was to ‘inform’ or ‘elevate’ the individual reader into a rational recognition of ‘supposedly established truths—such as the scientific basis of political economy and the wonders of the British constitution’.⁶⁰ Hampton sees a shift in the latter half of the century, when a contrasting ‘representational’ ideal became increasingly dominant (though not hegemonic). In contrast to the ‘educational’ ideal, this carried the notion that newspapers *reflected* a public opinion which was already there, requiring only a medium in order to be articulated. No longer cast as a set of coherent political statements or positions, public opinion was increasingly conceived as a kind of self-generating and subterranean ‘social’ force embracing the nation in its entirety, on which the very legitimacy of political governance depended—much like Palmerston and later Gladstone had envisioned. The press was, in this sense, merely the material manifestation of the underlying, ever-changing force that was public opinion.

⁵⁹Hommersham Cox, *The British Commonwealth: Or a Commentary on the Institutions and Principles of British Government* (London: Longman, Brown, Green, and Longmans, 1854), 9.

⁶⁰Mark Hampton, *Visions of the Press in Britain* (Urbana and Chicago: University of Illinois Press, 2004), 9.

ENVIRONMENTAL RESISTANCE

Publics were manifold, and their respective constitution was partly due to the temporal rhythms of the news' production and distribution process. Provincial newspapers were distributed through a complex network involving local presses, agents in local towns, and walking carriers who delivered papers to smaller villages and rural areas.⁶¹ Thrice-weekly London newspapers were sent by coach to the provinces, and provincial papers sent back to the capital, both timed according to the post coach departure. Some of these networks were organized so that readers could receive the newspaper on the evening of the day it had been printed.⁶² Indeed, as Hannah Barker puts it, 'the way in which provincial newspapers were distributed and their publication timed appears to have been carefully calculated'.⁶³

Generally speaking, London publics were more inclusive than their provincial equivalents, simply because urban readerships were more diverse and generally boasted a higher rate of literacy.⁶⁴ One estimate suggests that there were, at any time during the 1780s, 'at least nine daily newspapers (appearing six times a week), eight thrice-weekly, and approximately nine weekly papers in London at any time'.⁶⁵ Another estimate suggests that London held a newspaper readership of 250,000, a sizeable portion of its 750,000 population.⁶⁶ Although high prizes were matched to the higher classes, the actual readership extended across class borders through

⁶¹ Cranfield traces some of these networks, which remained more or less the same until the much later development of the railways. G.A. Cranfield, *The Development of the Provincial Newspaper, 1700–1760* (Westport, Connecticut: Greenwood Press, Publishers, 1962), 190–206. C.Y. Ferdinand provides a rare study of a single provincial newspaper from this period, tracing its multiple links to commerce, state, distribution media, and so on. C.Y. Ferdinand, *Benjamin Collins and the Provincial Newspaper Trade in the Eighteenth Century* (Oxford: Clarendon Press, 1997).

⁶² Barker, *Newspapers, Politics, and Public Opinion in Late Eighteenth Century England*, 177.

⁶³ Barker, *Newspapers, Politics and English Society, 1695–1855*, 112.

⁶⁴ Barker, *Newspapers, Politics, and Public Opinion in Late Eighteenth Century England*, 177.

⁶⁵ It is difficult to estimate how many newspapers were in fact printed. The relevant Post Office does not exist anymore, so there are no authoritative sources. Barker, 23.

⁶⁶ See, e.g., Marjorie Plant, *The English Book Trade: An Economic History of the Making and Sale of Books*, 2nd ed. (London: George Allen & Unwin Ltd, 1965), 200–203. This number is rendered uncertain, however, by the fact that those who did read newspapers often read several, while single issues were circulated among unknown numbers of people. Furthermore, the relationship between readership and literacy is hard to determine, both since ability to read does not imply ability to write and because newspapers were often read aloud in groups.

lending, hiring, and public reading.⁶⁷ The public constructed by the London papers was therefore generally independent of particular interests, propertied or otherwise. In the provinces, by contrast, the term ‘public’ most commonly referred to land-owning elites. Already by the 1760s, however, newspapers had become an ‘essential part of country life’⁶⁸ for everyone. Most provincial towns had coffee houses where a wide range of newspapers were available, and where new newspapers would be sent in attempts to establish readerships.

As Hannah Barker has argued, the relative success of such a high number of provincial newspapers in certain regions could be due to the complementary frequencies at which they were published. The distribution of several newspapers within overlapping geographical areas, and at varying frequencies, provided not a single synchronic pulse enveloping the whole ‘nation’, but rather something like a cacophony of intersecting and even competing local and regional temporal rhythms. The empty interval mediated by a twice-weekly paper, for example, was in a sense more ‘spacious’ than that of a thrice-weekly publication, since the temporal distance between each issue was three days rather than two. This affected both the general ‘voice’ of the paper and the expectation and inner posture of the reader.

These multiple publics could never be integrated into a single, synchronized one on a national scale without the news network overcoming a number of environmental obstacles. The promise of immediate access to current events through frequent and regular publication depended on a continuous flow of information into the printing office. Early eighteenth-century newspapers lifted much of their content from London newsletters, and Dutch and French newspapers, which, as foreign, were considered more or less immune to the charges of triviality and vulgarity often accompanying the printing of local rumours.⁶⁹ This and other news was delivered by post, which meant it was transported by carriage along continental roads, by ship over sea, and then again by carriage to the printer. Its

⁶⁷ One way this is indicated is in advertisement. When businessmen invested in newspapers, they could place advertisements at reduced rates, and some newspapers (e.g. the *Morning Herald*) not only advertised for servants wanted but also carried advertisements from servants seeking employment. This might suggest that both ends of the social scale could be found among the readership.

⁶⁸ Cranfield, *The Development of the Provincial Newspaper, 1700–1760*, v.

⁶⁹ James Sutherland, *The Restoration Newspaper and Its Development* (Cambridge: Cambridge University Press, 1986).

journey was always at risk of being disrupted by weather or other unforeseeable hold-ups. This vulnerability gave early seventeenth-century news a certain ‘seasonal’ flavour: ‘more plentiful during the summer when travel was easier, and sparse during the winter’.⁷⁰ It also followed the social rhythms of travelling in groups, so that news was for instance more plentiful whenever local gentry travelled to regional assizes or to London to settle legal matters.

Under these circumstances, regular publishing—especially if it was to be frequent—was a demanding exercise. Since weather conditions made the news flow unreliable, editors had to find ways of making sure the open space left on certain pages would be filled in the case of unexpected difficulties. The printer prepared as much as possible of the uniform typographical material—titles and columns, for instance—before news arrived to the printing office creating a frame in which the news content could be incorporated. By the 1720s, most established newspapers had learnt to anticipate the potential absence of foreign news by keeping a file of substitutes, which could be drawn upon as the need arose.⁷¹ James Sutherland has described how the challenges of the hand press impacted on the presentation of news on the page:

The printer had to pick each letter for each word out of its appropriate ‘box’ in the ‘case’ or receptacle in which the type was kept, place it in on his composing stick, and then go through the same movements with the next letter, and the next. While the process was the same for a newspaper as for a book, the news paper had to appear on time at regular weekly, twice-weekly, thrice-weekly, or daily intervals, and the copy for the current issue was coming in all the time the printer was at work. In reckoning the period available, we have to allow not only for the manual type-setting, but for the inking, the pulling of each sheet, and the time required for the wet sheets to dry. In addition, some time might be lost in correcting printer’s mistakes ... in practice the low speeds that could be attained and sustained in manual type-setting meant that no sooner was a paper selling on the streets than the printer had begun to set the next issue. He could not wait until all the news were assembled and arranged in an orderly and systematic manner by himself or by someone else; he had to start with what he had, or he would never keep ahead of the clock. [Hence,] a piece of news in an eighteenth-century

⁷⁰ Raymond, *The Invention of the Newspaper: English Newsbooks 1641–1649*, 5.

⁷¹ Sutherland, *The Restoration Newspaper and Its Development*, 123–129.

newspaper is where it is because that is where the printer had got to when it reached him.⁷²

The empty space could also be filled by encouraging the readers to participate. Newspaper distribution already depended on the postal system, and it is perhaps not surprising that the new genre of news reporting often intermingled with styles of personal correspondence. Publications such as the Scottish *Tatler* (from 1709) and *The Spectator* (from 1711) consciously left blank spaces on some pages, and encouraged readers to contribute their own news before passing on the newspaper to friends or relatives. In other words, the newspaper form itself implicitly anticipated the reader's direct and active contribution to its content. Ichabod Dawks, metropolitan bookseller, printer and editor of *Dawks's News-Letter* (1695–1716), went so far as to invent a printed type that simulated older handwritten manuscript types, while also leaving blank spaces for readers to insert their own correspondence, thus appealing to wide, cross-generational audiences in London and provinces alike.⁷³ The cheapness of printed news appealed to younger and less wealthy readerships, whereas the personal tone and typographical style appealed to older readers familiar with written newsletters. The public was not only a detached observer of the newspaper's content, but equally an active part of and contributor to that content.

In summary, the limitations imposed by the weather, the inadequate means of distribution, the typographical limitations of printing technology, and the ideal, promise, and expectation of immediacy and active participation in ongoing events jointly secured a strong sense of continuity and regularity in what we might call the 'form of news'.⁷⁴ The most common typographical format allowed by the hand press was a single title above three or four columns of text.⁷⁵ During the 1780s, the front page of all London newspapers was occupied mainly by advertisements, which the printer would have had ready at hand before the news arrived from

⁷² Sutherland, 125–127.

⁷³ Sherman, *Telling Time: Clocks, Diaries, and English Diurnal Form, 1660–1785*, 123.

⁷⁴ Kevin G. Barnhurst and John Nerone, *The Form of News: A History*, The Guilford Communication Series 1 (New York and London: The Guilford Press, 2001).

⁷⁵ Hutt, *The Changing Newspaper*, 19.

abroad.⁷⁶ The newspaper pages, embodying the empty temporal interval delimited by the preceding publication and the date printed on their front page, contained all the various movements of the world while remaining independent of them. As we shall see, during the nineteenth century, the evolving telegraph network further consolidated the newspaper—especially when it was published at daily intervals—as the increasingly national (and indeed global) public’s primary site for observing and participating in current events.

EXPANDING NETWORKS

Periodical publications of many kinds continued to circulate throughout the nineteenth century, but few were issued on a daily basis or primarily concerned with reporting news. Quarterly, monthly, weekly, and twice- or thrice-weekly journals, together with unstamped pamphlets and literary novels, provided targeted readerships (as defined, for instance, by professional, political, or gendered markers) with leisurely entertainment, moral edification, and informed interpretations of current events.⁷⁷ Some periodicals had strong, articulated political leanings, like those that had been dominant at the beginning of the century, such as the Tory-inclined *Quarterly Review* (1809) or the more Whiggish *Edinburgh Review* (1802). Others, such as Charles Dickens’ *Household Words* (published between 1850 and 1859), were closely tied to the book-publishing industry.⁷⁸ Weeklies such as *Punch* (1841) or the *Illustrated London News* (1842) pioneered satirical or pictorial forms of journalism.

Strictly speaking, however, a periodical publication was not considered a *newspaper* ‘unless its object was to give the general current of news of the

⁷⁶In the case of particularly important events, news held priority over advertisement, which suggests that readers viewed newspapers primarily as a source of information about politics and current events.

⁷⁷See, e.g., Margaret Beetham and Kay Boardman, eds., *Victorian Women’s Magazines: An Anthology* (Manchester and New York: Manchester University Press, 2001). For an introductory overview of the scholarship on nineteenth-century women’s periodicals, see Maria Diczzeno, ‘Feminist Media and History: A Response to James Curran’, *Media History* 10, no. 1 (2004): 43–49.

⁷⁸Many scholars have pointed out the close relationship between novels and newspaper texts during the Victorian period. For a discussion of these developments, see Matthew Rubery, ‘Victorian Print Culture, Journalism and the Novel’, *Literature Compass* 7, no. 4 (2010): 290–300; Linda K. Hughes and Michael Lund, *The Victorian Serial* (University of Virginia Press, 1991).

day', as defined by Lord Monteagle arguing for the repeal of the so-called Taxes on Knowledge in the 1830s.⁷⁹ Likewise, in 1850, historian Frederick Knight Hunt added to this definition that newspapers were 'published at fixed intervals ... and that each paper was numbered in regular succession'.⁸⁰ Focusing on publications reporting current events on a daily basis not only helps limit the scope of the present analysis but also calls attention to a Victorian trend: over time, daily newspapers slowly but surely supplanted weekly periodicals as the dominant form of producing and distributing news.⁸¹

The total number of daily newspapers increased dramatically during the Victorian period, as did their individual circulation numbers and geographical ambit. Contributing to these numbers were a series of tax repeals from 1835 culminating in the abolition of advertising duty in 1853, stamp duty in 1855 and paper duty in 1861—all of which had been in place since 1712.⁸² According to one estimate, there were 15 dailies published in London in 1860 (6 evening and 9 morning papers), as well as 16 in the provinces, in addition to as many twice-weeklies.⁸³ Just before 1890, the total number had risen to no less than 150 daily publications.⁸⁴ These numbers are of course provisional. Many newspapers ran only for a few

⁷⁹Quoted in Collet Dobson Collet, *History of the Taxes on Knowledge: Their Origin and Repeal*, The Thinker's Library 33 (London: Watts & Co, 1933), 220.

⁸⁰Hunt, *The Fourth Estate*, 10.

⁸¹Historian James Curran has identified no less than six such dominant 'master narratives' in current British media historiography, and called scholars to 'dissolve linear narratives—whether of progress or regress—in favour of complexity'. While the following account does try to steer clear of most of the tropes he identifies, it is in no way meant to be an exhaustive account. James Curran, 'Media and the Making of British Society, c. 1700–2000', *Media History* 8, no. 2 (2002): 135–154. Curran has offered his own critical and alternative synthesis in James Curran and Jean Seaton, *Power without Responsibility: The Press, Broadcasting and New Media in Britain*, 6th ed. (London and New York: Routledge & Francis Group, 2003), 3–105.

⁸²The Stamp Duty exempted publications which were published at intervals of 28 days, which was the rationale behind the Society for the Diffusion of Political Knowledge's publication of a monthly *Companion to the Newspaper* from 1833. See Anon., *The Companion to the Newspaper; and Journal of Facts in Politics, Statistics, and Public Economy*, ed. Society for the Diffusion of Political Knowledge—New York (London: Charles Knight—Printed by William Cloves, Duke-street, Lambeth, 1837), 1.

⁸³Lucy Brown, *Victorian News and Newspapers* (Oxford: Clarendon Press, 1985), 4.

⁸⁴This 'dailiness' did not include Sundays. Stanley Morison, *The English Newspaper: Some Account of the Physical Development of Journals Printed in London Between 1622 and the Present Day* (Cambridge et al.: Cambridge University Press, 1932), 227–262.

years or indeed months before giving up or amalgamating with other newspapers, and consequently any notion of simple accumulative increase would be misguided. The early Victorian emergence of the ‘unstamped’ press, which could in many instances be categorized as pamphlets rather than newspapers, further complicates the issue. Furthermore, reading practices continued to differ between strata of the population—‘middle-class’ readers perusing their newspaper quietly in the privacy of their home, poorer people more often gathering to read in groups, for example in pubs. These factors complicate any precise estimation of the actual circulation of newspapers; it is impossible to know how many times any single issue was read, or the number of (indirect) readers.⁸⁵ Nevertheless, as Lucy Brown has suggested, during the ‘second half of the nineteenth century the newspaper became established as a part of the normal furniture of life for all classes’.⁸⁶ Indeed, between 1880 and 1914 the number of daily newspaper purchasers almost quadrupled, suggesting that at least towards the end of the century, the practice of private, daily reading was becoming ubiquitous.⁸⁷

The technological networks were increasingly extended and integrated, during the latter half of the century even on a national scale. The railways, for instance, accelerated the growth of readerships. Reading the newspaper became a common ‘tactic of travelling’ and a popular pastime for idle passengers, as indicated by the many newsstands and bookstalls built in station complexes and on platforms since the early 1850s.⁸⁸ More importantly, the railways made possible a much wider geographical distribution

⁸⁵ Alan J. Lee, *The Origins of the Popular Press in Britain*, vol. 2nd (London: Groom Helm, 1980), 35–41. A directory of Victorian newspapers and periodicals between 1855 and 1870, their circulation numbers, and the probable social position of their readership can be found in Alvar Ellegård, ‘The Readership of the Periodical Press in Mid-Victorian Britain: II. Directory’, *Victorian Periodicals Newsletter* 4, no. 3 (1971): 3–22.

⁸⁶ Brown, *Victorian News and Newspapers*, 273.

⁸⁷ Matthew Rubery, *The Novelty of Newspapers: Victorian Fiction after the Invention of the News* (Oxford: Oxford University Press, 2009), 7. Matthew Rubery, *The Novelty of Newspapers: Victorian Fiction after the Invention of the News* (Oxford: Oxford University Press, 2009), 7.

⁸⁸ Between approximately 1850 and 1900, W.H. Smith alone established some 800 news stands and bookstalls at all the important railway stations in England. James B. Jefferys, *Retail Trading in Britain 1850–1950: A Study of Trends in Retailing with Special Reference to the Development of Co-Operative, Multiple Shop and Department Store Methods of Trading* (Cambridge: Cambridge University Press, 2011), 286.

of both London-based and provincial newspapers than was the case when coaches or canal boats were the best transport options.

Prominent London newspapers rarely reported news from the provinces, even though most of what constituted the ‘nation’ in geographical and demographical terms resided there. In fact, in addition to the few metropolitan newspapers aspiring to be ‘national’, such as *The Times*, London boasted a large selection of local newspapers of its own. These covered specific areas of the capital, treating it more as an assemblage of local places than a united whole. Beyond London, many morning papers, halfpenny evening papers, and local weeklies covering specific counties and/or towns were published independently of any metropolitan connections.⁸⁹ Provincial newspapers sold and distributed content amongst themselves, so that almost any local newspaper contained more news from around the UK than did London newspapers.⁹⁰ Indeed, the provincial news network operated with a relative autonomy that has recently led some historians to question whether a ‘national’ view of nineteenth-century press is possible at all—at least if the view is taken from London.

Even so, contemporary politicians and advertisers soon began to see the news network as one integrated entity, and as such vital to their own potential impact on larger scales. As one contemporary historian wrote:

[t]he provincial press ... is the canal of information which irrigates the country, and makes knowledge fruitful in the land: it is the great system of arteries which, circulating through the body politic, carries nourishment to, and receives strength from, the heart which is in London: it is as a hundred tributaries bringing their streams of intelligence into the source from whence springs the London press.⁹¹

⁸⁹ Provincial newspapers often shared both content and technological equipment. Andrew Hobbs, ‘When the Provincial Press Was the National Press (c. 1836–1900)’, *International Journal of Regional & Local Studies* 5, no. 1 (2009): 16–43.

⁹⁰ Provincial editorials were often distributed from the capital by railway in the form of stereotypes ready to be used in rotary presses, and customarily dealt with national rather than local issues. From the 1860s, stereotype plates of the kind used on roller presses were transported by train to several localities and used for printing identical pages in different publications. Provincial editors occasionally met the practice with hostility. Hobbs, 30.

⁹¹ Alexander Andrews, *The History of British Journalism: From the Foundation of the Newspaper Press in England, to the Repeal of the Stamp Act in 1855, with Sketches of Press Celebrities*, vol. 1 (London: Richard Bentley, 1859), 282.

In terms of geographical and demographical coverage, then, the provincial press and its metropolitan counterpart together constituted an ever-more nationally integrated network.

MOBILIZATION

As the expanding news network became increasingly integrated, more work was required in order to ensure its temporal synchronization. This was where the pursuit of immediacy became central. The daily newspaper provided a space where public opinion on current events could be observed and gauged, a process which depended on moving news across increasingly longer distances rapidly and without distortion. What eventually made this possible was innovation in printing technology, developing new professional conducts of journalists, and integrating into the network both galvanic forces and colonial natural resources.

Insulation

From mid-century onwards, one technology in particular became central to constituting a sense of a shared simultaneity embracing provincial and metropolitan publics alike in a single, temporally synchronized one: the electric telegraph. By this time, telegraphic lines followed most railway tracks, where electricity was initially being used for signalling. The Telegraph Acts of 1868 and 1869 transferred the ‘exclusive privilege of transmitting telegrams within the United Kingdom’ from the five major telegraph networks to the Post Office.⁹² Already at this time, according to one estimate, ‘the public telegraph network consisted of almost 150 000 km of wire and over 3000 stations, plus another 1000 stations provided by the railway companies’.⁹³ The cheapening of telegraph services (from 1870, anyone could send a telegram for the price of one shilling) and the establishment of more telegraph offices in major towns led to a substantial increase in popular use. Between 1874 and 1899, the number of single words transmitted increased from 4.2 million to 15.7 million.⁹⁴

⁹² Quoted in Ken Beauchamp, *History of Telegraphy*, IEE History of Technology Series 29 (London: The Institution of Electrical Engineers, 2001), 73.

⁹³ Beauchamp, 73.

⁹⁴ Beauchamp, 81.

The speed of electric currents drastically shortened the temporal distance between events and their typographical representation at the other end of the line. From the late 1860s, submarine cables reduced the transmission time of news between New York and London from a week to a few hours; British businessmen could now receive information about American morning prices on the same day, rather than a week later.⁹⁵ The technologies of the telegraph system hence limited the extent of deterioration undergone by the news items during their transmission. Put another way, representations of particular events might now appear in print before the readers' eyes after having been transmitted across large geographical distances, nevertheless remaining the same throughout their transmission. The events and opinions referred to in print could be seen as fully corresponding to events and opinions in relatively distant locations, and so these as being immediate to the reader.

Weather conditions had always been a factor to reckon with for news producers. As we have seen, prior to the nineteenth century, the collection and distribution of news depended largely on changing seasons and the absence of accidents or other hold-ups along the route, whether over land or sea. Telegraphic technology offered the possibility of translating news items into electric currents travelling at high speeds through metallic cables, making it possible (if not exactly easy) to protect them from unforeseeable interruptions. In this way, readers could be given immediate access to observing current events and partaking in the present movements of public opinion, since these could be transmitted over distances—even on a global scale—entirely without friction or distortion.

The electric current had to be protected so that it did not die out or veer from its course. As Benjamin L. Green, author of the celebrated *Gutta Percha: Its Discovery, History, and Manifold Uses* put it in 1851, describing 'the principle upon which [the] telegraph performs its marvels: To insulate the wire [...] has been a prime concern with the constructors of electric telegraphs'.⁹⁶ Likening the electric current to an invisible 'spirit', he explained that it, 'like more material beings, will never take more trouble than it can help, and if, consequently, it can get to the ground [by a

⁹⁵ Donald Read, *The Power of News: The History of Reuters, 1849–1989* (Oxford: Oxford University Press, 1992), 90–91.

⁹⁶ Benjamin L. Green, *Gutta Percha, Its Discovery, History, and Manifold Uses* (London, 1851), 46.

conductor] before it reaches its destination, it will do so and leave the messages beyond its returning point undelivered'.⁹⁷

It is simply the imperative necessity that the galvanic fluid (if it is a fluid) should pass from one pole of the battery to the other. It must also pass by a *conductor*. Let the poles therefore be but a few inches apart, and if the nearest conductor be a wire that starts from London, and communicates with the ground at Edinburgh, or Paris, or Calcutta, by that road it will go with the swiftness of light, exciting on its way the ordinary electrical phenomena in every apparatus set to mark its progress and register its tidings, then returning straight through the earth and water.⁹⁸

In material terms, what was at stake here was the protection of telegraphic wires, making sure that these would not deteriorate (or at least to bring this natural process almost to a halt) so that the 'spirit' of information might fly unhindered and without delay.

By the end of the century, most countries in Europe operated on so-called mixed systems, where telegraphic wires were stretched both overhead and underground, depending on the area. Overhead wires could easily be set up along existing railway tracks or canals, and were also a cheaper option in urban centres than digging up the pavements. Furthermore, underground cables required less insulation, which became more expensive the longer it was able to last before needing replacing. But railway tracks or canals did not always exist where the cables were needed, and in crowded urban areas, overhead wires were still exposed to the shifting weather and hence might (and sometimes did) cause serious injuries if they fell down.⁹⁹ Hence, from the 1860s, existing overhead wires were gradually transferred underground, a process gaining speed after a snowstorm in 1886 caused failure in much of London's telegraph (and, by then, telephone) services.¹⁰⁰

But when it came to integrating the network beyond the country's borders, this was achieved largely thanks to one substance in particular: Malayan rubber, or *gutta-percha*. In contrast to most elastic latex rubbers,

⁹⁷ Green, 46.

⁹⁸ Green, 45–46.

⁹⁹ Beauchamp, *History of Telegraphy*, 90–91.

¹⁰⁰ 'HC Deb 25 January 1886 Vol 302 Cc307-8: "Post Office—Overhead Wires—The Recent Snowstorm"', 1886, <http://hansard.millbanksystems.com/commons/1886/jan/25/post-office-overhead-wires-the-recent>.

the molecular structure of gutta-percha crystallizes, making it a more rigid material which regains its flexibility if heated to 70 degrees Celcius.¹⁰¹ From the late 1850s, its unique plasticity made it a popular material in the production of a number of artefacts, ranging from golf balls to industrial belts. Furthermore, and also in contrast to other natural rubbers, it does not deteriorate in salt water; during the latter half of the century more than 25,000 tons of the stuff were laid across the seabed, insulating telegraphic wires and securing instant communication between London and its imperial outposts. During the 1850s, insulated submarine cables were successfully laid between Dover in England and Calais in Northern France (1850), Portpatrick in Scotland and Donaghadee in Ireland (1853), and a number of other coastal localities.¹⁰² After several failed attempts, a cable was laid across the Atlantic in 1865, reducing the travel time of news between New York and London from a week to 8 minutes. By the end of the decade, Britain had several cables connecting it to the Americas and to India, and British companies were central in laying telegraphic submarine cables across the globe.¹⁰³

Its extraction was hard work. As John Tully has pointed out, local workers extracted gutta-percha from Isonandra trees, which ‘rising sixty feet or more toward the forest canopy yielded on average no more than eleven ounces (312 grams) of latex, although greater quantities remained inside the tree and could not be drained off’.¹⁰⁴ With this fantastic substance extracted from colonial forests, news could finally be transmitted almost unlimited distances without transformation: events could be described and translated into galvanic currents, which could later be decoded and reconstructed back into printed accounts without (almost) anything being lost in the process.¹⁰⁵

¹⁰¹ Daniel R. Headrick, ‘Gutta-Percha: A Case of Resource Depletion and International Rivalry’, *IEEE Technology and Society Magazine* 6, no. 4 (December 1987): 13, <https://doi.org/10.1109/MTAS.1987.5010139>.

¹⁰² Beauchamp, *History of Telegraphy*, 138–142.

¹⁰³ Beauchamp, 162–178.

¹⁰⁴ John Tully, ‘A Victorian Ecological Disaster: Imperialism, the Telegraph, and Gutta-Percha’, *Journal of World History* 20, no. 4 (23 December 2009): 571, <https://doi.org/10.1353/jwh.0.0088>.

¹⁰⁵ Obviously, the process of securing immutability was—even on this specific level—much more complex than can be accounted for here. See, e.g., Glen O’Hara, ‘New Histories of British Imperial Communication and the “Networked World” of the 19th and Early 20th Centuries’, *History Compass* 8, no. 7 (2010): 609–625.

The successful transmission of electronic signals over such vast distances also required inventions and improvements, such as ‘loading’ the cable with iron filings to avoid signal distortion, or constructing more sensitive recorders (such as Thomson’s siphon recorder, patented 1867) able to detect a signal which still, inevitably, became progressively weaker as it travelled down the line.¹⁰⁶ But it was gutta-percha that overcame the problem of deterioration over distance. It was later discovered that gutta-percha did in fact deteriorate somewhat if exposed to sunlight or oxygen, but this posed no problem for its use in insulating subterranean or submarine cables. As demand increased, so did the tree felling, and by the 1870s the Isonandra tree was extinct in several regions. Further extraction was banned in 1883, but it was too late; by the mid-1890s, more than 280,000 nautical miles of submarine cable had been laid, securing the great British public’s immediate access to events occurring all over the empire, while the Isonandra tree population in Borneo, Malaya, and Sumatra was almost completely extinct.

Printing

Through the emerging telegraph network, and especially following the mid-century establishment of news agencies such as Reuter’s (established in 1851), newspapers began receiving regular and systematic communication through national and global telegraphic networks, and became, in the words of one historian, ‘an unofficial but important part of the worldwide machinery of the British Empire’.¹⁰⁷ From its formation in 1868, the Press Association likewise secured direct links between provincial newspaper offices and the telegraph companies.¹⁰⁸ News agencies increasingly distributed content in ready-made format, on partly printed sheets or even stereotyping, and newspaper owners—some, as we have seen, owning smaller networks made up of several provincial papers not necessarily connected to London—could now fill large parts of their papers with content provided

¹⁰⁶ Beauchamp, *History of Telegraphy*, 151–154. The sharing of technological knowledge was facilitated by the weekly journal *The Telegraph Journal*, founded in 1861 (*The Electrical Review* from 1899).

¹⁰⁷ Read, *The Power of News*, 28.

¹⁰⁸ Roger Neil Barton has demonstrated that the underlying motivation for extending the telegraphic networks were not necessarily—not even primarily—news distribution. See Roger Neil Barton, ‘The Birth of Telegraphic News in Britain, 1847–68’, *Media History* 16, no. 4 (2010): 379–406.

in this way. By the 1890s, ‘every town of any size’ boasted at least two daily newspapers containing both national and international news. To illustrate: between 1854 and 1856, *The Times* was the only English newspaper using its own correspondents as sources for its reports from the Crimean War. By the end of the 1860s, this exclusivity was history, as both metropolitan and provincial newspapers began subscribing to news agencies’ regular reports from overseas.¹⁰⁹ The combination of telegraph system and news agencies became essential in establishing simultaneous publication of the same foreign intelligence across the geographical space of the nation.

The resultant reading experience was described in 1862 by an anonymous commentator in *Cornhill Magazine*:

Every morning [...] a mass of print containing as much matter as a thick octavo volume is laid on our breakfast tables. It contains an accurate report of speeches which were made some hours after we went to bed and of the incidents which took place up to a late hour of the night; it gives us on the same day letters from persons specially employed for the purpose of writing them about the Chinese, the Americans, the Italians, the enfranchisement of the Russian serfs, and scores of other subjects; and besides this, it puts before us a sort of photograph of one day’s history of the nation in which we live, including not only its graver occupations such as legislation and commerce, but every incident a little out of the common way brought to light by police courts or recorded by local newspapers.¹¹⁰

Observing the entire ‘world ambling sturdily ahead’, as Benedict Anderson would later put it, and the sense of participating in the events occurring within the moment captured on the newspaper page, of course depended on the pages’ typographical presentation. It is remarkable how typographically *uniform* Victorian daily newspapers remained throughout the century: as much text as possible compiled within a six- or seven-column grid. The *Times* had adopted this style early on, and it soon became standard for most daily newspapers; in these terms, there were few differences between the *Times* and its main penny rivals in the metropolis, such as the *Daily Telegraph* and the *Standard*.¹¹¹ Different genres, such as poems or sports results, might indeed be presented in ways that made

¹⁰⁹ Read, *The Power of News*, 45. *Ibid.*, 45.

¹¹⁰ Anon., ‘Journalism’, *The Cornhill Magazine* 6 (July 1862): 60.

¹¹¹ Anon., 60.

them stand out from the surrounding news reports, as if suggesting a comparatively ‘slower pace of life’.¹¹² But they were nonetheless all contained within the all-encompassing secular simultaneity embodied by the page itself, where a single glance could capture several otherwise unrelated events and movements.

This long-standing typographical uniformity is more than a little surprising considering the rate and extent of innovation the Victorian period saw in the area of printing technology. In 1800, most printers were still using the same tools and techniques as had been used the past 300 years. The nineteenth century, however, saw an intense mechanization and automatization of every step of the printing process, from composition (the setting of types) and uniform application of ink, to the feeding of paper sheets into the machine and the application of pressure to make an imprint, and to distribution by railways.¹¹³ One crucial development was the mechanization of papermaking. The brothers Henry and Sealy Fourdrinier’s improvements on an earlier French patent in 1803 integrated all the manual steps of the process, and could produce paper in a single continuous ‘web’ rather than separate sheets. The result was a tenfold increase in output, which led to a shortage of linen rags, which until then had been the most common material for manufacturing high-quality paper. Several other materials were tried in its place: straw, bark, reeds, and even pine needles. In the early 1840s, the idea was introduced to use mechanically ground wood treated with sulphate to create a pulp of cellulose fibres. The shift did not occur over night, however.¹¹⁴ The scarcity of linen rags remained the most important reason for the high price of paper, and even the *Times*’ 1854 promise of £1000 for a suitable substitute did little to change this.¹¹⁵ Only in the 1870s and 1880s did wood pulp, together with esparto grass, become the most extensively used materials in paper production.¹¹⁶

The most important sites of technological experimentation and innovation were newspaper printing offices, and in particular those of the *Times*.

¹¹² Natalie M. Houston, ‘Material Texts in the Public Sphere’, *Victorian Studies* 50, no. 2 (2008): 241.

¹¹³ Ellic Howe, *Newspaper Printing in the Nineteenth Century* (London: Fleet Street Press, 1943).

¹¹⁴ Colin Clair, *A History of Printing in Britain* (London: Cassell & Company, Limited, 1965), 207–209.

¹¹⁵ Michael Twyman, *Printing, 1770–1970: An Illustrated History of Its Development and Uses in England* (London: Eyre & Spottiswoode, 1970), 50.

¹¹⁶ Twyman, 50; Hutt, *The Changing Newspaper*, 43.

It was the first newspaper to support itself solely by advertising revenues instead of subsidies from political parties, and had (from the 1820s) financial security to employ its own foreign correspondents, dispersed throughout the world and reporting news from the Far East and America alike.¹¹⁷ It could also increase its circulation in spite of the ‘taxes on knowledge’ such as the Stamp Duty, which still put strict limits on other newspapers’ number of pages.¹¹⁸ Finally, *The Times* could afford both to invest in and to implement technological innovations: as a non-union house, it was among the few newspaper institutions that could apply new machinery without heeding protests from manual workers—compositors and printers in particular—who were increasingly being replaced by automatons.

The gradual automatization of news production technologies had substantial impact on the extent of circulation and frequency of publication. During the Napoleonic Wars, the *Times* had struggled to meet the demands of its growing readership, and only partly succeeded when its printing offices acquired and improved the König and Bauer’s (K&B) steam-driven cylinder press.¹¹⁹ When the first new issue was printed, on November 29, 1814, the new printing machine had an output capacity of approximately 1000 sheets of paper per hour, some five times more than the Stanhope hand presses which had been in use since 1800.¹²⁰ In 1828, engineers A. Applegath and E. Cowper improved the K&B machine, combining four machines in a so-called four-feeder, quadrupling the hourly output (though still printing on one side only).¹²¹ A number of similar technological improvements and combinations allowed the newspaper to reach a circulation of a staggering 30,000 copies by 1841, over 15 times

¹¹⁷P.M. Handover, *Printing in London: From Caxton to Modern Times* (London: George Allen & Unwin Ltd, 1960), 154.

¹¹⁸In 1836, the duty was reduced to a penny. Still, *The Times*’ competitive advantage remained until 1855, when the duty was abolished altogether. As Stanley Morison points out, its abolition did not necessarily benefit the readers. ‘In 1836, the newspaper stamp which had been four pence (less discount of 20 per cent) since 1815 was reduced to one penny. The tax on paper was also brought down. The proprietors, rather than the public, gained, for the price to readers was revised from 7d. to 5d. only.’ Morison, *The English Newspaper*, 217.

¹¹⁹Hutt, *The Changing Newspaper*, 37. See also James Moran, *Printing Presses: History & Development from the Fifteenth Century to Modern Times* (London: Faber and Faber Limited, 1973), 101–111.

¹²⁰Robert Bringhurst and Warren Chappell, *A Short History of the Printed Word*, 2nd ed. (Vacouver: Hartley & Marks Publishers, 1999), 211–213.

¹²¹Hutt, *The Changing Newspaper*, 45.

more than at the turn of the century.¹²² By 1854, the *Times* circulation had reached 55,000 copies, an astonishing number considering the circulation of its London competitors: the *Morning Chronicle* circulated 2500, the *Morning Post* 3000, and the *Morning Herald* 3500.¹²³ In fact, its steam presses were likely the only ones in operation in London at the time.¹²⁴ Nevertheless, due to repeated boosts in the growth of readerships, for example during the Crimean War, the newspaper still had considerable difficulty achieving sufficient output.¹²⁵ After *Lloyd's Weekly Newspaper* acquired a press from American printer Richard M. Hoe in 1856, *The Times* abandoned Applegath and Cowper's constructions and bought two of Hoe's the year after.¹²⁶ The mid-1860s saw the introduction of so-called web-presses—rotary presses using curved plates and a single roll of paper, four miles long—which (together with the 1860 repeal of paper taxes) allowed a further increase of output.¹²⁷ Roller presses were used to cast whole-page matrixes in papier mâché moulds, and these curved stereotype plates were fastened to rotating cylinders.¹²⁸ In 1868, the number of sheets per hour printed this way on the *Times's* machines had increased to 20,000.¹²⁹ However, during the 1870s, other publications substituted new presses for their old sheet-fed machines, and began challenging the *Times's* technological advantage. By 1880, the *Times* circulated 50,000 copies, compared to the *Daily Telegraph's* 217,000 and the *Standard's* 200,000.¹³⁰

So why did this development not have any effect on British daily newspapers' typographical form? From mid-century, not only did American equivalents see a shift towards larger headlines and more space around the text,¹³¹ but the typographical variation exhibited by London weeklies such as *Illustrated London News* shows that the technological means necessary

¹²² Bringham and Chappell, *A Short History of the Printed Word*, 218; Hutt, *The Changing Newspaper*, 37.

¹²³ Handover, *Printing in London: From Caxton to Modern Times*, 163.

¹²⁴ Moran, *Printing Presses*, 123.

¹²⁵ Applegath's construction of a vertical cylinder eight-feeder press in 1848, probably inspired by the American inventor Robert Hoe, further doubled the output, but still printed on one side only.

¹²⁶ Clair, *A History of Printing in Britain*, 215; Hutt, *The Changing Newspaper*, 46.

¹²⁷ Bringham and Chappell, *A Short History of the Printed Word*, 212.

¹²⁸ Clair, *A History of Printing in Britain*, 217.

¹²⁹ Bringham and Chappell, *A Short History of the Printed Word*, 194.

¹³⁰ Hutt, *The Changing Newspaper*, 50.

¹³¹ Morison, *The English Newspaper*, 265–269.

for more visual variation on each page—curved stereotypes in particular—were certainly available—and indeed adopted by most printing offices.¹³² Furthermore, the 1855 repeal of the Stamp Act—which had put a strict limit on page numbers—would have made a wider dispersion of text across a higher number of pages affordable to most large newspapers. Still, there are no indications that daily newspapers even attempted to experiment with typographical presentation, not even in order to present information in ways that would be more accessible to new readers.¹³³

There might be several reasons for this. Newspapers were business ventures, and the aesthetic concerns of professional typographers might ultimately have had to give way to the financial concerns of owners and editors seeking to maximize the quantity of information on each page. From the same ‘business perspective’, continuity in visual appearance might provide a sense of purchasing the ‘same’ product, even when its content changed on a daily basis, and thus help secure a dependable customer base.¹³⁴

However, a much more crucial reason was that the technological innovation described above was coupled with the pursuit of immediacy, which at this time meant at least *daily* publication. This meant—as it had since the early days of twice- and thrice-weekly newspapers—that the printers had to prepare as much content as possible on every page before news arrived at the office. Even with the technological advantages of rotary presses, short deadlines meant it was still convenient for the typographer to first prepare the outer sheets of the paper (front and back pages, say, or pages 3 and 6, depending on the total number of pages) and then to fill these with whatever content was already at hand. From around the 1780s, the pages first ‘filled’ by the typographer continued to boast large newspaper titles, editorials produced in the newspaper office, and a selection of regular advertisements. The grid-like form was already in place, and any content might be fitted into it.

In the 1880s, we might expect to see some change. By then, American engineer Joseph Thorne had successfully automatized the process of

¹³² Hutt, *The Changing Newspaper*, 45–50.

¹³³ Brown, *Victorian News and Newspapers*, 29–30.

¹³⁴ For an argument that regularity of appearance might help explain the successful spread of serialized novels from magazines to newspapers, see Margaret Beetham, ‘Towards a Theory of the Periodical as a Publishing Genre’, in *Investigating Victorian Journalism*, ed. Laurel Brake, Aled Jones, and Lionel Madden (Basingstoke: The Macmillan Press Ltd, 1990), 26.

putting types *back* into their containers after use.¹³⁵ In 1886, Ottmar Mergenthaler's Linotype machine even combined casting, composing, justifying, and distributing in a single apparatus. As Marshall McLuhan noted, in the 1890s the printed press was—in terms of technological possibilities—able to ‘adjust its form more fully to the news-gathering of the telegraph and the news-printing of the rotary presses’.¹³⁶

But it still took another 20 years before this actually began to happen. Even after the introduction of the Linotype, the more obvious ‘Americanization’ of the press towards the end of the century initially failed to fundamentally challenge the visual appearance of English newspapers.¹³⁷ In terms of literary style, the ‘New Journalism’ was indeed shifting away from ‘detached’ descriptions of events, emphasizing instead personal and perhaps emotive topics, and employing a tone that was more straightforward than its ‘old’ counterpart¹³⁸—‘striking the reader between the eyes’, as T.P. O’Connor put it in a much-quoted essay.¹³⁹ The new tabloids were physically smaller, and indeed boasted unprecedented circulation numbers.¹⁴⁰ Nevertheless, in terms of *form*, the new tabloids did not stray particularly far from the received norm. Only at the turn of the twentieth century did a few of them begin to challenge the conventional grid-like layout adopted from the heyday of the *Times*.¹⁴¹

The peculiar uniform grid-like visual appearance of Victorian daily newspapers was the combined result of technological innovation and the pursuit of immediacy. Daily publication promised immediate access to the current of ongoing events, compared to weekly publications. Here, as Benedict Anderson pointed out, the date printed on each newspaper

¹³⁵ Clair, *A History of Printing in Britain*, 221–222.

¹³⁶ McLuhan, *Understanding Media*, 222.

¹³⁷ Joel H. Wiener, ‘The Americanization of the British Press, 1830–1914’, *Studies in Newspaper and Periodical History* 2, no. 1–2 (1994): 61–74.

¹³⁸ Laurel Brake, ‘The Old Journalism and the New: Forms of Cultural Production in London in the 1880s’, in *Papers for the Millions: The New Journalism in Britain, 1850s to 1914*, ed. Joel H. Wiener, Global Perspectives in History and Politics (New York, Westport, and London: Greenwood Press, 1988), 1–24; Joel H. Wiener, ‘How New Was the New Journalism?’, in *Papers for the Millions: The New Journalism in Britain, 1850s to 1914*, ed. Joel H. Wiener, Global Perspectives in History and Politics (New York, Westport, and London: Greenwood Press, 1988), 47–71.

¹³⁹ T.P. O’Connor, ‘The New Journalism’, *The New Review* 1, no. 5 (1889): 434.

¹⁴⁰ By this time, the *Daily Mail* passed a daily circulation of 700,000 copies, a number that would only continue to grow in the following years. Hutt, *The Changing Newspaper*, 73.

¹⁴¹ Hutt, 61–87.

carried a particular importance.¹⁴² The newspaper page opened up an empty secular interval enveloping all events in equal measure, whilst itself remaining a neutral container. At the publication of the present issue, all of the referred changes would still be in transition, their outcome unknown. At the publication of the next issue, however, the same events would become static facts of the past, mere traces of completed processes, to be stored in archives or catalogues. The date printed on the present newspaper was asymptotic; like the horizon, always moving. Its boundary was in principle never transgressed by the events recounted on the pages—this only happened at the publication of the next issue. By implication the ‘spaciousness’ of the secular interval embodied in periodicals was relative to the frequency of publication. Monthlies might provide their readers opportunities for reflection on events that had already acquired status as ‘facts’ of the near past. *Daily* newspapers, by contrast, provided a more intense sense of contemporaneous participation and immediate observation.¹⁴³

One example of this were the so-called running stories found in many newspapers towards the end of the century. In the 1860s and 1870s, for instance, the accounts of Dr Livingstone’s dis- and reappearances in Africa kept Victorian readers on the edge of their seats as they followed fragments of his life more or less in ‘real time’. Likewise, the ‘romantic’ and semi-fictional adventures of imperial ‘heroes’ or ‘villains’ (such as Jack the Ripper in 1888) were reported in a way that made the events and the reader appear contemporaneous and part of the same progressing storyline.¹⁴⁴

Journalism Skills

Finally, the pursuit of immediacy between event and reader put high demands on journalists. In his 1850 book *The Fourth Estate*, one of the

¹⁴² Periodical publications were indeed the first commodities to have their own date of production or ‘sell-by’ stamped on them, and of course in the case of daily newspapers this was particularly important. Margaret Beetham, *A Magazine of Her Own?: Domesticity and Desire in the Woman’s Magazine, 1800–1914* (London and New York: Routledge, 1996), 10.

¹⁴³ Mark Turner discusses some of these dynamics in Mark W. Turner, ‘Periodical Time in the Nineteenth Century’, *Media History* 8, no. 2 (2002): 183–196.

¹⁴⁴ Andrew Griffiths, *The New Journalism, the New Imperialism and the Fiction of Empire, 1870–1900*, Palgrave Studies in the History of the Media (Palgrave Macmillan UK, 2015), <https://doi.org/10.1057/9781137454386>.

first books attempting a history of the British Press, historian F.K. Hunt declared that those who want to enter the profession must ‘bid farewell to mental rest or mental leisure’:

If he [the journalist] fulfils his duties truthfully, his attention must be ever awake to what is passing in the world, and his whole mind must be devoted to the instant examination, and discussion, and record of current events ... What he has to deal with must be taken up at a moment’s notice, be examined, tested, and dismissed at once, and thus his mind is kept ever occupied with the mental necessity of the world’s passing hour.¹⁴⁵

Only journalists trained in certain skills could hope to achieve the ideal of total immediacy—to be so immersed in the current of events that what they wrote articulated public opinion as it was at that precise moment. ‘Journalism is public opinion embodied in the periodical press’, declared *Chambers’s Edinburgh Journal* in a review of Hunt’s book.

A journal does not, in the common phrase, address a certain class of readers; it is the voice of these readers themselves. It is the expression of an idea previously existing in their minds, or the supply of a thing for which their souls even unconsciously thirsted ... No journalist is in the strict sense of the word original—if he were so he would be alone: he is merely the mouth-piece, the agent, the representative of his readers, and he employs his energies in collecting the peculiar ailment which their taste demands, and which their intellectual constitutions are capable assimilating. These are facts which journalists know practically—instinctively; and it has often been said that the greatest of all our existing newspapers owes its success to the unwearied care with which it watches the changing tide of public opinion, so as to appear to direct that mighty current on which it only floats.¹⁴⁶

The reviewer lauded Hunt’s work, declaring that since journalism was ‘a perpetual reflection of the sentiments and intellect of the nation, and a gauge by which we may measure both its advance and its shortcomings ... [t]o write its history ... is to trace the progress of civilisation, and to prophesy of the future of mankind’.¹⁴⁷ The writing journalist was contemporaneous with public opinion to the extent that, for the historian, the

¹⁴⁵ Hunt, *The Fourth Estate*, 4–5.

¹⁴⁶ Anon., ‘Philosophy of Journalism’, *Chambers’s Edinburgh Journal*, New Series, 13, no. 339 (29 June 1850): 404–406.

¹⁴⁷ Anon., 406.

public opinion of past ages was immediately available in the respective age's contemporary journals and newspapers. Indeed, the readers themselves might gain access to their own thoughts through the newspaper, due to the journalists' ability to articulate themselves thoughts to them. One *North British Review* writer called the press 'a manifestation of our collective self', as if it was a higher cosmic unity into which the newspaper reader might lose himself in order to find himself:

[T]he public is that portion of the universal life of which each of our own selves forms an element; but it is also that great stream of external vitality, by throwing one's self into which, almost entirely, each one of us gets additional strength [...] our object is not to be influenced or led, it is to discover our own true thought.¹⁴⁸

This pursuit of immediacy between the reader and the reported public opinion spurred several paradoxes. In terms of secular time, this meant the empty interval embodied by the newspaper pages was spacious enough to envelop everything from the events when they occurred and until the reader decoded the printed text. But how could the journalist report events and opinions simultaneously with the reader experiencing them? 'It is the business of the journalist', wrote one commentator in 1875, 'both to swim with the tide [of public opinion], and *at the same time* to head it by a few inches'.¹⁴⁹ A 1918 pamphlet introducing women to the prospects of a journalistic career put it thus: '[as the] voice of the multitude ... the journalist must have the capacity of thinking ahead of ninety-nine out of every hundred readers, and while supposed to guide them, the journalist is only voicing what men or women are thinking at the moment.'¹⁵⁰

Even critical observers of the press would agree that immediacy was the ideal, even if the press tended to exaggerate its status as objective representative of public opinion. In 1870, a writer in *Cornhill Magazine*, naming himself simply 'A Cynic', wrote a scathing critique of the press arguing that newspaper editors and journalists influenced contemporary politics as much as did politicians, but with less accountability. While the statesman

¹⁴⁸ Anon., 'The Political Press—French, British, and German', *The North British Review* 34 (61 1860/61 1860): 85.

¹⁴⁹ T.H.S. Escott, 'English Journalism in 1832 and 1874: A Criticism and a Contrast', *Belgravia: A London Magazine* 8 (1876): 39–49. Emphasis mine.

¹⁵⁰ R.D. Blumenfeld, *What Is a Journalist?: Do's and Don'ts*, vol. 5 (London: World's Press News, 1930), 20–21.

appeared as a ‘framer of public opinion’ (‘public opinion is supposed to have bowed to him, not he to public opinion’), the press was in a different situation altogether:

[T]he press boasts that it is the embodiment of public opinion ... That vague authority which it claims to represent is always present in the immediate background and keeps a very firm hand upon its vagaries. In short, we know very well that at best it is the work of a few clever men a little in advance, it may be, of the general current of opinion but compelled by the necessity of their position not to be too far in advance.¹⁵¹

In the latter half of the century, the readers’ experience of simultaneity had become an explicit goal of Victorian news editors. Reporting ongoing events as they were happening—and thereby creating immediate access to them—was seen as ‘the very backbone of a newspaper, which, without it, would be nothing’, as the experienced journalist John Dawson put it in his 1885 book, *Practical Journalism*. The book was one of several aiming to describe to aspiring journalists the skills they would need in order to be successful in the job.

Already in 1835, one writer in the weekly journal *Athenaeum* described the journalistic task in the following manner:

It is all very well as a mere declamatory theme to talk about the influence of the press; but though to a certain extent a journalist may and ought to lead public opinion, he must always be especially cautious not to go so far a head as to be out of sight of his followers.¹⁵²

Because journals were dependent on keeping their readerships, the article continued, ‘[their] tone, temper and character [...] must [...] reflect the tone temper and character of the readers’. As one writer put it, insofar as journalists were ‘the servants of the public ... the course which they take [should always be] determined by the public’.¹⁵³ In his *Topics for Indian Statesmen*, legal scholar John Bruce Norton advised aspiring leaders in the colony to view the journalists they encountered through their vocation in the following manner:

¹⁵¹ A Cynic, ‘Our Rulers—Public Opinion’, *The Cornhill Magazine* 21 (1870): 293.

¹⁵² Anon., ‘Our Library Table’, *The Athenaeum* 404 (25 July 1835): 568.

¹⁵³ Anon., ‘Journalism’, 53.

The journalist, though he affects to lead public opinion, in point of fact, follows in its wake; and the most successful journal is that which [succeeds] in the delicate art of trimming at the right moment; which discerns the first wavering of the fickle *popularis aurce* and shapes his course so dextrously as to seem to be moved by his own independent volition instead of being, in fact, impelled by every external influence.¹⁵⁴

The journalistic task in other words required immersion in the public journalists were meant to represent. ‘The specific distinguishing faculty, in virtue of which men become first-rate journalists’, wrote one contributor to the *Cornhill Magazine* in 1862, ‘is the power of filling the mind rapidly and almost unconsciously with the floating opinions of the day, throwing these opinions into a precise, connected and attractive form’.¹⁵⁵ A journalist was to follow the changing tides of public opinion so closely—by mere ‘instinct’ rather than detached and reflective thought—that what was printed in the newspaper would be an instant image of current public opinion.

Successful journalists must exhibit exceptional vigilance and clarity of thought. ‘To carry a note-book continually, and to put down in it all the owner sees, hears, or thinks at the moment, constitutes the perfect journalist’,¹⁵⁶ declared another commentator in the *Saturday Review* in 1869.

[O]n a daily paper [the journalists] have to write their story and see that it gets to the office the same day, no matter how late the hour, to ensure inclusion in next day’s news columns. Sometimes press days on weeklies necessitate just as rapid work, for no society of charity function which a good journalist could include in a weekly “just going to press” would be anything but stale a week later. The hours of work must be irregular, but the true journalist never grumbles at that.¹⁵⁷

¹⁵⁴ John Bruce Norton, *Topics for Indian Statesmen*, ed. G.R. Norton (London: Richardson Brothers, 1858), 342.

¹⁵⁵ Anon., ‘Journalism’, 56.

¹⁵⁶ Anon., ‘Reviews: Reliquie Hearnianæ’, *The Saturday Review of Politics, Literature, Science, and Art* 27, no. 689 (9 January 1869): 52.

¹⁵⁷ A. Sphinx, *Journalism as a Career for Women* (London: Geroge Newnes Ltd, 1918), 9.

They must equally master techniques such as writing shorthand,¹⁵⁸ and be able to prioritize what to report first. In 1883, Reuters circulated a specific set of instructions to its correspondents and agents. The circular described what kinds of events should be reported, and instructed the agents to telegraph ‘the bare facts’ with ‘utmost promptitude, and as soon as possible following this, a descriptive account, proportionate to the gravity of the incident. Care should, of course, be taken to follow the matter up’.¹⁵⁹ In other words, priority should be given to reporting the event itself; descriptive summaries and opinions about the event could come later. Editor W.T. Stead quoted Lord Salisbury, saying that the importance of ‘the special correspondent [superseeds that of] the editor, chiefly because he [is] nearer to the things which people wish to see’. Indeed, the skill of ‘eye-witnessing’ events and translating these into compelling and gripping stories was a hallmark of the special correspondent.¹⁶⁰

CONCLUSION

The promise and pursuit of immediacy between event and reader, together with technological innovation in several fields, produced the form of Victorian news: an empty interval between two points in time within which multiple events were juxtaposed with no internal relation apart from their simultaneous occurrence to the imagined community of the national public. The integration of this national public, whose opinion could be gauged in the typographical frame offered by daily newspapers, depended on moving news over long distances without distortion. The Victorian daily newspaper page embodied a temporal interval independent of its changing content and thereby allowing the reader, the reported

¹⁵⁸ See for instance John Dawson, *Practical Journalism: How To Enter Thereon and Succeed: A Manual for Beginners and Amateurs* (London: L. Upcott Gill, 1885); W.T. Stead, ‘How to Become a Journalist’, in *A Journalist on Journalism*, ed. Edwin H. Stout (London: John Haddon & Co., 1892), 19–26; John B. Mackie, *Modern Journalism: A Handbook of Instruction and Counsel for the Young Journalist* (London: Crosby Lockwood and Son, 1894); J. Henry Harris, *The Young Journalist: His Work and How To Learn It* (London: Guilnert Pitman, 1902); John Pendleton, *How to Succeed as a Journalist* (London: Grant Richards, 1902); Julian Ralph, *The Making of a Journalist* (London and New York: Harper & Brothers, 1903).

¹⁵⁹ Quoted in Read, *The Power of News*, 100–101.

¹⁶⁰ Catherine Waters, *Special Correspondence and the Newspaper Press in Victorian Print Culture, 1850–1886*, Palgrave Studies in the History of the Media (Palgrave Macmillan, 2019).

events, the ‘public’, and its ever-changing opinion—indeed the news network itself—to be conceived of as singular and synchronous wholes.¹⁶¹

To achieve this, the news network had to perform a work of immense complexity. ‘An English newspaper is certainly a marvellous production’, declared judge and mathematician Hommersham Cox in the 1850s, beautifully capturing the process of its daily creation.

The immense amount of intelligence which issues every morning from the press has, for the most part, been collected from innumerable sources in all parts of the kingdom but a few hours before. From the senate, the forum, and the mart, from the highways of commerce by sea and land, from the thronged streets and crowded ports, from every great haunt of men, every seat of political events throughout the globe, and by the most refined mechanical means, the information of the daily sheet has to be collected. How many agencies, political, material, and intellectual, are at work to produce it! and every one of them is a condition essential to its production. An English newspaper is an example of the combined effect of free institutions; for were not the national institutions free, free criticism, the very life of the press, would be impracticable;—of immense energy; for the powers, mental and mechanical, which are at work the livelong night to produce the morning newspaper, are taxed to their utmost;—of division of labour; for unless the labours or reporting, editing, and printing, were divided according to a system, carried, apparently, to the pitch of perfection, the most vigorous energy, and the most robust powers of endurance, would be inadequate to the accomplishment of the required task;—of the resources of vast capital; for every part of the civilized world the news is collected, digested, and recorded;—of extensive learning; for nearly every branch of history, law, political economy, literature, æsthetics, ethnology, statistical lore, and constitutional and moral philosophy, is laid under contribution;—of mechanical genius, for the most subtle contrivances are necessary, in order to effect the printing with sufficient rapidity;—and, lastly, an insatiable public appetite for political knowledge; for it is this universal demand which alone sustains the exertion of those energies by which a newspaper is produced.¹⁶²

For centuries, the flight of news had been liable to disruption from weather or other unpredictable forces, and risked being old and outdated at arrival. Towards the end of the nineteenth century, by contrast, news

¹⁶¹ In this formal sense, the Victorian news network achieved an implicit ‘nationalization’ several decades before the First World War homogenized the newspapers’ subject matter.

¹⁶² Cox, *The British Commonwealth*, 238–240.

were transmitted electronically through wires hidden beneath urban pavements or stretched across the ocean floor, insulated from the world's disruptive forces. The process consisted of several steps of translation. The actual event had to be translated into first-hand verbal accounts, jotting down with shorthand symbols on a note book, accounts the reporter would later be expected to modify so as to make their content even more clear to the readers.

The reporter should listen carefully so as to catch the sense of the speaker, for it is scarcely likely that if he does not himself understand the subject of discourse, newspaper readers will easily comprehend his "report." A good reporter will frequently make a speaker's meaning more clear to the readers of his paper than the speaker himself was able to make it to his hearers at the time of delivery.¹⁶³

The shorthand symbols would then be translated into Latin letters on a different sheet of paper, and handed to a telegraph clerk, who would translate them into codified patterns of electric currents travelling through alloyed metal cables protected by layers of colonial rubber. These currents would be turned into sound signals at the moment of arrival at the desk of another telegraph clerk, who would translate the sounds back into ink letters on paper, which would then undergo a series of proofreadings and cuttings depending on printing limitations and an editor's preferred style (which again was related to the intended readership). The translated text would then (to put it shortly) be translated into marks on a stereotype plate, then further into ink letters printed on paper sheets which, when assembled properly, would become a folded newspaper. Under the cover of night, hundreds of these would be 'flung from the windows, or trundled along passages, or carried in huge bundles through the doorways into the street', where a horse cart would be ready to take them to the station in time for the morning post train.¹⁶⁴ The train would carry them along its frictionless road to towns and villages, where, unpacked and made ready for sale, the news would finally arrive in the hands of the intended readers, who would then be able to observe the original events with a sense of being immediately present with the events reported on the pages.

¹⁶³ Dawson, *Practical Journalism*, 23.

¹⁶⁴ Pendleton, *How to Succeed as a Journalist*, 17.

As long as the news remained unchanged during their passage, it was as if this long chain of mediators was not there at all. News moved through a time independent of their motion and could therefore appear before the readers' eyes immediately and without delay. However, much like the achievement of smooth railway travelling, the reader's frictionless access to current events—we might even say the public's access to itself—was made possible only through the hard work of so many mediators: colonial forests, telegraph cables, printing machinery, and the 'diligent hands of many writers'.¹⁶⁵ It was a mediated immediacy.

Fourteenth-century scholastics had conceived the *saeculum* as a kind of time enveloping angelic messengers travelling without transformation, bringing tidings to men. In Victorian England, the same kind of time was mediated by the networks producing and distributing daily newspapers, some of which even bore the names of angelic heralds and mercuries. Rather than angels, it was now news that moved across vast distances without undergoing change, and their flight was measured by the secular time implied by the pages' typographical form and the promise of immediacy.

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¹⁶⁵ Mackie, *Modern Journalism: A Handbook of Instruction and Counsel for the Young Journalist*, 112.

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Banknotes: The Money of Civilization

On 23 February 1797, all that was solid melted into air. In swift response to the latest of a series of French invasion attempts, the Privy Council unanimously decided to suspend the Bank of England's cash payments.¹ This meant the Bank would temporarily abstain from honouring the promise printed on its banknotes to 'pay the bearer on demand' the notes' value in gold or coin.

The decision was swift for a reason. When France declared war on England back in 1773, several local banks had collapsed as people demanded gold for locally issued notes, and desperate bankers sought help at the Bank of England. Many also remembered how the French *assignat* had depreciated during the war (in fact with some help from counterfeit notes exported from England) and how this had threatened to drain England's gold reserves.² Hoping to avoid new bank runs by inducing a counterintuitive popular trust in the value of 'mere paper', bankers, merchants, politicians, and community leaders across the country responded by publishing joint

¹Hiroki Shin, 'Paper Money, the Nation, and the Suspension of Cash Payments in 1797', *The Historical Journal* 58, no. 2 (2015): 415–42.

²Some—most famously David Ricardo, himself a member of the committee—argued that this demonstrated that high prices on gold were a sure sign of depreciation. David Ricardo, *The High Price of Bullion, a Proof of the Depreciation of Bank Notes* (London: John Murray, 1810).

declarations that they would accept banknotes as payment. *The Times* ensured its readers it ‘felt sure the bank was sound’.³

Together with a drastic increase in note issuing at the Bank of England, the restriction led to a profusion of country banknotes, changing the terms of competition between country banks. Local bankers were willing to take greater risks, which again led to overissuing and consequent inflation impacting the entire national economy.⁴ In 1810, the government appointed a committee to investigate the effects of the overall increase in circulating paper. The Bullion Report spurred further debates about the state’s relation to the bank, and about absolute convertibility as a potential guarantee of economic stability. Peace returned in 1815, and a year later gold was adopted as the official standard of value. Still, the suspension of payments was repeatedly extended and only finally lifted in 1821.

The railway booms of the 1830s and 1840s further increased country banknote issuing, and in 1844 Sir Robert Peel’s government concentrated all note issuing with the Bank of England, allowing its Issue Department to produce £14 million of fiduciary money—that is, notes that were not convertible—and after that a one-for-one note issue against its varying gold reserves. The Banking Department was to buy and sell gold on international markets, and had no corresponding governmental rules for its operation. It was thought that this arrangement would be self-regulating with the stock of gold increasing or decreasing in synchrony with international gold flows and with the domestic economy thus remaining stable due to convertibility.

It was an age of gold; it was an age of paper. In debates continuing throughout the century, the relation between gold and banknotes (often simply referred to as ‘paper’) would remain a central topic, and especially the question of how to control issuing and guarantee convertibility.⁵ At

³ Quoted in Sir Albert Feaveryear, *The Pound Sterling: A History of English Money*, 2nd rev. (Oxford: Clarendon Press, 1963), 183.

⁴ By 1800, local banking had become the main English method for creating money in support of local industrial ventures. L.S. Pressnell, *Country Banking and the Industrial Revolution* (Oxford: Clarendon Press, 1956).

⁵ Frank W. Fetter and Derek Gregory, *Monetary and Financial Policy*, Government and Society in Nineteenth-Century Britain (Shannon: Irish University Press, 1973). An exception in this respect was Henry Thornton, *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain* (Philadelphia: J. Humphreys, 1807). This was the first attempt to explain and justify the workings of an inconvertible money system as more than a wartime emergency measure. Thornton argued that certain measures of directing would be necessary in any system, whether convertible or non-, but ultimately failed to persuade his contemporaries that a convertible system based on gold would not be entirely self-regulating.

stake was the relation between a domestic economy, whose stability, it was generally believed, depended on some kind of convertibility between paper notes and bullion,⁶ and an international market where the commercial price of minted metal often diverted from the legal standard decided by domestic policies.⁷ Exploring what they believed was uncharted territory in monetary policy and practice, contemporary commentators felt certain that no nation had ever before gone ‘solely on paper’. As Lord Liverpool put it, the ‘state of the Paper currency of this country, in its manner and extent taken together, is, I believe, without example in the history of mankind’.⁸ This would remain a common view across the spectrum in debates between the ‘bullionist’ and ‘anti-bullionist’ schools following the restriction period, between the Currency and Banking schools surrounding Peel’s 1844 Bank Charter Act, and in the wakes of various crises, for instance in 1847, 1857, and 1866.

To some, gold was a civilizational achievement founded on the collective wisdom of humanity. To others, it was a barbaric metal destined to be replaced by paper money as civilization progressed. Likewise, to some, banknotes signalled immorality, civilizational decline, and historical regress to a barbarian past. To others, they were the promise of a harmonious and prosperous future.

Some believed the insistence on convertibility between paper and gold was a regressive development in a civilization whose mercantile and industrial expansion depended primarily on ‘paper credit’ and which should be elevated above ‘base metals’. An anonymous pamphlet from 1802 opened by stating that ‘[b]anks and paper currency have necessarily grown out of progressive civilization, and the increase of trade which it has accompanied

⁶The attachment of the English government to a theory of ‘sound money’ has a long pedigree. See, for instance, Samuel Knafo, ‘The Gold Standard and the Origins of the Modern International Monetary System’, *Review of International Political Economy* 13, no. 1 (2006): 78–102; Samuel Knafo, ‘The State and the Rise of Speculative Finance in England’, *Economy and Society* 37, no. 2 (2008): 172–92.

⁷Ghislain Deleplace, ‘Monetary Stability and Heterodoxy: A History of Economic Thought Perspective’, in *Money, Credit, and the Role of the State: Essays in Honour of Augusto Graziani*, ed. Richard Aréna, Augusto Graziani, and Neri Salvadori (Aldershot: Ashgate Publishing, Ltd., 2004), 45–62; Joseph A. Schumpeter, *History of Economic Analysis* (London: Routledge, 1997), 688–98.

⁸Charles Jenkinson Liverpool, *A Treatise on the Coins of the Realm; in a Letter to the King* (Oxford: Oxford University Press, 1805), 249.

or given rise to'.⁹ In 1818, barrister John Wray declared that metallic money—by which he meant money with intrinsic value—belonged to ‘the ruder ages ... the infancy of society’.¹⁰ Writing in 1827, Whig MP Henry Brooke Parnell suggested:

as coin metal were substituted for barter in the first stages of the civilization of mankind, it may be expected, as the world becomes more and more refined, that paper money will be substituted universally for coin.¹¹

Sir William Congreve, mostly known for his many technological and military inventions, concurred, stating that a state of civilization implied leaving behind the notion of intrinsic value all together: ‘in civilized society ... the circulating medium is one of no value in itself.’¹² As one anonymous writer put it in 1844, describing in a single paragraph what was taken as general signs of civilizational progress—cultivation of land, industrialization, population growth, and urbanization—as ultimately being effects of banknotes and the popular trust on which their function was premised:

In the early and uncivilized history of a nation, the transactions between man and man are found to proceed on the principle of barter, and the precious metals, possessing intrinsic value, become an important means of interchange; but, as civilization and settled government succeed, greater confidence ensues, and a system of credit arises...[Both in England and its colonies it has been found] that, by means of credit or symbolic currency, the people ... have advanced rapidly in wealth; land has been cleared and brought more extensively into cultivation; large manufactories have arisen; population has proceeded with rapidity; towns have been built where before

⁹Anon., *Serious Reflections on Paper Money in General, Particularly on the Alarming Inundation of Forged Bank Notes, with Hints for Remedying an Evil Threatening Destruction to the Internal Trade of the Kingdom* (London: R. Thurgood, 1802), 9.

¹⁰John Wray, *Dangers of an Entire Repeal of the Bank Restriction Act and a Plan Suggested for Obviating Them* (London: Burgess, Hunt & Carter, 1818), 5–6.

¹¹Henry Brookes Parnell, *Observations on Paper Money, Banking, and Overtrading* (London: James Ridgeway and Effingham Wilson, 1827), 87.

¹²William Congreve, *On the Impracticability of the Resumption of Cash Payments; or the Sufficiency of a Representative Currency in This Country, Under Due Regulations; and of the Danger of a Reduction of the Circulating Medium, in the Present State of Things*. (London: J. Whiting, 1819), 36.

huts or villages only were known; and incredible strides towards national wealth have been made.¹³

Later in the century, during the debates between the Banking and Currency schools surrounding the Bank Charter Act of 1844, the two sides agreed in principle on the need for some convertibility on a fixed gold standard. Facing the crisis in 1847, however, this ‘Peelite consensus’ met opposition from newly founded reform groups advocating the abolishment of the gold standard altogether, in favour of either a bimetallic standard or indeed a pure paper currency.¹⁴ The same year, the Birmingham Currency Reform Association sent a memorial to the Queen, and in Glasgow the National Anti-Gold Law League marshalled 3000 people for its organizing convention.¹⁵ The Liverpool Currency Reform Association became a noted ‘anti-gold’ voice.¹⁶ One of its founding members and most industrious pamphleteers, James Harvey, published several pamphlets arguing against the gold standard and advocating an exclusive paper currency backed by state power. In 1877, he summarized his arguments in the book *Paper Money, The Money of Civilization*. Quoting heavily from John Ruskin’s *Unto This Last* (1860)¹⁷ and George Berkeley’s *Querist*,¹⁸ Harvey argued that paper money was ‘the money of the future’, something he took to be ‘evident from the various steps through which nations

¹³ Anon., *The National Currency*, Hume Tracts (London: Saunders and Otley, 1844), 1.

¹⁴ Anna Gambles, *Protection and Politics: Conservative Economic Discourse, 1815–1852*, Studies in History (Woodbridge: The Boydell Press, 1999), 226.

¹⁵ Murray Newton Rothbard, *Classical Economics: An Austrian Perspective on the History of Economic Thought* (Aldershot: Elgar, 1995), 263.

¹⁶ So much so that Murray N. Rothbard calls it one of the contributing factors behind the ‘effective fusion of the currency and banking schools after the enactment of Peel’s Act’, as both of these, ‘after all, were dedicated to the gold standard’, albeit in varying degree. Rothbard, 263. For a contemporary comment on the association’s position, see Anon., ‘Gold as a Commodity and as a Standard of Value’, *The Bankers’ Magazine and Journal of the Money Market* 8 (1848): 693–96.

¹⁷ John Ruskin held it to be a distinguishing trait of civilized societies that the value of money was ultimately ‘secured by legal measures’, and not dependent on notions of intrinsic value: ‘the final and best definition of money is that it is a documentary promise ratified and guaranteed by the nation to give or find a certain quantity of labour on demand’. John Ruskin, *Unto This Last: Four Essays on the First Principles of Political Economy*, Facsimile of 1862 edition (Nelson: Hendon Publishing Co., 2000), 53.

¹⁸ George Berkeley, *The Querist, Containing Several Queries, Proposed to the Consideration of the Public. Now First Re-Printed from the Irish Edition, Lately Publish’d in Dublin. With an Advertisement to the Reader, on Occasion of Re-Publishing It.* (London: J. Roberts, 1736).

advance in their progress in the paths of civilization'.¹⁹ In fact, Harvey argued, 'the vast commercial and industrial transactions of this country cannot ... be carried on securely for any length of time with a circulation based upon or even nominally convertible into gold. There is not enough gold in the world'. The 'love of gold', Harvey stated, 'was not only impracticable in a civilized community',²⁰ but 'a relic of barbarism',²¹ and the assumption that convertibility was necessary, a 'prejudice'. Paper money backed by state power was the only circulating medium capable of expanding in synchrony with the expanding production²²—'the money of civilization and progress'.²³

But views such as Harvey's were rare, even towards the end of the century. Many saw the profusion of inconvertible paper money as an unequivocal sign of decadence, generating new powerful classes of fund-holders whose wealth was 'fictitious'. In 1817, journalist William Cobbett published a series of essays where he argued that not only was the increase in paper money a sign of depreciation rather than financial growth, but it also consolidated the power of 'stock jobbers' as well as creating higher levels of poverty in general.²⁴ Later, Thomas Carlyle lamented how the 'cash nexus' of profit-making and commercial exchange had become the main mode of human interaction, in contrast to the reciprocal and charitable modes of hierarchical social being that (he imagined) had characterized the medieval world.²⁵ Others argued that if banknotes were taken as representative of gold, then printing inconvertible notes amounted to 'virtually [making] Gold as plentiful as Paper Money'. Hence, for example, if a £5 note was at a discount of fifty shillings of its value, then 'there would be a virtual creating of Two Pounds Ten Shillings in Gold', as if one had mastered the diabolic art of alchemy, or discovered 'the Philosopher's Stone'.²⁶ Money was 'one of the grand links that connect[ed] the natural

¹⁹ James Harvey, *Paper Money, The Money of Civilization. An Issue by the State, and a Legal Tender in Payment of Taxes* (London: Provost & Co, 1877), 38.

²⁰ Harvey, 7.

²¹ Harvey, 221.

²² Harvey, 129.

²³ Harvey, 66; John Twells, *How Can Paper Money Increase the Wealth of a Nation?* (London: W. Skeffington, 1867), 13.

²⁴ William Cobbett, *Cobbett's Paper Against Gold* (London, 1817); See also G.D.H. Cole, *The Life of William Cobbett*, Reprinted (Abingdon: Taylor & Francis, 2011), 112–14.

²⁵ Thomas Carlyle, *Chartism*, 2nd ed. (London: James Frases, 1840), 58.

²⁶ Anon., *Monetary Currency; or, the Operation of Money Shown to Be a Perfect Science, etc.* (London: Effingham Wilson, 1840), 3. Emphasis in original.

and the moral world'; hence, the amount of paper must be fully based on the secure basis of scientific calculation of the unchangeable amount of gold in the world, so that the circulation of notes might perfectly mirror the immutable and uniform motion of the natural universe. Friedrich Engels, writing in 1844, accused 'the middle classes in England [of having become] the slaves of the money they worship'.²⁷ Several writers and novelists—Charles Dickens, William M. Thackeray, Anthony Trollope, and John Ruskin, to mention only a few²⁸—levelled similar charges at the speculators whose wealth they thought reduced human relationships to an impersonal question of financial gain.

PERFORMING THE ECONOMY

To scholars familiar with Victorian debates on political economy, these topics are nothing new, and it is easy to overlook how peculiar were the new genres framing the debates. Towards the end of the seventeenth century, the emergence of a public sphere described in Chap. 4 coincided with the introduction of economic matters as a topic of public discussion.²⁹ Circulating newsletters increasingly included sections with information about international exchange rates, market prices, and shipping, all presented under a single rubric as if belonging to the same sphere and operating according to the same logic. After the mid-eighteenth century, these sections came to be seen as providing 'facts' about which readers might have differing opinions. The genres carrying the opinions of the reading public also helped naturalize 'the economy' as an object of

²⁷ Friedrich Engels, *The Condition of the Working Class in England.*, trans. W. O Henderson and W. H Chaloner (Stanford: Stanford University Press, 1968), 312.

²⁸ John R. Reed, 'A Friend to Mammon: Speculation in Victorian Literature', *Victorian Studies* 27, no. 2 (1984): 179–202.

²⁹ Steven Pincus, 'Neither Machiavellian Moment nor Possessive Individualism: Commercial Society and the Defenders of the English Commonwealth', *The American Historical Review* 103, no. 3 (1998): 705–36; Larry Neal, 'The Rise of a Financial Press: London and Amsterdam, 1681–1810', *Business History* 30, no. 2 (1988): 163–78, <https://doi.org/10.1080/00076798800000029>; Steven Pincus, 'The State and Civil Society in Early Modern England: Capitalism, Causation, and Habermas's Bourgeois Public Sphere', in *The Politics of the Public Sphere in Early Modern England*, ed. Peter Lake and Steven Pincus, Politics, Culture and Society in Early Modern Britain (Manchester and New York: Manchester University Press, 2007), 213–31.

discussion, as something existing independently of the debates about its nature and state.³⁰

In the nineteenth century, and especially during and following the restriction period, the economy came into its own. In addition to the question of gold, paper, and convertibility, the discourses of political economy emerging during the early decades of the century dealt with topics ranging from factory production and Corn Laws to principles of free trade and monetary policy. Prior to the 1870s, most publications in the new genre were composed according to the template provided by David Ricardo's *Principles of Political Economy* (1817): an opening discussion of labour as the basis of value, followed by chapters on rent, prices, wages, profit, taxes, trade, and finally a discussion of money as a means for making universal exchange feasible and practicable.³¹ Culminating in John Stuart Mills' two-volume *Principles of Political Economy* (1848), the genre provided, in the words of one assessment, 'the most prestigious and highly developed vocabulary for the discussion of a very large set of political issues'.³² Dozens of treatises purporting to define and establish its fundamental principles were published between 1820 and 1850. In 1843, James Wilson established the periodical *The Economist*, which combined financial news journalism with economic analysis.

By the 1860s and 1870s, 'political economy' had become one of the main genres available to Victorian intellectuals seeking to weigh in on the current condition of England and its surrounding world. However, just as its 'wisdom [was settling] down into the common sense of the nation',³³ as Bagehot put it in 1876, a new genre of 'economics' began to emerge as

³⁰Mary Poovey, *A History of the Modern Fact: Problems of Knowledge in the Sciences of Wealth and Society* (London: University of Chicago Press, 1998), 29–91. In this way, when the Restoration state (despite its strong censorship) protected the emerging 'coffee houses'—sites where the urban middle classes read newspapers and discussed political and commercial matters—it actually helped instigate a sphere within which the state itself could be perceived as and reduced to something merely instrumental. No longer mediating communal identities or meanings, one of its primary tasks would be to police the immanent mechanisms of the economic sphere, especially by ensuring the money being exchanged was 'sound'.

³¹Timothy Alborn, 'Economics and Business', in *The Cambridge Companion to Victorian Culture*, ed. Francis O'Gorman (Cambridge: Cambridge University Press, 2010), 70–71.

³²Stefan Collini, Donald Winch, and John Burrow, *That Noble Science of Politics: A Study in Nineteenth-Century Intellectual History* (Cambridge et al.: Cambridge University Press, 1983), 311.

³³Walter Bagehot, *The Postulates of English Political Economy* (London: Longmans, Green & Co., 1885), 1.

a science dealing with fundamental and universal principles.³⁴ In his pioneering work *The Theory of Political Economy* (1871), logician William Stanley Jevons sought to combine mathematical (deductive) and statistical (inductive) methods in order to establish the principles underlying the economy (preferably without the term ‘political’), laying the basis for what later became known as the ‘marginalist revolution’.³⁵ For Jevons, the notion of value was based not on the cost of production but on the proportionality of prices to utility. Put another way, value was based not on labour but rather on ‘fundamental laws’ governing the desires and wants of the consumer—ultimately his or her rational anticipation of pleasure and pain—and could hence be calculated mathematically.³⁶ With Alfred Marshall’s *The Principles of Economics* (1890), some have suggested, the ‘economic sphere’ became theoretically established as a fully ‘objectified reality’,³⁷ intertwined with but distinct from ‘political’ and ‘social’ spheres—indeed, the absence of the word ‘political’ and the elevation of ‘economy’ to ‘economics’ is testament to its ever-more theoretically disaggregated status.³⁸

Following Charles Taylor, we could see this emerging conception of the economic sphere, with its conceptual roots in the eighteenth-century Enlightenment (especially its Scottish variant), as an example of a secular, modern social imaginary: an interlocking system of immanent laws of

³⁴Mary S. Morgan, *The History of Econometric Ideas*, Historical Perspectives on Modern Economics (Cambridge et al.: Cambridge University Press, 1990). For pre-1800 developments anticipating this characteristic nineteenth-century development, see Deborah A. Redman, *The Rise of Political Economy as a Science: Methodology and the Classical Economics* (Cambridge, MA, and London: The MIT Press, 1997).

³⁵Collini, Winch, and Burrow, *That Noble Science of Politics*, 312. But see also Ian Steedman, *Jevon’s Theory of Political Economy and the ‘Marginalist Revolution’* (Manchester: The Manchester Metropolitan University, 1995).

³⁶See, e.g., W. Stanley Jevons, *The Theory of Political Economy* (London and New York: Macmillan & Co., 1871), 44–78.

³⁷Charles Taylor, *A Secular Age* (Cambridge, MA.; London: Belknap Press of Harvard University, 2007), 176.

³⁸Mary Poovey has described how financial journalism helped affirm the autonomy of the economic sphere. Mary Poovey, *The Financial System in Nineteenth-Century Britain*, The Victorian Archives Series (Oxford: Oxford University Press, 2003).

efficient causality,³⁹ to which ‘buffered’ individuals have direct access.⁴⁰ Again, the emerging economy was not secular in the sense that no self-confessed religious persons participated in its associated practices. Quite the contrary, as Boyd Hilton has argued, in Victorian England Christian evangelical ideas of both ‘moderate’ and ‘extreme’ forms underpinned widely held assumptions in debates regarding political economy at least into the 1860s; and while the latter half of the century saw a shift in theological emphasis, there was no simple decline in what one might term ‘religious contributions’.⁴¹ The emerging economic sphere became and remained, in the words of H.S. Jones, ‘common ground to secular utilitarians and to those ... who wished to give it a theological significance’.⁴²

Taylor argues that the imaginary of the ‘economy’ is nonetheless secular in the sense that it is performed as if existing solely in secular time, upheld only by the collective action of its participants, irrespective of confessional identities.⁴³ It came to define ‘a way [people were] linked together, a sphere of coexistence which could in principle suffice to itself, if only disorder and conflict didn’t threaten’.⁴⁴ While some might invoke God as the supreme ruler of the economic sphere, this was now merely as

³⁹ Though he does not make it explicit, Taylor’s reference to ‘efficient causality’ has important implications. ‘Efficient cause’ is the only of Aristotle’s four kinds of causality that implies a sequential ordering (‘one after the other’) of cause and effect. The prioritizing of efficient cause over the other kinds in the early modern mechanistic view of nature hence has implications for secularization in Taylor’s terms: the institution of a homogenous time where ‘one thing happens after another’, which gradually comes to be taken for granted and dominant. The other Aristotelian kinds of causality are formal, material, and final cause. In these, temporal sequence is irrelevant. Taylor, *A Secular Age*, 176–81.

⁴⁰ The social imaginary of ‘the economy’ is somewhat different from ‘the public sphere’ and ‘the sovereign people’, Taylor argues, in that the market implicitly negates collective action for mutual benefit. The ‘invisible hand’ does its work behind the back of individual participants, regardless of their possibly egoistic personal goals. Taylor, 181–85.

⁴¹ Boyd Hilton, *The Age of Atonement: The Influence of Evangelicalism on Social and Economic Thought 1795–1865*, New ed (Oxford: Clarendon Press, 1991).

⁴² H.S. Jones, *Victorian Political Thought*, British History in Perspective (Basingstoke: Macmillan Press Ltd, 2000).

⁴³ In fact, on this particular topic there is in Taylor’s account (as Paul Griffiths comments) a curious lack of engagement with the distinct temporalities of modern economic practices—curious because this has otherwise proved a popular topic among theorists of modernity. Griffiths further suggests that the granting of legal quasi-personality to the limited liability corporation was a crucial step on the way to Taylor’s notion of ‘buffered selves’ choosing among various options. See Paul J. Griffiths, ‘[No Title]’, *The Thomist* 72, no. 4 (2008): 665–69.

⁴⁴ Taylor, *A Secular Age*, 181.

designer of a well-engineered, impersonal order where specific moral codes would secure ‘blessing’, or where individual self-love might indeed—through the work of underlying principles such as an ‘invisible hand’—ultimately be turned to the benefit of all. While we do not have to accept Taylor’s claim that the emerging economic sphere implied secular time *exclusively*,⁴⁵ secular time was certainly mediated on some level through the technologies and collective practices through which it was performed.

Mundane monetary practices were essential to the integration of the Victorian economy on a national scale. In what would become one of the most famous and influential contributions to the genre of political economy, Karl Marx highlighted the peculiar role of the money commodity in its performance. Opening his *Capital I* (1867) with a discussion of money—thereby inverting the usual order of topics in the genre⁴⁶—he sought to reveal how money tended to conceal from workers how their labour was the true source of ‘surplus value’.⁴⁷ For Marx, money was one commodity among other commodities, but one being ‘reified’ or ‘fetishised’ in a particular way. On this point, Marx’s theory was quite similar to the Ricardian theories it critiqued: money ‘symbolised’ or ‘veiled’ an underlying economic ‘reality’. But where most other theories described this economic reality as foundational, Marx further postulated that all value in fact stemmed from human labour: the economic reality in turn ‘veiled’ an even more fundamental ‘social’ reality.

On this perspective, rather than merely expressing an ontological basis of universal exchange, money was central to the processes of modernization and its associated reconfiguring of social relations.⁴⁸ Many later

⁴⁵ As philosopher Eric Alliez has pointed out, while the abstract, homogeneous time of capital ‘is undoubtedly opposed to the very idea of creative duration, [it nevertheless] invokes creative duration as its natural complement’. In other words, while the practices of credit, speculation, and calculation did indeed imply an abstract and isochronic secular time independent of change, the related notions of economic growth and progressive or regressive development indicate the presence of other temporalities of qualitative change and constant transition. Éric Alliez, *Capital Times: Tales From the Conquest of Time*, trans. Georges Van Den Abbeele, *Theory Out of Bounds* (Minneapolis and London: University of Minnesota Press, 1996), xviii.

⁴⁶ Alborn, ‘Economics and Business’.

⁴⁷ Karl Marx, *Capital*, trans. Eden Cedar and Paul Cedar, vol. 1, Everyman’s Library 848 (London: J.M. Dent & Sons Ltd, 1942), 3–58. See also Anitra Nelson, ‘Marx’s Theory of the Money Commodity’, *History of Economics Review* 33 (2004): 44–63.

⁴⁸ Geoffrey Ingham, ‘On the Underdevelopment of the “Sociology of Money”’, *Acta Sociologica* 41, no. 1 (1998): 3–18.

sociological theories of money (of course, not all of them therefore ‘Marxist’) have continued in a similar vein. In his *Philosophy of Money* (1907), George Simmel argued that modern money had become a pure symbol disconnecting individuals from groups and contexts on which they formerly depended, recasting all relationships in terms of quantitative difference.⁴⁹ More recently, sociologists such as Anthony Giddens has generally speaking maintained this view. The use of money as a medium of exchange, they argue, implies trust in the abstract capacity of money as such, rather than in the persons involved in the transaction. Money is therefore one of the key ‘disembedding’ mechanisms, as Giddens puts it, distinguishing modern from ‘traditional’ societies.⁵⁰

Responding to this classic sociological perspective on money as at once embedded in and recasting social relations, several scholars have pointed out that far from functioning as a universal acid dissolving personal relationships, money takes on a multitude of different roles in as many different contexts. It is always embedded in reciprocal and complex moral orders founded on personal trust,⁵¹ and influencing a rich variety of identities and relations.⁵² Attempts by governments (or indeed economic scholars) to police the orthodox meaning of money, they argue, have always gone together with an increasing awareness of the ambiguity of such meanings evidenced by ‘heretical’ everyday practices not sanctioned

⁴⁹ Georg Simmel, *The Philosophy of Money*, trans. Tom Bottomore and David Frisby (London, Henley and Boston: Routledge & Kegan Paul, 1978).

⁵⁰ Anthony Giddens, *The Consequences of Modernity* (Cambridge: Polity Press, 1990), 21–28.

⁵¹ Craig Muldrew, *The Economy of Obligation: The Culture of Credit and Social Relations in Early Modern England*, *Early Modern History: Society and Culture* (Basingstoke: Palgrave, 1998); Craig Muldrew, “‘Hard Food for Midas’: Cash and Its Social Value in Early Modern England”, *Past & Present*, no. 170 (2001): 78–120; Craig Muldrew, ‘Interpreting the Market: The Ethics of Credit and Community Relations in Early Modern England’, *Social History* 18, no. 2 (May 1993): 163–83.

⁵² Viviana A. Zelizer, ‘The Social Meaning of Money: “Special Monies”’, *The American Journal of Sociology* 95, no. 2 (1989): 342–377; Viviana Zelizer, *The Social Meaning of Money—Pin Money, Paychecks, Poor Relief, and Other Currencies* (New York: Basic Books, 1995); Viviana Zelizer, ‘Official Standardization vs. Social Differentiation in American’s Uses of Money’, in *Nation-States and Money: The Past, Present and Future of National Currencies*, ed. Emily Gilbert and Eric Helleiner, Routledge/RIPE Studies in Global Political Economy 2 (London and New York: Routledge, 1999), 82–96.

by institutional sources or financial authorities.⁵³ One example cited is how, after they went out of print in 1821, Bank of England £1 and £2 notes continued to circulate for decades: one estimate suggests that a value of £9304 was paid in such low-denomination notes between 1843 and 1881—perhaps not a high sum in itself, but remarkable considering the notes’ official lack of value.⁵⁴

For the present purposes, it suffices to acknowledge that money was a particularly important technology through which the Victorian economy was performed on a daily basis,⁵⁵ and constituted an essential part of processes increasingly integrating people of all classes in institutions and practices tacitly educating them in the logic of investment, credit, and contractual relationships. Among other developments we might instance the establishment of provincial building societies,⁵⁶ the consolidation and international expansion of the London Stock Exchange,⁵⁷ the emergence of the so-called gentlemanly capitalism of those whose money ‘made itself’ through investment in urban properties,⁵⁸ and the proliferation of joint-stock companies following the Limited Liability Act of 1855 and the Companies Acts of 1856 and 1862—all of which relied on the expanding network of credit and investment guaranteed by the Bank of England.⁵⁹

⁵³ Patrick Brantlinger, *Fictions of State: Culture and Credit in Britain, 1694–1994* (Ithaca: Cornell University Press, 1996); Matthew C. Rowlinson, *Real Money and Romanticism*, Cambridge Studies in Romanticism 85 (Cambridge: Cambridge University Press, 2010); Margot C. Finn, *The Character of Credit: Personal Debt in English Culture, 1740–1914*, Cambridge Social and Cultural Histories 1 (Cambridge: Cambridge University Press, 2003).

⁵⁴ A.D. MacKenzie, *The Bank of England Note: A History of Its Printing* (Cambridge: Cambridge University Press, 1953), 130.

⁵⁵ Simon Smelt, ‘Money’s Place in Society’, *The British Journal of Sociology* 31, no. 2 (1980): 204–23.

⁵⁶ Glyn Davies, *A History of Money: From Ancient Times to the Present Day* (Cardiff: University of Wales Press, 1994), 326–32.

⁵⁷ Ranald C. Michie, *The London Stock Exchange: A History* (Oxford and New York: Oxford University Press, 1999).

⁵⁸ P. J. Cain and A. G. Hopkins, ‘Gentlemanly Capitalism and British Expansion Overseas II: New Imperialism, 1850–1945’, *The Economic History Review*, New Series, 40, no. 1 (1 February 1987): 1–26, <https://doi.org/10.2307/2596293>; P.J. Cain and A.G. Hopkins, ‘Gentlemanly Capitalism’, in *The Victorian Studies Reader*, ed. Kelly Boyd and Rohan McWilliam, Routledge Readers in History (Abingdon: Routledge, 2007), 83–95.

⁵⁹ Timothy L. Alborn, *Conceiving Companies: Joint-Stock Politics in Victorian Britain*, Routledge Explorations in Economic History 9 (London and New York: Routledge, 1998); James Taylor, *Creating Capitalism: Joint-Stock Enterprise in British Politics and Culture*, Studies in History: New Series (Woodbridge: The Boydell Press, 2006).

These acts substantially expanded commercial markets (then by far the most permissive in Europe), transforming middle- and upper-class Victorians into what some scholars have called a ‘nation of shareholders’,⁶⁰ a category which also included increasing numbers of women.⁶¹ Together with rising membership numbers in friendly societies such as the Oddfellows providing insurance services, and industrial insurance companies such as Prudential’s targeting of working-class individuals for industrial branch insurance, these practices served to ‘[embed] within a wide segment of the population a familiarity with financial institutions, an understanding of concepts such as interest and economic risk, and an appreciation of the role that financial planning might play in ensuring personal and familial well-being’.⁶²

⁶⁰ George Robb, *White-Collar Crime in Modern England: Financial Fraud and Business Morality, 1845–1929* (Cambridge: Cambridge University Press, 1992), 3.

⁶¹ Janette Rutterford et al., ‘Who Comprised the Nation of Shareholders? Gender and Investment in Great Britain, c. 1870–1935’, *Economic History Review* 64, no. 1 (2011): 157–87.

⁶² David R. Green et al., ‘Men, Women, and Money: An Introduction’, in *Men, Women, and Money: Perspectives on Gender, Wealth, and Investment, 1850–1930*, ed. David R. Green et al. (Oxford: Oxford University Press, 2011), 10. Another example was the savings banks system. In response to the disappointing performance of the early Victorian philanthropic Trustee Savings Banks, where most working families could not actually afford the entry fees, the Post Office Savings Bank was created in 1861. As a London-based state savings bank using its 2868 local post offices as feeder branches, its peculiar structure instantly put most of the population within walking distance of a local savings bank, while also securing a high level of anonymity and mobility. From 1861, the minimum deposit was one shilling, which allowed more people the opportunity to open an account. By 1863, the total number of accounts already exceeded 300,000; seven years later, it had passed 1.2 million. In 1900, depositors held over 8.4 million accounts. In 1880, the new postmaster general Henry Fawcett introduced his highly publicized scheme of so-called deposit slips—a paper slip on which 12 one-penny stamps could be adhered—as a way of saving for the minimum entry deposit. With the introduction of universal elementary education in the decades before 1900, the strategy of school Penny Banks, which encouraged children to accumulate savings, moved from being a characteristic of charity and ragged schools to becoming a part of the general educational system. In 1900, there were more than 5000 Post Office Penny Banks in British schools. Between 1870 and 1911, the number of working-class deposits in savings bank schemes rose from less than £2 million to more than £7 million. Albert Fishlow, ‘The Trustee Savings Banks, 1817–1861’, *The Journal of Economic History* 21, no. 01 (1961): 26–40, <https://doi.org/10.1017/S002205070011099X>; Martin Campbell-Kelly, ‘Data Processing and Technological Change: The Post Office Savings Bank, 1861–1930’, *Technology and Culture* 39, no. 1 (1998): 16.

When it came to paper money, Victorians were familiar with many forms of such—cheques, shares, and bills of exchange, to mention only some. But among all of these, banknotes stand out because of their connection to specific territories. Banknotes are promises made by the issuing banker to pay the bearer the note's value in gold when they return the note to the issuing bank. This means that its value depends not on the trustworthiness of the person using the note, but rather on the trustworthiness of the issuing bank, and also how geographically far this trust holds. If this territorial aspect makes banknotes a peculiar form of paper money, notes issued by the Bank of England were even more so, since they increasingly came to replace gold as security in the coffers of provincial banks. It was well known that these particular notes provided security for the local bank.

Victorian working classes did not themselves *keep* banknotes, though there is evidence that they *used* them in local banks to redeem their wages in coin.⁶³ As early as the 1810s, when small note denominations circulated, it was not uncommon for several workingmen or sailors to be paid with a single note and left to break it up among themselves. This practice continued after the cash payment restriction was lifted; indeed, it was the rationale behind the exception of £5 notes from becoming legal tender in 1833—they had to remain convertible into gold on demand for the payment of wages.⁶⁴ While Victorians were well aware of the advantages (and challenges) associated with banknotes, coins remained the common money form in most transactions.

The fact that paper notes gradually came to assume status as 'sound money' would have been, as one historian puts it, 'thoroughly counter-intuitive' to people living in the eighteenth century.⁶⁵ Before the restriction period, no one would have accepted final payment in banknotes—these were only valid as promises of future payment in coin. By 1900, no one would have lifted an eyebrow or worried whether there was enough gold in the bank to honour the promise.

How did this popular trust in Bank of England notes arise and sustain itself? Scholars have suggested several explanations. Perhaps it was the bank's century-long reputation of prudence and relative independence

⁶³ Pressnell, *Country Banking and the Industrial Revolution*, 153–55.

⁶⁴ Vincent Duggleby, *English Paper Money: Treasury and Bank of England Notes 1694–2002*, vol. 6 (Sutton, Surrey: Pam West, 2002), 28.

⁶⁵ Rowlinson, *Real Money and Romanticism*, 5.

from the state and its wars.⁶⁶ Perhaps it was a well-founded fear of a Bank operating as a state-sanctioned private prosecutor with a reputation for pursuing capital punishment for note forgery.⁶⁷ Perhaps it was due to banknotes' role as a circulating medium which, much like newspapers, served to instill a sense of synchronicity in the imagined community of the nation.⁶⁸ Perhaps it was because a strong sense of communal solidarity and social obligation remained present despite later scholars' insistence that economic transactions became more impersonal during the eighteenth century.⁶⁹

In this chapter, I propose that in addition to all of this, Bank of England notes were key to integrating the economy on a national level in a literally more 'hands-on' way. The effort put into designing and producing notes that were impossible to counterfeit should be seen as an attempt to impart the properties of an abstract gold standard—its immutability in particular—into flimsy but easily transportable pieces of paper in order to make these 'as good as gold'. The first half of the nineteenth century saw a deliberate and extensive mobilization of human skill and sophisticated technology—reaching a temporary apogee with the introduction of the notes printed in 1855—in order to secure near-perfect inimitability. To the accompaniment of a cacophony of voices debating their convertibility and role in civilization, Bank of England notes were deliberately and successfully made to embody the immutability of the abstract gold standard with the intention of impressing a notion of trustworthiness on the minds and physical senses of the population. The notes came to acquire a function as immutable mobiles being moved without deterioration between the metropolitan central bank and local banks. Insofar as they were both

⁶⁶ Patrick K O'Brien and Nuno Palma, 'Danger to the Old Lady of Threadneedle Street? The Bank Restriction Act and the Regime Shift to Paper Money, 1797–1821', *European Review of Economic History* 24, no. 2 (Mai 2020): 390–426, <https://doi.org/10.1093/ereh/hez008>.

⁶⁷ Randall McGowen, 'The Bank of England and the Policing of Forgery 1797–1821', *Past & Present* 186, no. 1 (February 2005): 81–116, <https://doi.org/10.1093/pastj/gti003>; Randall McGowen, 'Managing the Gallows: The Bank of England and the Death Penalty, 1797–1821', *Law & History Review* 25, no. 2 (Summer 2007): 241–82, <https://doi.org/10.1017/S073824800002923>; Adam Crymble, 'How Criminal Were the Irish? Bias in the Detection of London Currency Crime, 1797–1821', *The London Journal* 43, no. 1 (2 January 2018): 36–52, <https://doi.org/10.1080/03058034.2016.1270876>.

⁶⁸ Eric Helleiner, *The Making of National Money: Territorial Currencies in Historical Perspective* (Ithaca and London: Cornell University Press, 2003).

⁶⁹ Shin, 'Paper Money, the Nation, and the Suspension of Cash Payments in 1797'.

mobile and as immutable as the abstract and universal standard, Bank of England notes were able to anchor the national economy, and by implication move through a time independent of motion. In this sense, and on this specific level, the networks that produced and circulated Bank of England notes mediated secular time.

GOLD STANDARD

Historically speaking, the gold standard has played a peculiar role in English monetary development.⁷⁰ Since the fourteenth century, continental European states usually strengthened their domestic currencies through regular ‘debasement’, a practice which entailed reminting old coins into new ones containing less gold or silver than their nominal value, thereby allowing the crown to keep some of the precious metal for itself. The actual effects on national economies were minimal; people simply adjusted prices according to the ‘real’ value of the coins, which again would lead to inflation and eventually new rounds of debasement. In England, by contrast, the landlords who regularly convened with the Crown in order to agree on new taxes (what would later become Parliament) often opposed such practices. As a result, England has historically had far fewer of these recoinages than other European countries. This meant merchants could profit from exporting English coin and have them reminted in other European states. In response to this drainage of precious metals, the English Crown sought to regain control over the currency by concentrating all exchange with the Royal Mint, which thus became one of the cornerstones of the state’s power.

Instead of fluctuations in the continental money market, then, the value of English coins was determined by reference to an abstract standard whose integrity the state had to police and protect. In 1805, Lord Liverpool explicitly related metallic standards to a high level of civilization:

In all civilized nations, Money has been made either of Gold, Silver, or Copper, frequently all three, and sometimes of a metal composed of Silver and Copper, in certain proportions, commonly called Billon. It has been found by long experience, and by the concurrent opinion of civilized nations

⁷⁰ Knafo, ‘The State and the Rise of Speculative Finance in England’.

in all ages, that these metals, and particularly Gold and Silver, are the fittest materials, of which Money can be made.⁷¹

Most Victorians would have agreed that '[i]t [was] of the first necessity that there should be one common standard to which the value of all commodities should be referred'.⁷² And even if debates might rage as to whether that standard should be gold or silver or both, it was accepted across the board that commodity standards as such were 'inevitable, [and] within the natural order of things', beyond what merely human institutions could simply decree.⁷³ 'That the standard of value shall not be altered needs no more resolution of the House of Commons to affirm it, than the standard of heat', wrote publisher and currency reform advocate John Taylor in 1833.

All that Parliament can do, is to provide that our pound sterling, and its fractional parts, shall be as true and equal an indicator at all times, and under all circumstances, of that which it professes to measure—*value*, as the scale of the thermometer is of that which it professes to measure—*heat*.⁷⁴

As several contemporary commentators pointed out, establishing a universal commodity standard of value required an act of mental abstraction; a selected commodity had to be thought of as evacuated from the realm of commodities altogether, so that the relative value of other commodities could be measured against this abstract absolute. As a universal standard, then, gold was imagined as existing independent from all the changes occurring in the world.

Perhaps paradoxically, the reason gold was considered suitable for this role as immaterial standard lay precisely in its *material* properties, namely its comparative homogeneity, portability, divisibility, and durability. In 1866, Knight's *English Encyclopedia* described how gold was supremely fitting for the purpose of universal standard because as a substance it underwent no change over time:

⁷¹ Liverpool, *Treatise on the Coins of the Realm*, 9.

⁷² Henry Arabin, *A Plan for Extending the Paper Currency, on the Security of the Nation* (London: J.G. & F. Rivington, 1839), 5.

⁷³ Arabin, 13.

⁷⁴ John Taylor, *Currency Fallacies Refuted and Paper Money Vindicated* (London: Hatchard and Son, 1833), vii. Emphasis in original.

[A]n ounce of pure gold extracted from the earth 100 years ago is of precisely the same quality as an ounce of pure gold got yesterday. Exposure to weather, the scorching sun, or the rigour of frost, produces no deterioration in its quality. From all which it follows, that the relative weight of any portion of it determines at once its relative quantity and value to every other portion. Two ounces of gold are worth exactly twice as much as one...it is not liable to corrode or rust, and therefore is fitted to the purposes of a circulating medium.⁷⁵

In the terms of the present argument, gold was fitted to represent an absolute standard because it could be moved without deterioration; in other words, it was measured by a time independent of motion.

Britain was one of the first states to move from a bimetallic (silver and gold) to a monometallic (gold) standard,⁷⁶ and by the second half of the nineteenth century, '[t]he British were fairly sure that gold was the most civilized metal on which to base a cash economy'.⁷⁷ The language of civilizational progress was marshalled equally by all sides in the debates. Many saw the waves of financial speculation as a threat to civilized society, casting gold as representing a stable and rational ground from which to resist the passions of eager speculators, and English devotion to the gold sovereign a sign of the nation's civilizational stature. The term *sterling* came to signify a high quality, a sense of trustworthiness and reliability. In his *Expansion of England* (1883), historian J.R. Seeley used the term in this way, remarking that 'the treasure of truth that forms the nucleus of the civilization of the West is incomparably more sterling not only than the Brahminic mysticism with which it has to contend, but even than that Roman enlightenment which the old Empire transmitted to the nations of Europe'.⁷⁸ In analogy with the complete coincidence of intrinsic and signified value in a gold sovereign, Englishness constituted for Seeley a complete consistency between inner character and external appearance, just

⁷⁵ Charles Knight, *Arts and Sciences: Or, Fourth Division of 'The English Encyclopedia'* (London: Bradbury, Evans & Co., 1866), 452.

⁷⁶ Ted Wilson, *Battles for the Standard: Bimetallism and the Spread of the Gold Standard in the Nineteenth Century*, ed. Derek H. Aldcroft, *Modern Economic and Social History* (Aldershot: Ashgate, 2000), 2, 11–13.

⁷⁷ Timothy L. Alborn, 'Coin and Country: Visions of Civilization in the British Recoinage Debate, 1867–1891', *Journal of Victorian Culture* 3, no. 2 (1998): 252.

⁷⁸ John Robert Seeley, *The Expansion of England; Two Courses of Lectures* (London: Macmillan & Co., 1883), 283.

like gold coins embodied the rationality and trustworthiness of English civilization.

Around mid-century, when large quantities of gold were discovered in California and Australia, the world's annual production of gold increased nearly threefold.⁷⁹ European nations on bimetallic standards scrambled to stabilize their economies, readjusting their gold-silver rate, or demonetizing gold. Britain came through the disturbances largely unscathed. London remained the world's financial centre, and the convenience of operating on its standard when trading there meant most European states adopted the gold standard by the 1870s.⁸⁰ Some even saw the discoveries as 'providential solutions to the problem of liquidity posed by the return to convertibility and the Bank Charter Act [of 1844]', since the increase of available gold in the world conveniently coincided with English commercial expansion.⁸¹

THE STATE

The gold standard had to be policed, and this task fell to the state. 'Between 1688 and 1714', argues John Brewer, 'the British state underwent a radical transformation, acquiring all of the main features of a powerful fiscal-military state: high taxes, a growing and well-organized civil administration, a standing army and the determination to act as a major European power'.⁸² Together with the extension of international commercial networks during what historians have later dubbed the 'Financial Revolution',⁸³ the late seventeenth and eighteenth centuries saw a strong shift towards securing value in an abstract standard transcending local communal relationships. Bankers developed new forms of promissory notes—bills of exchange—by which debt could be transferred to unknown third parties. Large-scale merchants (such as those involved in the South Sea or East

⁷⁹ Jeffrey A. Frieden, 'The Dynamics of International Monetary Systems: International and Domestic Factors in the Rise, Reign, and Demise of the Classical Gold Standard', in *The Gold Standard in Theory and History*, ed. Barry Eichengreen and Marc Flandreau, 2nd ed. (London and New York: Routledge, 1997), 214.

⁸⁰ Frieden, 'The Dynamics of International Monetary Systems'.

⁸¹ Martin J. Daunton, *State and Market in Victorian Britain: War, Welfare and Capitalism* (Woodbridge: The Boydell Press, 2008), 228–44.

⁸² John Brewer, *The Sinews of Power: War, Money and the English State, 1688-1783* (London et al.: Unwin Hyman, 1989), 137.

⁸³ Peter George Muir Dickson, *The Financial Revolution in England: A Study In the Development of Public Credit, 1688-1756* (London et al.: Macmillan, 1967), 137.

India companies) progressively operated on an international scale, calculating future profits on the assumption that the value of the means of exchange would remain unaltered over time. British commerce and naval power went hand in hand, and unprecedented infrastructures were established providing new ways for the state to mobilize wealth for financing military activity. In short, the state was expected to ensure and protect economic interests both at home and abroad.

At the local level, which remained in the grip of civic and landed elites without much in the way of central oversight or interference,⁸⁴ what Brewer calls the fiscal-military state apparatus had merely a sporadic administrative presence. Partly because of such limitations in state bureaucracy, the population's primary sphere of engagement with the state was through an extensive and complex system of monetary fines and rewards.⁸⁵ Throughout the eighteenth century, for instance, the government increasingly offered money to ordinary citizens assisting the state in dealing with criminal behaviour.⁸⁶ Partly as an effect of this, in the words of one historian, 'English people came to think of themselves as rate payers and investors, as well as regular spenders ... often measur[ing] their world and even themselves in monetary terms'.⁸⁷ Monetary policies of this sort were embedded in already-existing social orders and relations. Most commercial activity likewise took place in reciprocal networks of interpersonal trust, where credit was offered on the basis of personal moral reputation.⁸⁸ People would trade on credit and meet at regular intervals to compare accounts, cancel mutual debts, and either agree among themselves on a new amount of debt or pay the remaining sum with 'ready money' (i.e. lower-denomination coins).

These emerging local practices spurred a growing concern for marketing morals, personal trustworthiness, and how to use money 'appropriately'. As Matthew Rowlinson has argued, paper bills were almost always

⁸⁴ As Joanna Innes notes, the distinction between 'central' and 'local' itself dates to the early Victorian period. Joanna Innes, *Inferior Politics: Social Problems and Social Policies in Eighteenth-Century Britain* (Oxford: Oxford University Press, 2009).

⁸⁵ Malcolm Gaskill, *Crime and Mentalities in Early Modern England*, Cambridge Studies in Early Modern British History (Cambridge: Cambridge University Press, 2000), 123–99.

⁸⁶ Deborah Valenze, *The Social Life of Money in the English Past* (Cambridge: Cambridge University Press, 2006), 193, 260.

⁸⁷ Valenze, 13.

⁸⁸ Muldrew, *The Economy of Obligation*; Muldrew, "'Hard Food for Midas": Cash and Its Social Value in Early Modern England?.

used in transactions in ‘local networks of obligation, credit, and mutual identification’.⁸⁹ In this ‘grand system of reciprocity’, money was imagined to be able to take on the ‘good’ or ‘bad’ character of its owner, as well as impart its own qualities to whoever handled it; all personal acts were seen as connected in a providential scheme where reward in one area (‘spiritual’) might play out in another (‘social’ or ‘physical’).⁹⁰ The state’s increasing efforts to define and authorize the precise meanings of money hence coincided with a growing popular awareness of money’s inherent ambivalence.

Long-distance trading made these challenges even more pressing. As demographic migration increased and regional markets became more integrated, the trust involved in credit relations increasingly had to be extended beyond face-to-face encounters, leaving many merchants to rely on word of mouth when considering someone’s character and trustworthiness.⁹¹ The fact that one might never meet the person one was dealing with meant that credit—at least in certain circumstances and social segments—had to be granted independently of personal character and interpersonal trust.⁹² The guarantee of authentic value became more detached from the morality of specific persons, and came to rest elsewhere.

This is where the state became significant. The standard of value itself was abstract and universal, and transcended the state’s powers. The state’s task was to ensure convertibility between this standard and its circulating representative tokens. Crucial to achieving this would be technological innovations that helped towards securing state monopoly on money production.

POLICING THE STANDARD

Before the nineteenth century, the state’s key monetary challenge was that the value of its coins was affected by widespread forgery undermining popular trust in their ability to accurately represent the standard. Legal prohibition alone failed to hinder *de facto* circulation of counterfeit and

⁸⁹ Matthew Rowlinson, ‘“The Scotch Hate Gold”: British Identity and Paper Money’, in *Nation-States and Money: The Past, Present and Future of National Currencies*, ed. Emily Gilbert and Eric Helleiner, Routledge/RIPE Studies in Global Political Economy 2 (London and New York: Routledge, 1999), 61. Emphasis in original.

⁹⁰ Valenze, *The Social Life of Money*.

⁹¹ Muldrew, *The Economy of Obligation*, 1–11.

⁹² Rowlinson, ‘“The Scotch Hate Gold”: British Identity and Paper Money’, 48–51.

alternative currencies. The problem was essentially a technological one—coins made with hammer and anvil could easily be ‘modified’ by any local smith.⁹³ Practices of ‘clipping’ were widespread and made the wealthy hoard their coins. The resultant shortages led to more counterfeiting as well as a ubiquitous use of informal credit relations in everyday transactions.⁹⁴ Throughout the seventeenth and into the early eighteenth century small denomination coins had largely functioned as a balancing item when short-term credit accounts were settled. In the late eighteenth century, the shortage of coin generated such a pressing demand for alternatives—particularly in urban centres where poor wage earners lacked that history of personal reliability so basic to local credit economies—that many industrialists began issuing their own copper trade tokens for daily and weekly payment of wages in low-denomination coins. In this way, ‘private’ copper tokens entered into local and sometimes even regional circulation (which was also the industrialists’ intent).⁹⁵ Regional and local trade tokens of this sort continued to circulate even into the early nineteenth century.⁹⁶

Whenever this happened, recoinage became the only way the state could attempt to regain control of territorial money circulation. The official recoinage of copper in 1797 (and those that were to follow in subsequent years), for instance, could hence be seen as the result of a ‘conscious policy to drive counterfeit and token copper out of circulation’,⁹⁷ thereby reinforcing state authority. In 1798, Parliament set down a Privy Council committee that would inquire into the situation of money scarcity. One member of this committee, the Earl of Liverpool, suggested that gold should be the sole standard coin in the entire realm, and in 1816 (when the Earl’s son was prime minister) his outline of such a system was acted

⁹³For a description of the coining process, see Henry T.F. Rhodes, *The Craft of Forgery* (London: J. Murray, 1934).

⁹⁴Feaveryear notes other reasons including population growth, the laws against export of coin and precious metals, and minting charges—which created a gap between the value of circulating money and the value of the standard weight of metal. Feaveryear, *The Pound Sterling*, 1–6. The lack of official money spurred a widespread use of paper credit and barter in the English colonies. William T. Baxter, ‘Observations on Money, Barter and Bookeeping’, *Accounting Historians Journal* 31, no. 1 (2004): 129–39.

⁹⁵Peter Mathias, ‘Official and Unofficial Money in the Eighteenth Century: The Evolving Uses of Currency’, *British Numismatic Journal* 74 (2004): 68–83.

⁹⁶Peter Mathias, *The Transformation of England: Essays in the Economic and Social History of England in the Eighteenth Century* (London: Methuen, 1979).

⁹⁷Mathias, ‘Official and Unofficial Money’, 82.

upon: coins of silver were made into token coins, that is, nominal representations of a certain value measured in gold.⁹⁸

Even if the gold standard was imagined as transcending the state, its actualization—especially since coins had never perfectly embodied their nominal value—came to depend on the technologies of money production. Towards the end of the eighteenth century, these technologies progressively came under state control. Matthew Boulton’s innovative steam presses in Birmingham made it possible to stamp uniform coins with smooth edges and regular size, and therefore almost impossible to counterfeit.⁹⁹ The machines were ‘tailored’ for the Royal Mint, and the details of the manufacturing process kept from the public.¹⁰⁰ In this way, metallic money based on a single universal standard became the prerogative of the state. With a monopoly on the technological means necessary for producing ‘sound money’, the state could be much more efficient in eradicating counterfeits and regional pragmatic alternatives. The characteristic immutability of gold could now be imparted to metallic coins through Boulton’s presses. The secular time implied in the mental abstraction of a single commodity from the realm of material change could be mediated to particular forms of state-sanctioned money through the technological networks of money production.

Centralizing the technological means of money production with the state policing an abstract standard solved century-old problems of maintaining popular trust in material tokens representing that standard. But the restriction period between 1797 and 1821 raised the same problems with regard to paper money. In contrast to Boulton’s coins, the trust in Bank of England notes’ ‘promise to pay’ could not be backed up by their technological and material constitution. Popular trust in banknotes had to be based solely on the Bank of England’s privileged position with the government. What lay behind the notes’ ‘promise to pay [...] the bearer on demand’, then, was primarily the state’s punitive system and prerogative to raise and by force extract future taxes.

⁹⁸ Rowlinson, “‘The Scotch Hate Gold’: British Identity and Paper Money”, 55.

⁹⁹ For an account of Boulton’s ‘coinage revolution’ in relation to national monetary standardization, see Helleiner, *The Making of National Money*.

¹⁰⁰ Boulton’s machines are still in use today, albeit driven by electricity instead of steam. See Wilson, *Battles for the Standard*.

THE BANK OF ENGLAND

The establishment of the Bank of England was a key event in the emergence of the new alliance between administrative (and military) state and commercial market, as well as a breakthrough for the conception of money as a measure of value independent of personal character.¹⁰¹ Originally conceived as a means of financing the state's wars, the Bank received its charter in May 1694 under the authority of the Ways and Means Act, which immediately bestowed on it exceptional privileges. In return for a loan to the government of £1,200,000 at an 8 per cent return, the Bank was allowed to incorporate as a joint-stock company, whose stocks the state then sought to persuade the population to purchase. For many speculators, the fact that the Bank's chief asset was an irredeemable loan to the government made this seem a unique and infallible business opportunity.¹⁰² Crucially, it was these state guarantees (in the form of potential future taxes, extracted by force if necessary) that enabled the Bank, from its very establishment, to invest more money than it presently had—resulting in the formal erasure of all finite limits on the market and the creation of 'a form of credit which need never be repaid'.¹⁰³ In the words of Fernand Braudel:

[t]he long-term debt converted itself almost spontaneously into a perpetual debt [...] This was the miracle: the state never repaid the loan, but the lender could recover his money whenever he wanted it [...] The entire system depended on the 'credit-worthiness' of the state, on public confidence in other words.¹⁰⁴

During the mid-eighteenth century, David Hume famously opposed this practice of public credit, arguing that the government could become too indebted to intervene in domestic or international crises.¹⁰⁵ Against

¹⁰¹Ingham, 'On the Underdevelopment of the "Sociology of Money"'; Geoffrey Ingham, *The Nature of Money* (Cambridge: Polity Press, 2004).

¹⁰²J. Keith Horsefield, *British Monetary Experiments, 1650-1710* (London: G. Bell and Sons Ltd., 1960), 244.

¹⁰³Philip Goodchild, *Capitalism and Religion: The Price of Piety* (London and New York: Routledge, 2002), 31.

¹⁰⁴Fernand Braudel, *Civilization and Capitalism, 15th-18th Century: The Wheels of Commerce*, Reprint, vol. 2 (London: Phoenix Press, 1992), 527.

¹⁰⁵David Hume, 'Of Public Credit', in *Political Discourses* (Edinburgh: R. Fleming, 1752), 123-41.

Hume's dire views, however, Dutch investor Isaac de Pinto, whose 1774 *Essay on Circulation and Credit* was widely read among English financial elites at the time, argued that the then unique English combination of state power and Bank was in fact beneficial in the long run.

[T]he national debt has enriched the nation, and I prove it thus. On every new loan the government of England mortgages a portion of taxes to pay the interest, and creates a new artificial capital, which did not exist before, which becomes permanent, fixed, and solid; and by means of credit circulates to the advantage of the public, as if it were in effect so much real treasure, that had enriched the kingdom.¹⁰⁶

Already in its first decades, the Bank of England saw its issued notes gain the popular trust necessary for them to function as 'real money', at least among merchant elites.¹⁰⁷ As the Bank paid for army supplies throughout the country using bills marked with its seal, these were soon, according to one historian, accepted as payment 'everywhere'.¹⁰⁸ While these sealed bills were discontinued in 1716, they had made apparent a general and increasing readiness to accept payment in paper, as long as the notes bore the state-sanctioned seal of the Bank.¹⁰⁹ Indeed, historian Keith Horsefield deems Bank of England notes the *only* convincing candidate for the title of 'paper money' in the early part of the eighteenth century, and suggests that by the 1760s the Bank's notes were generally regarded as 'proper' money, long before they were officially made legal tender in 1833.

Some have argued that the growing trust in the Bank's notes was due to the national symbolism displayed on them. The Bank had adopted the figure of Britannia as its official seal shortly after its foundation in 1694. Most country banknotes understandably emphasized the local roots and trustworthiness of the issuing bank, carrying images of local bank buildings, past local worthies, or general symbols of commerce, though Britannia's image could also be seen on some of these provincial notes.¹¹⁰

¹⁰⁶ Isaac de Pinto, *An Essay on Circulation and Credit: In Four Parts; and a Letter On the Jealousy of Commerce*, trans. S. Baggs (London: J. Ridley, 1774), 17.

¹⁰⁷ Peter Temin and Hans-Joachim Vith, 'Private Borrowing During the Financial Revolution: Hoare's Bank and Its Customers, 1702-24', *Economic History Review* 61, no. 3 (2008): 541-64.

¹⁰⁸ Feaveryear, *The Pound Sterling*, 126.

¹⁰⁹ J. Keith Horsefield, 'The Beginning of Paper Money in England', *The Journal of European Economic History* 6, no. 1 (1977): 117-32.

¹¹⁰ David Blaazer, 'Sterling Identities', *History Today* 52, no. 1 (2002): 12-18.

Whenever she was featured, her protective figure was seen as a personification of the state and/or the nation as a whole. Artist Daniel Maclise's vignette on the notes issued in 1855, for instance, depicted Britannia as a Saxon princess resembling a young Queen Victoria, reclining in quiet confidence on a chair overlooking the sea and horizon. Like earlier versions, she was surrounded by symbols of national heritage and dominance: a frame of English oak leaves, a branch of laurels, and a shield bearing the red-on-white cross of St George. Since it was ultimately the state that guaranteed the value of its territorial currency, there was (as some have pointed out) in every monetary transaction a covert honouring of the state's authority: an implicit trust or indeed faith in the ultimate power of the state.¹¹¹ Matthew C. Rowlinson has suggested that the use of state-sanctioned money effects

identification with other subjects [of the state]; one accepts such a currency only in the belief that there exists other subjects like oneself who will accept it in their turn in a future transaction. As a materially embodied medium of exchange, then, modern money has symbolic effects that can reinforce state and national identifications.¹¹²

But the power of such symbols should not be exaggerated. Arguably, Bank of England notes exhibited no blatantly nationalistic symbols until a Britannia 'rising for war' was depicted on the 1918 currency notes.¹¹³ Much more important was the relation between the Bank and the state. Throughout the eighteenth century, notes were relatively easy to forge, and the general willingness (among those who could afford to use them) to accept them as payment was no doubt partly due to the fact that the state put paper money almost on a par with gold coins when it measured out punishment for counterfeit—at the time a crime considered an act of treason. Already in 1697, only three years after the Bank's establishment, capital punishment was introduced for the forgery of its printed notes, and in 1729 this was extended to the forgery of private banknotes as well. When it came to guaranteeing the value of Bank notes, there is no doubt the policing force of the state was essential.¹¹⁴

¹¹¹ Goodchild, *Capitalism and Religion*, 32.

¹¹² Rowlinson, *Real Money and Romanticism*, 4.

¹¹³ Rowlinson, 4.

¹¹⁴ Helleiner, *The Making of National Money*, 60.

A NETWORK OF NOTES

At this point, it is worth recalling the territorial significance of bank-issued notes as a form of money. Being redeemable at the issuing bank, notes were valuable only within the particular geographical area served by that bank, which meant that their value depended on the trustworthiness of the banker who ‘promised to pay the bearer’, and so on. Within regional borders, this worked very well. Problems arose with the introduction of long-distance transactions. In his 1805 report on the monetary state of the country, the Earl of Liverpool had lamented how the banking system created problems for the travelling gentleman who had to exchange currencies when crossing the border between two English districts just as if he had been ‘passing from one small independent state on the continent to another’.¹¹⁵ The early nineteenth-century gradual concentration of note issuing authority with the Bank of England can therefore be seen as consolidating its—and hence the state’s—territorial influence and control.

On a political level, the Bank’s monopoly on note issuing was established through a series of parliamentary acts, through which the state also secured an even stronger form of territorial monetary governance. Already by the turn of the nineteenth century, the Bank had succeeded in eliminating competing note issuing in the London area.¹¹⁶ An act of 26 March 1826 prohibited the issuing of notes less than £5 (during the 1825 crisis, the £1 and £2 notes had been reissued), and an act of 26 May the same year preserved the Bank’s monopoly on joint-stock banking within a 65-mile radius of the centre of London. Note issuing banking corporations were authorized to set up business anywhere else. As compensation, the Bank was allowed to set up its own branches throughout England and Wales, and soon established an office in most major cities.¹¹⁷

In 1833, Bank notes above £5 were made legal tender, and a weekly return of the Bank’s accounts and bullion reserve was to be sent confidentially to the Treasury, for the government to be able to more closely monitor Bank policy. London joint-stock banks were allowed to establish

¹¹⁵ Liverpool, *Treatise on the Coins of the Realm*, 221.

¹¹⁶ Kevin Dowd, *Laissez-Faire Banking*, Foundations of the Market Economy (London and New York: Routledge, 1993), 222.

¹¹⁷ For a discussion on the importance of this in the long-term integration of the financial market, see Charles P. Kindleberger, ‘Integration of Financial Markets: The British and French Experience’, in *Keynesianism vs. Monetarism and Other Essays in Financial History* (London: George Allen & Unwin, 1986), 86–104.

branches outside of London, though only as deposit banks (they could not issue notes). After this, a high number of joint-stock bank branches were set up in the provinces. Their reserves were full of Bank of England notes, which further strengthened the monetary connections between the provinces and their headquarters in the City.¹¹⁸ The Bank of England itself set up branches in areas where local banks had collapsed, and generally encouraged existing banks to use the Bank's notes instead of issuing their own. Provincial banks could rely on the convertibility of their stock of Bank of England notes, which could also be quickly increased through the Bank's local branch. Already by 1840, Bank of England notes had fully replaced provincial notes in the Liverpool area, though in most areas they circulated together with provincial notes.¹¹⁹

Robert Peel's Bank Charter Act of 1844 officially concentrated all note issuing authority with the Bank of England, and in line with what was known as the Currency school divided the Bank into two separate departments: the Issue Department and the Banking Department. The Issue Department was subject to a number of state-imposed restrictions on note issuing, granting the state increased direct control over domestic currency.¹²⁰ The arrangement established a bond between the government and the notes printed in the Bank which would remain strong throughout the century.¹²¹

A series of crises in 1847, 1857, and 1866 further consolidated popular confidence in the notes, again largely because of the Bank's privileged position with the state. In 1845–1846, harvests were bad; grain had to be

¹¹⁸ While their inter-regional networks were thus expanded gradually from 1826, joint-stock banks only came to operate on a national level towards the end of the century. Iain S. Black, 'Money, Information and Space: Banking in Early-Nineteenth-Century England and Wales', *Journal of Historical Geography* 21, no. 4 (1995): 398–412.

¹¹⁹ Alec Cairncross, 'The Bank of England and the British Economy', in *The Bank of England: Money, Power and Influence 1694–1994*, ed. Richard Roberts and David Kynaston (Oxford: Clarendon Press, 1995), 57; Dieter Ziegler, *Central Bank, Peripheral Industry: The Bank of England in the Provinces, 1826–1913*, trans. Eileen Martin (Leicester, London: Leicester University Press, 1990).

¹²⁰ J. Keith Horsefield, 'The Origins of the Bank Charter Act, 1844', in *Papers in English Monetary History*, ed. T.S. Ashton and R.S. Sayers (Oxford: Clarendon Press, 1953), 109–25.

¹²¹ David Kynaston, 'The Bank of England and the Government', in *The Bank of England: Money, Power and Influence 1694–1994*, ed. Richard Roberts and David Kynaston (Oxford: Clarendon Press, 1995), 19–55.

imported, and gold exported. The railway mania spurred overconfident speculation, adding pressure on already-struggling country banks.¹²² Eventually, the government unofficially informed the Bank that it would present a Bill of Indemnity should the Bank breach the 1844 limit on note issues, and the Bank went on to print the required additional notes. As it turned out, public knowledge that notes need no longer be hoarded proved sufficient to abate the panic.¹²³ In the 1857 crisis, the Bank breached the limit by £2 million (less than half of which was put into circulation), but once again a governmental guarantee ‘eased the public mind’.¹²⁴ In 1866, the mere expectation that the government was going to present a Bill of Indemnity if necessary had ‘such an effect that the next day the crisis seemed to be at an end’, and no excess notes were printed.¹²⁵

As could be expected, the crises also spurred controversy over the role of the Bank—after all a private corporation—in the national economy. Bagehot’s *Lombard Street* (1873)—named after the street address of the discount bank whose failure had caused the 1867 crisis—famously set out the embryonic principles for what came to be known as modern central banking, with the Bank of England acting as a lender of last resort. Throughout the latter half of the century, the Bank was increasingly referred to as a ‘central bank’, and whilst its governors kept running it primarily as a private corporation with limited financial resources, it was distinguished from other banks in that its commercial interests were occasionally eclipsed by its unique responsibilities to the nation and its privileges in this regard. The Baring crisis in 1890, for instance, demonstrated the governors’ understanding of how the Bank and the financial market

¹²² Henry Booth, himself a railway proprietor, blamed the act for the crisis, since the Bank had no real capital but only ‘a delusive and nominal one’. Henry Booth, *The Rationale of the Currency Question; or, the Plea of the Merchant and Shareholder for an Improved System of National Banking* (London and Liverpool: John Weale in London; Thomas Baines in Liverpool, 1847), 9.

¹²³ A. Andréades, *History of the Bank of England, 1640 to 1903*, trans. Christabel Meredith, 4th ed. (London: Frank Cass & Co Ltd, 1966), 31–40.

¹²⁴ The letter from the Chancellor of the Exchequer to the Governors of the Bank was indeed modelled on the letter sent in 1847. Andréades, 343–52.

¹²⁵ Andréades, 359.

were related, even though the Bank also in this instance sought its own interests as a private company.¹²⁶

But there was also a more subtle, less overtly political, aspect to this consolidation of the Bank of England as a central node in the money network, one directly related to the notes it issued. Already during the restriction period, country bankers preferred Bank of England notes to gold as reserve media. That is, rather than keeping gold in coffers as guarantee for their own notes, they kept Bank of England notes. In 1811, an author writing under the pseudonym ‘Timothy Tickle’ described this as established practice. ‘It is supposed, the Bank of England has as great an amount in circulation, as the whole of the Country Bankers together; for the latter always keep a quantity of Bank of England Notes, to pay their own with, when presented for payment.’¹²⁷ Similarly, an anonymous ‘Old Country Gentleman’ stated in 1818 that having the Bank’s paper notes in country bank coffers was in fact preferable to gold: ‘[t]he people of this country do not wish for gold in circulation. They are accustomed to paper currency and they prefer it.’

A short time ago guineas and sovereigns were to be had for asking at every banker’s; but nobody, that is, no British subject, was willing to take them. Paper is more portable and more convenient, and while there is confidence in that paper it is by far the most eligible circulating medium.¹²⁸

¹²⁶There is some debate over how the term ‘central bank’ should be understood here. One could argue that in twentieth-century terms the practice of ‘central banking’ involves more than crisis intervention, and rather targets crisis prevention through, for example, manipulating the Bank rate. Historian R.S. Sayers argues that even though the Bank increasingly did this in the latter half of the nineteenth century, its own rationale for doing so was merely to protect or increase its own gold reserves, and involved no concern for employment, speculation, the balance of trade and payments, the money supply, the state of credit, or price levels. Thus, he argues, the Bank did not act as a central bank in the twentieth-century meaning of the term before 1914. Still, the Bank of England certainly came to act as a lender of last resort in the various crises following 1844, in the sense that it stepped outside of its normal day-to-day operations in order to intervene and address the crises directly. R.S. Sayers, *The Bank of England, 1891–1944*, vol. 1, Cambridge Paperback Library (Cambridge: Cambridge University Press, 1976), 1–3, 9.R.S.

¹²⁷Timothy Tickle, *Letters to a Friend, Explanative of Accommodation Paper, and the Business of Country Bankers; with a Proposition for a New National Bank, by Which One Million Would Be Annually Saved, Country Banks Abolished, and Accommodation Paper Be Rendered Less Necessary* (London: J. Briscoe Jr., 1811), 21.

¹²⁸Anon., *Commercial Economy: Or, the Evils of a Metallic Currency. By an Old Country Gentleman* (London: John Hatchard, 1818), 8–9.

In this way, the Bank slowly but surely gained control over the reserves of other banks across England. ‘The notes of country bankers in England have a circulation only within a certain distance of the place in which they are issued’,¹²⁹ wrote one commentator in 1823. By contrast, ‘the notes of the Bank of England are received in every part of England [even if] the circulation of its notes is principally confined to London and its immediate neighborhood’. He went on to argue that the Bank would only benefit from the establishment of local banks even in the London area: this would only ensure that its notes would be plentiful both in circulation and in other banks’ coffers, where they already functioned as a ‘fund to answer demands in gold and silver’.¹³⁰ Local bankers no longer needed worry about the convertibility of their own notes, since their security now lay in the full convertibility of the Bank of England notes stored in their coffers.¹³¹

What secured the Bank of England’s dominant position in the domestic money network, then, was not its relative financial strength compared to other banks. Rather, ‘[t]he source of [this] power [...] was the Bank’s control over [other] banks’ redemption media’, that is, the fact that other banks used Bank of England notes as security and that these notes were backed by the state’s punitive system.¹³² The gradual concentration of issuing authority with the Bank of England increasingly pushed country banks away from the note issuing that had earlier been central to their local and largely informal credit arrangements with local industrial entrepreneurs. Instead, joint-stock banks—which were regional rather than local, and operated on deposit banking rather than note issuing—received more privileges, and gradually incorporated the old country banks. As country banks became part of joint-stock banks with headquarters in London, thereby losing their footing in the geographical area where they operated, they also lost their right to issue their own notes for local use, generally turning to deposit transfers as a means to provide liquidity in the provinces.¹³³ The number of bank amalgamations increased dramatically

¹²⁹ Anon., *The Principles Which Govern the Value of Paper Currency: With Reference to Banking Establishments, as Stated in the New Edinburgh Review for January 1823: With Some Observations on Joint Stock Companies* (Edinburgh: Waugh and Innes, 1823), 6.

¹³⁰ Anon., 9.

¹³¹ Black, ‘Money, Information and Space: Banking in Early-Nineteenth-Century England and Wales’.

¹³² Dowd, *Laissez-Faire Banking*, 243.

¹³³ Knafo, ‘The Gold Standard’, 89.

towards the end of the century—114 took place only between 1891 and 1902.¹³⁴ By 1900, provincial country banknotes constituted a mere 7% of the complete banknote circulation.¹³⁵ Thus, while remaining a private institution—towards the end of the century even taking up direct competition with regional banks for private provincial customers through its branches¹³⁶—from mid-nineteenth century, the Bank of England slowly but surely replaced the Royal Mint as the central governmental institution of monetary affairs. Real money—now also the paper kind—became the prerogative of the centralized nation state and its privileged central bank.

A COMBINATION OF THE ARTS

Ultimately, integrating the national economy through the circulation of Bank of England notes was a technological achievement. Pitt's Restriction Act of 1797 and its prohibition of payments in gold had led to a drastic increase in the overall demand for banknotes, putting a corresponding pressure on bank printing offices. In the Bank of England's case, three journeymen at the printing offices of James Cole had been printing about 2000 notes per day before the act. The new demand created unprecedented needs for space and equipment, and in 1800 Cole's offices were moved to the Bank's facilities. Eighteen presses now printed more than 15,000 notes per day, counting only the new £1 and £2 notes—a number which more than doubled in the following five years.¹³⁷ Between 1809 and 1810, the amount of Bank of England notes outstanding increased from 17 million to more than 20 million.¹³⁸ One estimate suggests that by 1810, banknotes (including those printed by country banks) represented near 60 per cent of the entire English money supply.¹³⁹ Their circulation was becoming vital to the national economy, and their vulnerability to counterfeit a correspondingly increasing concern.

¹³⁴ François Crouzet, *The Victorian Economy*, trans. Anthony Forster (London: Methuen & Co. Ltd, 1982), 331.

¹³⁵ Ziegler, *Central Bank, Peripheral Industry*, 38.

¹³⁶ Ziegler, 129.

¹³⁷ MacKenzie, *The Bank of England Note*, 40–46.

¹³⁸ Some of this was lent to the government. See Feaveryear, *The Pound Sterling*, 193–201.

¹³⁹ By contrast, French (following the failure of the *assignat*) and German money stocks were constituted almost entirely by metallic money well into the nineteenth century. See Knafo, 'The State and the Rise of Speculative Finance in England'.

The traditional copperplate printing method soon proved inadequate to meet the several hundred per cent increase in demand for small denomination notes of uniform appearance. Copperplates quickly wore out and had to be replaced after only a few hundred prints (many would already have been used for printing higher denomination notes), and paper moulds needed high maintenance due to hard use. Engravers had to be hired to reproduce new copies of the original design, which obviously required a lot of time and made the reproductions only as uniform as their respective handiwork could be.¹⁴⁰ The consequent lack of standardization further encouraged the already-widespread counterfeiting. ‘There never was any thing invented, which afforded so great a field to swindlers, as Paper Credit’, declared one writer in 1811.¹⁴¹ The notes’ design was relatively simple, and so any of the country’s thousands of copper engravers might imitate the machine engravings without too much trouble.

The restriction period between 1797 and 1821 saw a rising concern with securing the credibility of notes in all domestic trade. Lack of technological sophistication made it difficult for ordinary people—especially poor and illiterate, who were now using notes for the first time—to distinguish between authentic and counterfeit notes. Indeed, most of the over 300 individuals who between 1797 and 1817 were transported to penal colonies for passing forged notes (or, until 1832, sentenced to death for forging them) belonged to the poorer classes.¹⁴²

Because of the many executions and deportations, making the notes more difficult to counterfeit was seen as partly a humanitarian and philanthropic endeavour of high public interest. At the Bank of England, printers Applegath and Cowper (who would later be serving with more success in the printing offices of *The Times*) spent several years attempting to make the Bank’s note inimitable, but to no avail. The Bank even welcomed suggestions from the public on whatever would render its notes more difficult to counterfeit. When the 24-year long restriction on cash payments was lifted in 1821, a pile of 400 rejected suggestions lay in the dustbin, and the sole material result of all the attempts to improve the situation was a watermark that had been added in 1801.¹⁴³

¹⁴⁰ MacKenzie, *The Bank of England Note*, 40–56.

¹⁴¹ Tickle, *Letters to a Friend*, 8.

¹⁴² Helleiner, *The Making of National Money*, 56.

¹⁴³ MacKenzie, *The Bank of England Note*, 49, 78.

In 1819, the Society of Arts issued a report suggesting that the solution to the problem of inimitability, and by extension the widespread forgery problem, lay in multiplying the skilled processes involved in note production. Earlier that year, Jacob Perkins and Gideon Fairman had applied for a patent on a complex stereographic process that would allow the production of duplicated steel printing plates from imprints of other printing plates. The members of the Royal Committee—many of whom were employees of the Royal Mint—lauded the combination of a wide spectre of techniques such as etching, machine drawing, and handiwork on a single plate which could then be duplicated. By putting two months' work by 25 artists into the production of the original plate, they said, one could 'concentrate the labour of *more than four years*', which the committee felt would be enough to discourage most would-be counterfeiters.¹⁴⁴ Using heavy and expensive machinery, employing expert engravers and engineers, or even skilled artists, would make note forgery that much harder for the individual forger.¹⁴⁵

This 'principle of a combination of the arts' became the dominant paradigm in the subsequent development of an inimitable Bank of England note.¹⁴⁶ Over the following three decades, the Bank proactively connected itself to a range of inventors, engineers, and skilled artists. The authenticity of the notes would soon be guaranteed by a unique combination of industrial techniques and skilled artistry both mechanical and manual, which no unauthorized person would be able to replicate.

In 1832, a delegation from the Bank of England visited the Bank of Ireland to inspect the printing methods of John Oldham, who during his time as chief engraver there had made several improvements to their printed notes. Oldham was invited to join the staff of the Bank of England, and was appointed 'Mechanical Engineer and Principal of the Engraving, Plate Printing, Numbering, and Dating Office' in 1836.¹⁴⁷ His automatic dating and numbering machine made counter-signing by hand redundant (together with 84 employees), and secured an even higher degree of uniformity in the printed notes' appearance. When John Oldham passed away in 1840, his position at the Bank was taken up by his son Thomas.

¹⁴⁴ Quoted in Frances Robertson, 'The Aesthetics of Authenticity: Printed Banknotes as Industrial Currency', *Technology and Culture* 46, no. 1 (2005): 36. Emphasis in original.

¹⁴⁵ Robertson, 66.

¹⁴⁶ Robertson, 92.

¹⁴⁷ MacKenzie, *The Bank of England Note*, 87–90.

Ambitious to carry on his father's work, Thomas suggested printing the cashiers' signatures instead of signing each note by hand, a change that was finally authorized in 1853 by an act of Parliament,¹⁴⁸ two years after his death.

Yet looking back in an 1850 report on the possibilities for further improvement of the notes, Thomas Oldham was convinced that technology, however useful, would not be sufficient. He expressed disappointment with the Royal Commission's prolonged patience with the printers Applegath and Cowper, who had failed to create inimitable notes despite expensive machinery and several years of effort. The Commission had been 'quite captivated' by the two printers' machines and industrial drawing techniques and so wrongly assumed, he argued, that mere technological execution would secure notes against forgery. 'The Royal Commission contained a majority of scientific men, and, as might be expected, they applied themselves to the subtleties of art, rather than its beauties.'¹⁴⁹ The principle of a combination of the arts required rather the inclusion of more professional artists, and to constantly renew the note design to keep it up to speed with the very latest and most refined aesthetic achievements of the age. In 1851, the Bank requested painter Daniel Maclise to design the new Britannia vignette for a proposed new series of notes. The design he made was pre-Raphaelite in style and as such (somewhat ironically) 'up to date' with the latest artistic developments, as Oldham had proposed.

Soon after this, however, Thomas Oldham passed away and was eventually replaced by former surgeon Alfred Smee, who did not share the former's reservations about technological innovation as the ultimate solution to the forgery problem. Smee initiated and oversaw a number of technological improvements to the notes. The old watermark, for instance, had not been of satisfactory quality. Even contemporary commentators had noticed. 'Imitative skills are great now-a-days', warned Joseph Lockwood in his open letter to the Chancellor of the Exchequer in 1848, '[and] their [the Bank's] most perfect notes are imperfect'.

If you examine a few Bank of England Notes with care and attention, you will soon perceive that even those which are supposed to be of one kind,

¹⁴⁸ A Parliamentary act authorizing the printing of signatures on bank notes had indeed been passed in 1820, but this seems to have been overlooked. MacKenzie, 106.

¹⁴⁹ Thomas Oldham, *A Report on the Improvement of Bank Notes; with a Plan for Facilitating Their Production and Economising Their Expense* (London? s.n., 1850), 14.

differ, very materially, if you hold them to a ray of light, magnify them with a glass, and slightly moisten them, you will see that the lines of the water marks are not all the same.¹⁵⁰

In 1851, the Bank signed a deal with the firm of their former paper mould maker William Brewer, giving the Bank exclusive rights to use his new watermarking machine, which went a long way in solving this problem. The same year, Smee himself introduced the idea of printing the notes from electrotype plates, which would allow perfect replications of a single original plate.¹⁵¹ In this way, one single engraving could serve as basis for new prints ‘almost *ad infinitum*’, since the original did not have to be reused in the process.¹⁵²

Smee’s new Bank of England notes were introduced on 1 January 1855. They were produced through a combination of several technologies, techniques, and processes. A copy of Maclise’s original Britannia vignette and the other elements of the note were engraved on steel—an immensely demanding job—by two of the Bank’s veteran engravers, J.H. Robinson and John Thompson. After engraving a copy of the new vignette, they made another relief copy of the copy, which was then cut in copper by a John Skirving, who had lifelong experience as a typesetter’s punch-cutter. This second copy was placed in a locked safe (a so-called Smee cell) in which the process of electrodeposition could take place undisturbed overnight. The result of this process was yet another copy made of thin copper shells. These shells were made more solid by applying molten solder, planed down to the correct height after solidification, and screwed onto a brass block.¹⁵³ The actual printing was performed on a platen press—a development of the traditional hand press (in contrast to the new cylinder presses used in newspaper printing) produced by the firm D. Napier & Son. Surface printing presses of this type had a weakness in

¹⁵⁰ Joseph Lockwood, *On the Forgery of Bank of England Notes, Official Stamps, and Other Public Documents; Being a Letter to Enlighten the Chancellor of the Exchequer* (London: Edwin Dipple, 1848), 4, 15.

¹⁵¹ MacKenzie, *The Bank of England Note*, 97–100.

¹⁵² Granville Sharp, *The Gilbert Prize Essay on the Adaption of Recent Discoveries and Innovations in Science and Art to the Purposes of Practical Banking* (London: Groombridge and Sons, 1854), 251.

¹⁵³ The combined height of the copy and the brass block would be the ‘uniform height of type’, which in Great Britain is 0.9185 of an inch. MacKenzie, *The Bank of England Note*, 100.

that too high pressure might cause the ink to ‘sink into’ the paper. In order to avoid this, six different sheets were cut to match respective parts of the note, and reassembled to provide a ‘backing’ as the note was printed, distributing the pressure equally to every point of the paper surface.¹⁵⁴

The ink itself was specifically made for the purpose of making forgery difficult. Until 1854, it had been composed of vines and charred husks of Rhenish grapes, ‘mixed at the Bank with pure linseed oil, carefully prepared by boiling and burning’, resulting in a ‘vinous refuse afford[ing] a characteristic velvety black’.¹⁵⁵ However, the production of ink for the new note was entrusted to the printing ink manufacturers at Winstone & Sons Ltd., since ‘it required somewhat careful treatment for the peculiar arrangement of the blacks and lights in the note’, as Smee explained. This process was no less intricate.

The black colouring material is made by burning coal-tar naphta, and collecting the smoke in large rooms. This smoke or lamp-black is placed in a retort, and heated to a high temperature, to drive off all volatile matters, when the ink becomes consolidated and improved in colour. This is subsequently ground with a suitable varnish to proper consistence to rest firmly on the delicate lines of the Britannia.¹⁵⁶

Although Smee’s innovative printing methods received some criticism (mainly from former banknote engravers and printers his machines had put out of work), the note remained, apart from a few occasional improvements, in principle unchanged until the First World War.¹⁵⁷ A late-nineteenth-century Bank of England note was the combined result of contemporary art, highly skilled hand engraving techniques, and machine-drawn patterns, transmitted onto no less than nine different electrotype plates, each containing specific parts or levels of the final imprint and each

¹⁵⁴ MacKenzie, 99–105.

¹⁵⁵ Sharp, *The Gilbert Prize Essay*, 252.

¹⁵⁶ Alfred Smee F.R.S., ‘On the New Bank of England Note, and the Substitution of Surface-Printing from Electrotypes for Copper-Plate Printing, by Alfred Smee, F.R.S., Surgeon to the Bank of England’, in *Memoir of the Late Alfred Smee, F.R.S. by His Daughter, with a Selection from His Miscellaneous Writings* (London: George Bell and Sons, 1878), 309.

¹⁵⁷ In 1880, a new printing machine constructed by R.W. Munro was substituted for Napier’s platen press. This machine printed both the main design of the note and the number and dates in a single operation, producing 3000 notes per hour. Derrick Byatt, *Promises to Pay: The First Three Hundred Years of Bank of England Notes* (London: Spink, 1994), 106.

of which could be changed at need without perceivable alteration in the finished note, and finally printed with the Bank of England's exclusive ink.¹⁵⁸ In addition came the automatic enumeration and dating which was added to each individual note. There was no way individual copperplate printers could repeat the construction of such a complexly assembled entity. Following the new note's introduction, Bank of England note forging practically disappeared overnight.¹⁵⁹

AS GOOD AS GOLD

With the 'combination of the arts' and Smee's innovative technologies, the value of Bank of England notes was now guaranteed not only through the state's prerogative to tax or punish but also—even primarily—through its technological superiority. As Frances Robertson has argued, the visual rhetoric of technical illustrations on nineteenth-century banknotes participated in a wide cultural celebration of machines' capability to transcend the productive limitations of mere human hands.¹⁶⁰ The extensive network implicated in its manufacture effectively evacuated the Bank of England note from the realm of worldly change; the immutability characteristic of the gold standard had successfully been imparted to humble pieces of paper.

But this 'transcending' of the human realm was not an effect solely of the notes' visual appearance; the 1855 Bank of England note was not merely a text to be decoded.¹⁶¹ A crucial difference between Thomas Oldham's call for more intricate and beautiful artwork and Alfred's Smee's more technological approach was the latter's insistence that a banknote was a material object designed and manufactured for hands-on use. As such, tactile characteristics were equally important in guaranteeing its authenticity and value. The note's very status as trustworthy immutable mobile was established and affirmed through all the senses.¹⁶²

For instance, Smee himself highlighted the characteristic quality of the paper as one of the note's particular advantages. 'To ensure as far as

¹⁵⁸ MacKenzie, *The Bank of England Note*, 99–101.

¹⁵⁹ This evident efficiency led several other national banks to emulate to the Bank of England's technique. Helleiner, *The Making of National Money*, 59.

¹⁶⁰ Robertson, 'Aesthetics of Authenticity', 35.

¹⁶¹ Mary Poovey, *Genres of the Credit Economy: Mediating Value in Eighteenth- and Nineteenth-Century Britain* (London: University of Chicago Press, 2008).

¹⁶² Robertson, 'Aesthetics of Authenticity', 38.

possible identity even in the paper, [machinery has been employed] in which all the improvements and adaptations heretofore adopted by machine paper are brought into operation for the Bank of England note.’ Indeed some of Smee’s critics, among them printer Henry Bradbury, worried that the public’s trust in banknotes was invested solely in the paper’s, ‘peculiar colour ... its thinness and transparency ... its feel, crisp and tough, patent to the sense of touch alone’.¹⁶³ For Smee, however, this was not a weakness but a strength.

In a prize-winning essay on technological innovations and practical banking, Granville Sharp quoted an article from *Household Words* declaring that ‘[t]here is nothing like [the Bank of England note] in the world of sheets’.¹⁶⁴ The colour, thinness, strength, watermark, and peculiar feel of its paper afforded the new note both ready recognition *and* inimitability, he argued.¹⁶⁵ Similarly, in an informative pamphlet on the new Bank note of 1855, W.H. Smith (of book-selling fame) made a point of how notes were not meant for the literate population only. His pamphlet included a paper sample, and suggested putting this in one’s mouth to ascertain its authenticity: ‘[a] very simple and ready method of testing the Watermark in a Note, is by pressing either side of it against the Tongue, or damping it; if genuine, the Watermarking will appear brighter than it formerly was; if put in by pressure, rolled, or stamped, it will disappear’.¹⁶⁶ The watermark’s palpability was a mark of the note’s high quality. Smith described how the new note was distinguished by how the thickness of the paper itself followed the visual patterns of the watermark.

In the Genuine Note, the Watermark, is clear and distinct, and of different gradations, and brightest in the thinner portions of the paper: in a counterfeit it is generally all of one colour.... In the New Note, the paper is considerably thicker in the dark shadows of the centre letters and the figures at the ends. The shadows will be seen by holding the Note up to the light; when down, the shadows, also the centre and ends, look *Whiter* than the other parts of the paper, by reason of there being a greater *Body of pulp*, rendering

¹⁶³ Henry M.R.I Bradbury, *On the Security and Manufacture of Bank Notes* (London: Bradbury and Evans, 1856), 11–12.

¹⁶⁴ Sharp, *The Gilbert Prize Essay*, 247.

¹⁶⁵ The essay question of the competition was, ‘In what ways can any of the articles collected at the Great Exhibition of 1851 be rendered serviceable in the interests of practical banking?’ Sharp, *The Gilbert Prize Essay*, 245–46.

¹⁶⁶ W.H. Smith, *How to Detect Forged Bank Notes* (London: Royal Exchange, 1855), 13.

them thicker and consequently more opaque, thereby causing it to appear as a dark graduated shadow; if this was a pressed forgery, the paper would be of one uniform thickness.¹⁶⁷

Later in the century, the printing process, the ‘peculiar make’ of the paper, together with the ‘ingenious construction’ of the printing machinery would come to be considered a sight ‘well worth seeing’ for tourists visiting London.¹⁶⁸ A high number of visiting spectators would—despite a forgotten or ignored 1820 prohibition—be admitted into the Bank’s Printing Offices so they could admire the making of the money of civilization first-hand. The tour must have been exciting in more than one respect; a sign was fastened to the machines requesting the visitors specifically ‘not to touch the Notes’.¹⁶⁹

Having once been lifted into a realm transcending worldly changes, there was literally no returning a Bank of England to the world from whence it came. Its complex construction implied such a substantial change that once completed, a note could no longer be dissembled into its former composites. ‘When the note returns to the Bank, after inspection, it dies, never to be resuscitated’, Smee explained in a lecture on the notes’ production and circulation. ‘The signature is torn off, the denominations are punched out, and it becomes a piece of waste paper ... [I]t is then deposited in the vaults for [public] reference for ten years, when it is burnt.’¹⁷⁰

Experiments have been tried to reduce them again to pulp [from which new paper commodities could be made], but they have never succeeded, and no plan answers so well as their destruction by fire. A large iron cage is built in the middle of the yard, including a light brick furnace pierced with holes. In this cage the notes are placed and burnt by sackfuls at the time, and nothing is left but a little white ash.¹⁷¹

Smee made sure to point out how from a ‘philosophical point of view’ the absolute uniformity of the new notes was of course only apparent;

¹⁶⁷ Smith, 13. Emphasis in original.

¹⁶⁸ Anon., *London and Its Environs: A Practical Guide to the Metropolis and Its Vicinity* (Edinburgh: Adam & Charles Black, 1862), 139.

¹⁶⁹ MacKenzie, *The Bank of England Note*, 125.

¹⁷⁰ Smee, ‘On the New Bank of England Note’, 315–16.

¹⁷¹ Smee, 316.

strictly speaking, perfect inimitability was impossible. ‘To attempt to construct an unforgeable or inimitable note would be a mere delusion and snare.’¹⁷² He nevertheless believed that historical progress would eventually achieve precisely such perfection. ‘We are all apt to think that art will stop at our point, and not progress, but it is the property of invention ever to move forward. The point at which we have arrived must be the step from which future improvements must spring, and proceeding step by step, the highest possible excellence will doubtless eventually be secured.’¹⁷³

Until this future arrived, the new Bank of England notes were, for the general public and, for all practical purposes, *as if* removed from the realm of change. They moved in a time independent of motion. For Smee, this combination of immutability and mobility was crucial to the public gradually accepting that circulating notes embodied an absolute standard of value. He underlined, for instance, the importance of preserving in the notes the same tone of colour. A certain ‘constancy of appearance is of paramount importance’, he stated, ‘and in this particular the new ... note stands pre-eminent’.¹⁷⁴ Only in this way could the public ‘be familiarized with *a constant standard*, [so that] a uniform appearance [could] be marked in their mind’.¹⁷⁵

The new printing process evacuated the original design and the finished notes equally from the deteriorating effects of the world. The electro-metallurgic duplication process left the originals untouched (as we have seen, only engraved copies were used in actual printing), and hence, he said, the originals would ‘retain their integrity for any length of time without change’.¹⁷⁶ The printed Britannia vignette remained ‘line for line invariably the same. The same expression of face is constantly maintained ... Not the slightest variation within certain limits ... exists’.¹⁷⁷ The notes’ evacuation from the realm of change secured their authenticity and the public’s trust. As he summarized:

Day after day, and year after year, the character of the paper will not vary. The same signature of “Mr. Marshall” which appears in the paper of one note will be repeated in the next. The same wave lines, the same rough

¹⁷² Smee, 312. Smee, “On the New Bank of England Note,” 312.

¹⁷³ Smee, 313.

¹⁷⁴ Smee, 311.

¹⁷⁵ Smee, 311. Emphasis mine.

¹⁷⁶ Smee, 301.

¹⁷⁷ Smee, 311.

edges on three sides, the same shadows in the water-mark will be brought continually before the sight. The Britannia will have the same expression of countenance, and will be repeated line for line, and dot for dot, for millions of impressions unchanged and apparently unchangeable. The very weight of the paper does not vary above two or three grains, unless damaged by wear, and the colour of the ink will be maintained as far as possible. As the stone is worn by water constantly dropping, so will the mind be impressed with one uniform appearance.¹⁷⁸

Multiplying the nodes in a production network involving both human artistic expertise and complex machinery successfully imparted to the 1855 Bank of England note the characteristic properties of the abstract gold standard. Transcending the realm of human hands, and practically inimitable, Bank of England notes were as immutable, uniform, and portable as any gold coin. The effect was that to their users—their bodily senses as well as their minds—these paper notes were removed from the realm of change to move in a time independent of motion. The notes were now as good as gold, and could serve and circulate as ‘real’ money—the absolute measure of all commodities—while securing the popular trust necessary to vitalize an expanding national economy.

CONCLUSION

Knight’s 1866 encyclopedia had celebrated the ability of gold to remain unchanged over centuries. But it did have a few reservations. In order to ‘resist friction, to a very large extent, for a great length of time’, it said, gold must be ‘properly treated’, for example by alloying it to other metals, such as copper. Gold was fit to be an abstract universal standard because it was inherently immutable; and yet, its immutability had to be carefully constructed through alloys and combinations with other substances. In its pure form, apart from such processes, even gold was unfit to embody the gold standard.

Inventor Sir William Congreve put it bluntly: ‘[t]here is, in fact, no such thing as a constant value to be found in any single commodity or

¹⁷⁸ Smee, 312.

tangible shape, be it gold, or silver, or any thing else: such a thing exists not in society, in any palpable¹⁷⁹ form.¹⁸⁰

John Rooke, a Cumberland landowner writing extensively on issues of political economy, concurred. '[T]o make the precious metals, or any other precious commodity, the standard of real value is quite absurd', he stated.¹⁸¹ '[N]o fixed metallic standard can be invariable in value where the precious metals are circulated.'¹⁸² '[N]o one will deny', wrote banker James W. Bosanquet in 1842, 'that gold itself, like linen or cotton, is liable from time to time to variation in value, according to the demand for it in the market'.¹⁸³ In a passage that revealed his well-known personal interest in geology, Rooke went on to discuss how gold was inexorably immersed in the qualitative changes of the world, and hence not at all a fixed standard.

Heat and cold, the want of moisture and its excess, storms, the various tribes of insects and the diseases of plants, are ever causing the annual produce of the earth to vary. These, added to the speculations of merchants, the rise and fall of credit, the constant variations that take place in the quantity of money, and the influence of fashion, with other moral and intellectual causes, produce a continual fluctuation in the market prices of commodities in general ... Population is always multiplying or diminishing—the industry, the skill, and the artificial facilities of labour are ever varying; and cultivation is uniformly causing the earth to become more or less productive, according to the system of agriculture pursued. The precious metals laid the original basis of our monetary system; but the depreciation of coined money, the variable productiveness of gold and silver mines, and their wear, loss, and application to purposes of use and ornament, render them, naturally, a variable standard of value.¹⁸⁴

¹⁷⁹ Knight, *Arts and Sciences*, 452.

¹⁸⁰ Congreve argued, somewhat before his time, that there was no ultimate need for any single standard of value of any kind, but that the value of a representative currency should be calculated by 'the average of all prices'. Congreve, *On the Impracticability of the Resumption of Cash Payments*, 37.

¹⁸¹ John Rooke, *Remarks on the Nature and Operation of Money, With a View to Elucidate the Effects of the Present Circulating Medium of Great Britain; Intended to Prove That the National Distresses Are Attributable to Our Money System, by Cumbriensis* (London: Baldwin, Cradock, and Joy, 1819), 75.

¹⁸² John Rooke, *A Supplement to the Remarks on the Nature and Operation of Money, &c. by Cumbriensis* (London: Baldwin, Cradock, and Joy, 1819), 97.

¹⁸³ James Whatman Bosanquet, *Metallic, Paper, and Credit Currency, and the Means for Regulating Their Quantity and Value* (London: Pelham Richardson, 1842), 12.

¹⁸⁴ Rooke, *Remarks on the Nature and Operation of Money*, 3–4.

For Rooke, the world was a chaotic system of unpredictable movements and relations, in which gold was fully implicated; its value was subject to ever-changing circumstances. Precious metals might be mentally evacuated from the realm of change in order to function as a universal standard; materially, however, they were as entangled in ‘a constant train of fluctuation’ as everything else.

A similar paradox was evident in the case of Bank of England notes. The problem was described by MP George Poulett Scrope in 1830. All exchange required some passing of time, he pointed out, and this inevitably implied substantial change (however small) in the commodities traded, including in the value of the money commodity. Because absolute simultaneity was impossible in actual economic transactions, banknotes would always be asynchronous with the universal standard they supposedly embodied.

All this [trading] is on the supposition that, during the process of exchanging commodities, no alteration in the value of the medium takes place. But this is never practically the case. Money is not made use of only as a measure of the relative value of goods at one and the same time. On the contrary, nearly all transactions regarding the exchange of commodities occupy more or less time. If then during the time that elapses between the evaluation of money of the one commodity and the other, or between the agreement of a money-contract and its fulfilment, any change takes place in the general value of money as compared to commodities at large, it is clear that in this instance money is a false and incorrect measure, and that the one party has to pay, and the other to receive, a larger or smaller exchangeable value than he [sic] bargained for; Thus an element of great uncertainty is introduced into all dealings; namely, variations of the exchangeable value of money itself, the assumed standard of value;—variations which is impossible for persons in business to foresee, owing to the complicated and remote nature of the causes that bring them about.

The value of Bank of England notes was not ultimately grounded in an abstract standard, he pointed out, but in a collective assumption. An unarticulated and practical collective agreement to accept and use Bank of England notes as sound money. Even when it was known that they were inconvertible. Even despite the knowledge that the promise to pay would be infinitely postponed, that the debt would in fact never be paid.

This chapter has described how this everyday popular confidence was the precise aim of a concerted effort to imbue Bank of England notes with

properties characteristic of the gold standard. Removed from the realm of worldly change, effected by a combination of the state's punitive system, parliamentary acts, artistic skills, and technological superiority, Bank of England notes became a key technology in the process of gradually integrating the national economy. This economy was secular in the sense that the networks mobilized to produce and circulate Bank of England notes as immutable mobiles, to the degree that this operation was successful, thereby also mediated secular time.

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Conclusion: A New Approach to Secularization

In the first chapter of this book, I picked up two ideas from Charles Taylor's *A Secular Age* and ran with them. The first idea was that analyses of secularization should be pitched on the level of unarticulated assumptions underpinning collective practices and technologies. This, I suggested, untethers the process of secularization from the question of people's conscious beliefs, articulated experiences, or preferred identity markers. The second idea was that secularity denotes a specific kind of time mediated on this level; in other words, that secularity is one kind of time that makes certain technological collective practices make sense. This untethers secularity from the concept of 'religion'. Contemporary historiographies of the secular are more or less stuck in a conceptual blind alley debating identity markers and religion's 'others'. In this book, I have tried to show that these two elements of Taylor's thesis, when pragmatically developed and combined with recent theoretical and historiographical turns, offer a possible way out.

Of course, many historians are interested in the development of 'religion', or concerned with affirming certain groups' self-identification as 'secular' in the 'nonreligious' sense. I expect some of them might find the idea of removing these questions entirely from histories of secularization a little controversial. Of course, the ways that people articulate their experience of having 'beliefs' and 'non-beliefs' or being 'religious' or 'nonreligious' are important simply because so many are socially and politically

affected by how these terms are applied and what they come to connote. Of course, there is much to be said for giving a voice to groups who have been overlooked or indeed actively silenced, whether past or present.

Nevertheless, I maintain that most current histories of secularity remain haunted by the problems associated with accepting people's word for what they do or do not believe and/or with the concept of 'religion'—a term notoriously hard to define and carrying a painful Christian colonial heritage—because their object of study remains defined according to a flawed schema. Even as some have sought to substitute the concepts of 'world-views' or 'existential cultures' for 'religion', retaining a focus on articulated non-/beliefs does not really constitute a genuine alternative, since these terms operate according to the same logic as the term they are meant to replace or envelope.¹

Defining secularity instead as a specific kind of time is to return to a more original understanding of the term, one that predates the comparatively recent and increasingly contested understanding of it as the absence or negation of 'religion'.² It allows us to move the study of secularity forward while avoiding the conceptual stalemates that continue to characterize the field. On this understanding of secularization, the religious/nonreligious distinction is no longer relevant. For instance, while I have told a story of how secular time was originally conceptualized in Christian scholastic angelology (which could at first sight be taken as advocating the concept's 'religious' pedigree), it should be clear from that story that secular time does not fit into a schema of a 'this-worldly'/'immanent'/'nonreligious' realm on the one hand and an 'other-worldly'/'transcendent'/'religious' realm on the other. The scholastics conceptualized a *saeculum* located in an unprecedented 'between' concepts of world and divinity. Secular time is a distinct kind of

¹Lois Lee, *Recognizing the Non-Religious: Reimagining the Secular* (Oxford, New York: Oxford University Press, 2015); T.J. Coleman III, R.W. Hood Jr., and H. Streib, 'An Introduction to Atheism, Agnosticism, and Nonreligious Worldviews', *Psychology of Religion and Spirituality* 10, no. 3 (2018): 203–206, <https://doi.org/10.1037/rel0000213>; Ann Taves, Egil Asprem, and Elliott Ihm, 'Psychology, Meaning Making, and the Study of Worldviews: Beyond Religion and Non-Religion', *Psychology of Religion and Spirituality* 10, no. 3 (2018): 207–217.

²Charles Taylor, *A Secular Age* (Cambridge, MA.; London: Belknap Press of Harvard University, 2007); Richard Fenn, *Time Exposure: The Personal Experience of Time in Secular Societies* (Oxford: Oxford University Press, 2001); Marcel Gauchet, *The Disenchantment of the World: A Political History of Religion* (Princeton: Princeton University Press, 1997).

time articulated as a response to specific conceptual problems related to created beings that move without changing. That is all. There is nothing ‘worldly’ or ‘divine’ about it.

I have presented three examples of networks emerging in England during the nineteenth century, none of which have formerly been considered particularly relevant to histories of secularization. These networks were all developed with a view to move certain entities in a way that made them impervious to change. Scholars (even Victorian ones) have associated public railway networks with modern temporal standardization and synchronization. I have tried to clarify how they were constructed and extended for the purpose of turning passengers into immutable mobiles, and how one effect of these efforts was the mediation of secular time. Modern newspapers do appear in some secularization histories, but these often either focus on middle-class reading habits (as a form of surrogate devotional ritual sundered from its ‘religious’ roots, again echoing Victorian commentators) or also tend to conflate several temporalities into a single one which is then declared modern and secular (and calendrical, and historical, and linear, and so on). Finally, ‘quasi-religious’ characteristics of money and financial markets have received some attention from scholars of religion or indeed theologians with an interest in modernity and the secular.³ But Bank of England notes and what I have described as an effort to invest these with the abstract properties of the gold standard have generally been overlooked.

Other networks could be analysed in the same way, networks whose associated practices included increasing strata of the population, and that centred on creating and maintaining immutable mobiles. Take, for instance, the emerging technologies and practices related to sports, which from the late eighteenth century turned from an emphasis on play and competition to focusing on the movement of ideal (male adult) human bodies measured in terms of time.⁴ In the latter half of the nineteenth century, sport and physical exercise were ‘promoted as cures for degeneration’ (as well as blamed for the same thing, if performed too violently).⁵ The construction of the ideal healthy human body which might move in

³ Philip Goodchild, *Capitalism and Religion: The Price of Piety* (London and New York: Routledge, 2002); Philip Goodchild, *Theology of Money* (London: SCM Press, 2007).

⁴ Dennis Brailsford, *Sport, Time and Society: British at Play* (London and New York: Routledge, 1991).

⁵ Vanessa Heggie, ‘Bodies, Sport and Science in the Nineteenth Century’, *Past & Present* 231, no. 1 (1 May 2016): 169–200, <https://doi.org/10.1093/pastj/gtw004>.

such a way as to not deteriorate—or, to put it differently, the preservation and alignment of ancient energies in contemporary bodies—required mobilizing a network of gymnasiums, exercise equipment, stopwatches, public school curriculums, dietary advice, scientific experiments, and sports associations.⁶

Or consider the realm of fashion—an often-neglected example Charles Taylor offers of a serially performed ‘space of... horizontal, simultaneous mutual presence [and] display’, carrying notions of secular time and involving a wide range of mundane technologies, not least clothes.⁷ By mid-century, even as ‘off-the-rack clothing at modest prices was becoming readily available, [...] the bulk of women’s and children’s clothing was still made at home’.⁸ The sewing machine, patented in the 1850s, was an important technology in this story, but even more crucial were paper patterns. From the 1860s, full-size pattern pieces cut from light tissue paper was distributed in periodicals or by mail order. This simple technological object, meticulously manufactured to be light, mobile, and durable, helped collapse the temporal distance between the exclusive world of Parisian fashion and the one inhabited by English middle-class at-home sewers. This enabled a near-simultaneous consumption and adoption of performative identity which served to minimize the temporal delay and social ‘trickle-down’ logic that had for centuries characterized the fashion domain.

Another candidate might have been the networks involved in the production and distribution of fresh food. Towards the end of the century, Britain established an unprecedented worldwide network for importing fresh food from its colonies.⁹ This came to depend on mechanical refrigeration, where specific entities—pieces of meat, for instance—were isolated from their environment, making it possible to move them from

⁶Henning Eichberg, ‘Stopwatch, Horizontal Bar, Gymnasium: The Technologizing of Sports in the 18th and Early 19th Centuries’, *Journal of the Philosophy of Sport* 9, no. 1 (1 October 1982): 43–59, <https://doi.org/10.1080/00948705.1982.9714386>; Liam Dyer and Dave Day, ‘The Industrial Middle Class and the Development of Sport and in a Railway Town’, *Sport in History* 37, no. 2 (3 April 2017): 164–182, <https://doi.org/10.1080/17460263.2017.1304982>.

⁷Taylor, *A Secular Age*, 481.

⁸Joy Spanabel Emery, *A History of the Paper Pattern Industry: The Home Dressmaking Fashion Revolution* (London: Bloomsbury Academic, 2014), 54.

⁹Chris Otter, ‘The British Nutrition Transition and Its Histories’, *History Compass* 10, no. 11 (2012): 812–825, <https://doi.org/10.1111/hic3.12001>.

British-owned feeding farms in places like Iowa or Illinois to London. Inside this sealed capsule, the passing of time had been halted, or at least nearly so; the deteriorating effects of the world had been temporarily neutralized, and for as long as the meat remained within its icy chamber—so was the implicit assumption—it remained as fresh as it was the moment the animal was slaughtered. This technological mediation allowed the consumer to be co-present with and share in the meat's moment of origin, which was in one sense what the mobile mechanical refrigerator was constructed to preserve.

Like the networks I have described in Chaps. 3, 4, and 5, these centred on creating and maintaining various immutable mobiles and, therefore, to the degree that they succeeded, mediated secular time. Histories of secularization in the sense I have been proposing could be written about any of these, and probably others.

So I am not pretending this book is in any way comprehensive with respect to which networks were more important, how many kinds of Victorian temporalities there were, or indeed the question of how to define the secular. I have drawn quite eclectically on philosophical perspectives medieval and 'postmodern' in order to rethink the development of certain nineteenth-century technologies and practices. Trying to combine into a coherent whole the complex historiographies of Victorian railways, news media, and monetary developments is admittedly ambitious. No doubt, in trying to highlight certain trajectories, I might at times have glossed over important details and glaring exceptions at the cost of a somewhat exaggerated teleology.

Still, I believe the approach, in addition to offering a new entrance point to the history of secularization, contributes to connecting Victorian England to the bigger picture of modernity and temporality. The juxtaposition of the three human-technological networks examined here suggests parallels that should be of interest to larger debates regarding Victorian modernity, in particular its definition and periodization. One striking point is simply this: that though their associated practices—train travelling, newspaper reading, and exchanging banknotes—became mass phenomena only towards the end of the century (or, in the case of notes, maybe only after the First World War), the emergence and consolidation of 'the nation', 'public opinion', and 'the economy' as technologized, temporally synchronized systems date to the three decades between 1830 and 1860. Though the book has avoided questions about the exact periodization of the 'Victorian period', this coincidence is nonetheless

remarkable and suggests that on this level the early Victorian period (contra the thrust of some revisionist literature) was in fact crucial.¹⁰ Indeed—and more speculatively still—it suggests that there is much value in historians (re)turning to more structural approaches and levels of analysis, rather than doubling down on questions of representation, discourse, or identity.

Focusing on the construction and maintenance of immutable mobiles allows a more detailed, less sweeping account of the developments often associated with the historical emergence of modern temporality. The standardization of time associated with public railways was directly connected to the desire to move passengers over long distances at high speeds, safely and without interruptions. The uniform grid of daily newspapers described by Benedict Anderson as manifesting the simultaneity underpinning modern imagined communities was an effect of specific technological adjustments needed to move newsworthy events without deterioration across the surface of the earth and onto the surface of paper sheets in the hands of readers on a daily frequency. The gradual acceptance of Bank of England notes as ‘real’ money was effected by an explicit combination of state monopolized technological sophistication and human artistic skill which imparted to flimsy paper slips properties long associated with gold. Even if they effected a sense of the universal, abstract, and global, these processes were specific, material, and local.

In turn, while highlighting Victorian innovations and developments, establishing a more precise definition of secular time and articulating its conceptual connection to immutable mobiles serves to highlight important continuities between the nineteenth and preceding centuries. So-called local time was *not* a state of nature violently overrun by the alienating temporality of industrial modernity, but in fact a precursory development of a concept which the railways only served to expand beyond city borders to a national and eventually international scale. The public sphere in which people were invited to participate and contribute to the current of ongoing social and political events likewise shifted to a larger scale as printing and telegraphic technologies made it possible to represent—indeed, ‘make present again’—events occurring beyond the geographical reach of a day’s journey by coach. And already at the end of

¹⁰Richard Price, *British Society 1680–1880* (Cambridge: Cambridge University Press, 1999); Martin Hewitt, ‘Why the Notion of Victorian Britain Does Make Sense’, *Victorian Studies* 48, no. 3 (2006): 395–438.

the eighteenth century the state monopoly on violence and complex technological innovation had served to drastically reduce the circulation of counterfeit metallic money, thereby beginning the integration of a national economy under an abstract gold standard long before Victorians achieved the same thing with more easily moveable Bank of England notes.

In these ways, and bypassing with deliberate indifference debates about ‘religion’ and its ‘others’, I have proposed in this book a new way of treating secularization as a topic of research in its own right, one that avoids the conceptually superficial conflicts associated with current histories of secularization, as well as the theoretical blind alleys of non-/religious studies.

Secularity is a distinct kind of time: an abstract and isochronic time independent of motion. It is conceptually connected to immutable mobiles, things moving far and rapidly without undergoing change. Socio-technological networks whose function is premised on moving certain entities without deterioration mediate secular time. When these networks expand in size and complexity, so that increasing numbers of people participate in their associated practices more frequently, we might call this process secularization. This process is implicit in the functioning of the expanding networks regardless of how the people taking part might describe themselves or their experiences. Finally, because immutable mobiles and secular time are two sides of the same conceptual coin, scholars seeking to trace the process of secularization in modernity can focus their attention on how specific networks construe and maintain immutable mobiles in order to function as intended.

A Victorian gentleman paying for his ticket before settling into a railway carriage to read a daily newspaper on his way home from work would be participating in several overlapping and interwoven networks mediating—among multiple other temporalities—secular time. His own micro-practices—trusting the clerk to accept his coins, remaining in his seat as instructed, and reading his paper quietly to himself—supported large assemblages of technologies and collective choreographies directed towards maintaining the immutability of specific mobile entities: the money, the news, and his body and mind. Whether this hypothetical traveller identified with a religious or nonreligious ‘worldview’ is irrelevant. The study of secularization is no more about people’s experiences or identification with various forms of belief or non-belief than it is about counting churchgoers or timing religious declines or resurgences. It is about the mediation of secular time in technological networks and their associated mundane practices.

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