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Seen Through Steam: Narratives of Victorian Steam Technology

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SEEN THROUGH STEAM

Narratives of Victorian Steam Technology

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"We all have choices about how we interact with technology and the choices we make not only reflect our values, but influence our values."[1]

– Sarah Chrisman (2016)

To Sir Arthur Conan Doyle, steam locomotives gave Watson a "swift and pleasant"[2] journey to Baskerville Hall. To Charles Dickens, the introduction of the Railway was like, "the first shock of a great earthquake had, just at that period, rent the whole neighbourhood to its centre."[3] These narratives come out of the Victorian era, but in no way mark the end of considerations regarding steam. Modern Steampunk enthusiasts describe steam-powered airships both as brutal weapons[4] and tools of adventurous exploration.[5] Steam technology to Victoriana enthusiasts like Sarah and Gabriel Chrisman is practically useful and aesthetically beautiful.[6] These narratives regarding Victorian (1837-1901) steam-technology are distinctly paradoxical and lead to the question addressed in this paper: did Victorian steam technology stand for optimistic progress or oppressive imperialism?

I argue that modern narratives of steam technology reflect the shifts in technological optimism and pessimism expressed by the Victorians themselves as the Victorian perception of the relationship between steam technology and suffering changed. Between 1837 and 1851, Victorian accounts (and modern narratives addressing this period) expressed social anxiety—the Chartist movement for more representative government, for example, drew attention to working

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[1] Chrisman, Sarah and Gabriel Chrisman, interview with Rachel Anderson, personal interview, Port Townshend, July 9, 2016.

[2] Doyle, Arthur Conan, *The Original Illustrated Sherlock Holmes: 37 Short Stories plus a Complete Novel, Comprising The Adventures of Sherlock Holmes, The Memoirs of Sherlock Holmes, The Return of Sherlock Holmes and The Hound of the Baskervilles*, "The Hound of the Baskervilles," (Secaucus, NJ: Castle Books, 1978): 373.

[3] Dickens, Charles, *Dombey and Son*, in *Victorian Literature: A Sourcebook*. ed. John Plunkett, Ana Parejo Vadillo, Regenia Gagnier, Angelique Richardson, Rick Rylance, and Paul Young, (Houndsmills: Palgrave Macmillan, 2012): 274-75.

[4] Moorcock, Micahel. "Benediction: Excerpt from *The Warlord of the Air*." In *Steampunk*. ed. Ann & Jeff VanderMeer, (San Francisco: Tachyon Publications, 2008): 13.

[5] Cook, Jeffrey and Sarah Symonds, *Dawn of Steam: First Light*, (Jeffrey Cook, 2014).

[6] Chrismans, interview, 7/9/16.

conditions, but technological optimism remained pervasive, as exemplified by the Great Exhibition of 1851, which showcased new and established technologies. In contrast, between 1852 and 1879, Victorian (and modern) narratives expressed strong technological pessimism. Industrial novels like Dickens' *Hard Times* and Gaskell's *North and South* drew attention the relationship between steam technology and suffering in Britain. For the period between 1880 and 1901, Victorian (and modern) narratives reflected renewed technological optimism as steam technology was no longer considered sensational or foreign and the suffering previously associated with it was displaced to parts of the British Empire like India.

To explore this narrative arc, I compiled and examined a range of representative primary sources in each narrative set and relevant secondary sources for context. For example, the Victorian writings of Ada Lovelace and Charles Babbage highlight the technological optimism early in Victoria's reign. The pivotal Steampunk novel, *The Difference Engine,* is used to exemplify how, even in modernity, the narrative regarding steam technology shifts to reflect more negative values associated with steam power after 1851. The narrative of steam technology in the late Victorian era has a more positive ring, echoed in the modern narratives of Victoriana enthusiasts Sarah and Gabriel Chrisman.

To describe these shifts, I first use commentaries from historians of technology to establish the relationship between technology in general—and steam technology specifically—and values. Next I summarize the history and context of steam technology before the Victorian era. The bulk of this paper is then dedicated to dissecting the narratives in each of the three sub-sections of the Victorian era (1837-1851, 1852-1879, and 1880-1901) and the modern narratives that echo Victorian sensibilities. I conclude by addressing the exceptions to this model and reflecting on technological optimism and pessimism in modernity.

I. Technology and Values

> "Technology is messy and complex."
> —Thomas Hughes, *Human-Built World* [7]

I will not, in this paper, attempt to define technology or steam technology in precise terms but rely instead on the reader's general understandings and assumptions, supplemented by the historical descriptions and context I provide. While some might be shocked to hear that the iPhone comes pre-programmed with societal values, the scholarly precedent for the value-laden nature of technology is vast, even dating to the 19th century itself. Robert Vaughan, for example, wrote in *The Age of Great Cities* (1843) that "modern industry and the new railways" could create an urban middle class that would act as "the moral leaders of society."[8] This view reflects a kind of technological optimism that modern scholars seek to complicate. In this paper, I address these complications using the commentaries of Harvard technology and society program director, Emmanuel Mesthene; historian of technology, Thomas Hughes; and science and religion scholar, Ian Barbour. Their writings address the relationship between technology and values in broad strokes and provide a foundation for examining the values associated with a specific technology during a specific time period. Addressing how values apply to Victorian steam technology specifically, I also use the works of scholars who focus on the Victorian Era including professor of science, technology, and medicine, Thomas Misa; scholar of Victorian studies, Herbert Sussman; and professor of British literature and culture, Tamara Ketabgian.

Mesthene, in particular, introduces three common misconceptions about technology and values: first, "that technology is an unalloyed blessing for man and society," second, "that

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[7] Hughes, Thomas P, *Human-Built World: How to think about technology and culture*, (Chicago: University of Chicago Press, 2004): 1.

[8] Perkin, Harold, "Introduction: An Age of Great Cities," in *Victorian Urban Settings: essays on the nineteenth-century city and its contexts,* ed. Debra Mancoff, (New York: Garland Publishing, 1996): 3. Quoting Robert Vaughan.

technology is an unmitigated curse," and third, "that technology as such is not worthy of special notice."[9] The idea that the study of technology and values is unimportant comes predominantly from the intersection—or lack thereof—between scholarly communities. To humanities scholars, there is not enough primary source material on technology to justify deep investigation. On the other hand, those who study science are not inclined to link technology and values. As Mesthene points out, the study of technology and values—critically and impartially—leads, "to more differentiated conclusions and reveal[s] more subtle relationships [between society, technology, and values]."[10] With this in mind, we avoid the myth that technology is not worthy of special notice. Regarding the other two myths, Victorians and modern enthusiasts are more inclined to couch technology in terms of 'unalloyed blessing' or 'unmitigated curse.' While Mesthene argues in favor of a more balanced view of technology and values, this paper addresses *why* these myths occur in narratives of Victorian technology in the first place.

Mesthene pinpoints the source of the relationship between technology and values succinctly with his statement that, "technology has a direct impact on values by virtue of its capacity for creating new opportunities."[11] With these new opportunities, societies can see positive shifts in economic and political organization along with the more negative, "problems of social and psychological displacement."[12] This can be seen in the Victorian era as the factory model of industry and the locomotive created radically new employment opportunities like 'mechanical engineer' or 'train conductor.' These new positions fostered the rise of technological optimism. However, the suffering of cotton workers in areas like Manchester also

[9] Mesthene, Emmanuel G, "Some General Implications of the Research of the Harvard University Program on Technology and Society," *Technology and Culture* 10, vol. 4 (1969): 489-90.
[10] Mesthene, "Some General Implications," 490.
[11] Mesthene, "Some General Implications," 499.
[12] Mesthene, "Some General Implications," 513.

facilitated a social and psychological displacement as workers succumbed to respiratory diseases caused by airborne fibers, and thus also promoted a kind of technological pessimism.

In contrast to Mesthene, Hughes takes a different approach to understanding the values associated with technology. He cites Lewis Mumford, saying, "technology is both a shaper of, and is shaped by, values."[13] With the knowledge that technology is associated with values, the question then becomes: which values? Hughes pinpoints a handful including, "order, system, and control,"[14] which arose as humanity used technology to create an, "Edenic recovery," or "promised land,"[15] out of what was seen as a chaotic natural world. With regard to Victorian technologies, he highlights how, "the coming of steam engines, steamboats, canals, and railroads in the early nineteenth century changed the ideological landscape from passive contemplation to active transformation."[16] This supports Hughes' claim that, "they [nineteenth century men] believed that the human mind was ordering chaotic nature, a wilderness, into a world of enlightened culture."[17] In his broader argument, Hughes empowers humanity to, "use technology to consciously and purposefully shape our ecotechnological world according to our wishes,"[18] by acknowledging the value-laden nature of technology. Although Victorians did not engage the understanding of steam technology in the same way Hughes encourages in modernity, they managed to set up their own system of shifting values that apply within Hughes' human-controlled framework.

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[13] Hughes, Thomas P, *American Genesis: A century of invention and technological enthusiasm, 1870-1970,* (Chicago: The University of Chicago Press, 1989): 5. Citing Casey Blake, "Lewis Mumford: Values over Technique," *Democracy* (Spring 1983): 125-37.
[14] Hughes, *American Genesis*, 5.
[15] Hughes, *Human-Built World*, 17, 27.
[16] Hughes, *Human-Built World*, 29
[17] Hughes, *Human-Built World*, 29-30.
[18] Hughes, *Human-Built World*, 154.

Drawing attention to complex and conflicting values, Barbour emphasizes how optimists see technology improving economic development and standards of living while pessimists mourn the loss of personal fulfillment and resource sustainability.[19] This kind of dual-edged narrative parallels many of the technological testimonies that came out of the Victorian era itself. When technology is described as "liberator," Barbour's rebuttal is that there are environmental costs which are symptomatic of an alienation from nature, which contribute to "the concentration of economic and political power," and cause a number of other problems,[20] of valid concern. When technology is described as "threat," Barbour's reply that, "there are great variations among technologies," and there exists the potential to redirect technologies to serve human values,[21] all ring equally true in Victorian contexts. For example, the coal-burning steam locomotives that caused so much air pollution also allowed remote or insular communities opportunities to travel and become more active in determining their own political destinies.

Mesthene, Barbour, and Hughes all seek to complicate the popular notion that technology can be classified as 'good' or 'bad.' They argue that a deeper understanding of technology and society can be developed if technology is seen as having both positive and negative qualities. The view these historians and philosophers of technology support is *complex*; Victorians and writers in modernity often prefer simpler narratives. For example, Dickens uses exaggerated characterizations of his contemporaries—like the quintessential miser, Ebenezer Scrooge—to engage readers and simplify *A Christmas Carol*. I cannot ask Dickens whether this was a conscious or unconscious choice, but in modernity, Steampunk enthusiasts are typically clear that they are "cultural cherry-pickers," consciously choosing to emphasize certain views of

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[19] Barbour, Ian, *Ethics in an age of Technology: the Gifford lectures 1989-1991 volume 2*, (Aberdeen, Scotland: Harper San Francisco, 1946): 23.
[20] Barbour, *Ethics in an age of Technology*, 8-9.
[21] Barbour, *Ethics in an age of Technology*, 14-15.

technology.[22] The fact that Victorian and modern narratives often simplify the depiction of steam technology to preset an optimistic or pessimistic view compels me to analyze their narratives in these simplistic terms despite Mesthene, Hughes, and Barbour's argument that modern technological examination should be complex.

While the scholars presented so far provide frameworks for understanding technology and values that apply to many eras, the perspective of historians of technology who address the *Victorian* era add necessary expertise. I use the writings of Thomas Misa, Herbert Sussman, and Tamara Ketabgian to address Victorian technology and values in more depth. Misa addresses steam technology in the context of the "industrial revolution" (1740-1851) and later British imperial expansion (1840-1914). The rapid industrial growth of urbanizing London, textile-producing Manchester, and steel-smelting Sheffield during the industrial revolution are the roots of Misa's argument that industry itself was a core value of these pre-and-early Victorians.[23] In modern contexts 'industry' as a value might have negative connotations, but to early Victorians, the narratives of 'industrialization' often reflected technological optimism. As Britain used technologies like improved steam-railways and the telegraph to colonize India, parts of China, and parts of Africa,[24] Victorians came to value social and economic expansion. This expansion was seen as positive because it resulted in increased prosperity in Britain. This paper intends to interject another element into Misa's narrative—the time when 'industry' took on a negative connotation in the 1850s-70s in Britain.

Taking a different perspective on the values associated with Victorian technology, Herbert Sussman highlights the praise given to Victorian inventors and innovators as they

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[22] Schopfer, Lindsay, interview with Rachel Anderson, personal interview, June 12, 2016.
[23] Misa, Thomas, J, *Leonardo to the Internet: Technology and Culture from the Renaissance to the Present*, (Baltimore: The Johns Hopkins University Press, 2011): 59-96.
[24] Misa, *Leonardo to the Internet*, 97-127.

pushed for efficiency, entrepreneurship, and expansion in Britain and beyond.[25] The overlap of technology into religious and political spheres influenced (and was influenced by) values like the Protestant work ethic and the importance of individual initiative, as well as the desire to encourage and protect financial investment.[26]

The optimism associated with these values certainly applied to portions of the narrative surrounding steam technology, yet this optimism was not consistent throughout the era. Tamara Ketabgian recounts how narratives regarding the treatment of Victorian "factory hands" reflected less-progressive technological values such as, "sterility, alienation, and dehumanization."[27] This rings especially true through the middle part of the nineteenth century as the industrial novel highlighted the relationship between steam technology and the abysmal quality of life many of Britain's working class members endured. These accounts from Misa, Sussman, and Ketabgian in modernity show in broad-strokes the interplay between Victorian values and Victorian technology.

Mesthene, Hughes, and Barbour elucidate the relationship between technology and values in general while Misa, Sussman, and Ketabgian delve deeper into Victorian technology and values in Victorian contexts. Together, these scholars provide the framework for addressing steam technology in more specificity both Victorian *and* modern values as they concern steam. In this paper, I use the terms 'technological optimism' and 'technological pessimism' to refer to positive values associated with steam technology (Mesthene's 'unalloyed blessing' myth) and negative values associated with steam technology (Mesthene's 'unmitigated curse' myth)

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[25] Sussman, Herbert, *Victorian Technology: Invention, Innovation, and the Rise of the Machine*, (Santa Barbara: ABC-CLIO, 2009): 3, 139.

[26] Sussman, *Victorian Technology*, 142.

[27] Ketabgian, Tamara, *The Lives of Machines: the industrial imaginary in Victorian literature and culture*. (University of Michigan, 2011):

respectively. Technological optimism, as defined in this paper, is the view that technology, in general, has the ability to improve quality of life. Note that this is not necessarily the view that technology *is* improving the quality of life, but that it *could*. Many critical Victorian voices can be considered technological optimists because they believed, like Ralph Waldo Emerson, "that mercenary impulses produced the selfish and cruel aspects of mills, railways, and machinery."[28] Emerson *sees* selfishness and cruelty in the world, but places the blame on societal influences, not on technology itself. In contrast, technological pessimism is the view that technology, in general, has made or is making quality of life worse. Both technological optimism and technological pessimism can be seen in narratives of Victorian technology. I argue that modern narratives of steam technology reflect the shifts in technological optimism and pessimism expressed by the Victorians themselves as the Victorian perception of the relationship between steam technology and suffering changed.

II. Pre-Victorian History of Steam: 1702-1800

"I have reflected so much upon your last Rotative Motion (or 5th method) that I could not refrain from making one this day instead of going to Church—"[29]
-- Matthew Boulton to James Watt (1781)

A cursory understanding of what steam technology *is* and how it came to be is important to dispelling many of the misconceptions regarding its associated Victorian values. Although the steam engine is remembered most prominently for its application to and transformation of transportation, the first large-scale iteration of the steam engine[30] was Thomas Savery's patented-in-1702-but-never-constructed invention called *The Miner's Friend*, which could be

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[28] Hughes, *Human-Built World*, citing Emerson, Ralph Waldo, *The Selected Writings of Ralph Waldo Emerson*, ed. Brooks Atkinson (New York: Modern Library, 1992): 37-38.
[29] *The Selected Papers of Boulton & Watt: Volume 1: The Engine Partnership 1775-1825,* ed. Jennifer Tann. (Cambridge: The MIT Press, 1981): 50.
[30] This paper will not delve in-depth into Hero of Alexandria's first century steam powered artifacts.

used to help clear water from mines below the water table.[31] Thomas Newcomen first successfully executed Savery's idea, creating the first Newcomen engine in 1712. With a single-cylinder pump moved solely by steam and atmospheric pressure, the Newcomen engine could indeed remove water from British mines by 1717, but only through a "laborious, time-consuming and fuel-hungry process."[32]

In the forty-seven years while the Newcomen engine pulled water from mines, John Kay invented the flying shuttle loom, Benjamin Huntsman improved the process for casting steel, and James Hargreaves invented the spinning jenny.[33] It was not until 1763, when Glasgow College's maintenance man, James Watt, was asked to repair Newcomen's clunky invention that the engine saw any improvement. Watt's revolutionary idea—the one that often earns him the "inventor of the steam engine" title—was to add a separate condenser to the process. This meant that all the energy wasted while the Newcomen engine cooled could be conserved and fed back into the system.[34] Although this sounds trivial, the technology was by no means easy to engineer.

In addition to technical challenges, obstacles like Watt's substantial debt, his poor health, and the quality of available materials slowed the development of the engine until mill-owner and entrepreneur, Matthew Boulton, entered the picture.[35] Together, Watt and Boulton set their sights on infiltrating the factory industry. This required two modifications to Watt's design. The first was changing the up-and-down piston motion helpful for pumping water from mines into a smooth, continuous circular motion better suited for factories. The second improvement was

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[31] Hunt, Bruce J, Ch. 1 "Steam and Work." In *Pursuing Power and Light: Technology and Physics from James Watt to Albert Einstein,* (Baltimore: The Johns Hopkins University Press, 2010): 5.
[32] Shectman, Jonathan, "Steam Engine," in *Groundbreaking Scientific Experiments, Inventions and Discoveries of the 18th Century*, (Westport: Greenwood Press, 2003): 232.
[33] Helleman and Bunch, *Timetables of Science*, 217.
[34] Marsden, Ben, *Watt's Perfect Engine: Steam and the Age of Invention*, (New York: Columbia University Press, 2002): 57.
[35] Marsden, *Watt's Perfect Engine*, 76.

Watt's invention of the steam governor in 1789, "a centrifugal device that control[led] the speed of a steam engine by a feedback mechanism."[36] This progression—from the Newcomen engine to Watt's stationary engine, from linear to rotary motion, and finally to the steam governor—set the stage for a flurry of commentary surrounding steam technology, much of which was taking place even before Queen Victoria took the throne in 1837.

III. A Period of Technological Optimism: 1800-1836

"We shall then be carried at the rate of 400 miles per day, with all the ease we now enjoy in a steam boat, but without the annoyance of sea-sickness, or the danger of being burned and drowned."[37] – 'The Scotsman' (1825)

The initial reception of steam technology in Britain was overwhelmingly positive. Sussman describes how the steam governor itself "is historically important as the exemplar of devices that can run consistently and efficiently by adjusting themselves to varying conditions without human intervention."[38] The idea that technology could function consistently, efficiently, and independently, combined with the never-before-seen *power* of the steam engine only perpetuated this technological optimism. Some Victorians even believed that, with the "limitless" power of steam, the engine "would one day carry them [all nineteenth century people] (condenser and all) to the moon."[39]

Businessmen and the upper classes were thrilled with the economic opportunities steam power presented, especially in textile production. Richard Arkwright's "water frame" spinning machine enabled his Manchester mill to employ 600 workers in 1786—an extraordinary number because spinning had previously been done small-scale by women, often alone, in their homes.[40]

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[36] Helleman and Bunch, *Timetables of Science*, 239.
[37] 'The Scotsman,' "The Coming Railway Age," in in *Industrialisation and Culture: 1830-1914*, ed. Christopher Harvie, Graham Martin, Aaron Scharf. (London: Macmillan, 1970): 82.
[38] Sussman, *Victorian Technology*, 12.
[39] Shectman, "The Steam Engine," 236.
[40] Misa, *Leonardo to the Internet*, 76.

After Watt's retirement in 1800, the rising inventor in Watt's firm—Richard Trevithick—developed a high pressure engine and launched the first steamboat in 1801, a "steam carriage" in Oxford in 1802, and the first steam locomotive in 1808. Almost simultaneously, Samuel Crompton was using Arkwright's water frame and Hargreaves' spinning jenny to develop the spinning mule which facilitated even greater textile production. By 1812, factories were employing over 1,000 workers.[41] The competition—both literally and figuratively, as the locomotive industry progressed—to construct faster, more powerful, and more efficient steam locomotives began, with George Stephenson and Timothy Hackworth at the head.[42]

Thomas Carlyle expressed the optimism associated with these technological developments even as he despaired through the rest of his writing in *The Mechanical Age* (1829) at the cultural loss of religion. He wrote,

> "What wonderful accessions have thus been made, and are still making, to the physical power of mankind; how much better fed, clothed, lodged and, in all outward respects, accommodated men now are or might be, by a given quantity of labour, is a grateful reflection which forces itself on every one. What changes, too, this addition of power is introducing to the Social System; how wealth has more and more increased and at the same time gathered itself more and more into masses, strangely altering the old relations, and increasing the distance between the rich and the poor, will be a question for Political Economists, and a much more complex and important one than any they have yet engaged with."[43]

Carlyle's statement was representative of many pre-Victorian views regarding steam technology. In general, pre-Victorians agreed that steam technology increased wealth, improved the standards of living, and was an incredibly powerful force, but required a shift in social norms and values. For all Carlyle's fretting about the loss of religion and the growing income inequality, he called on "Political Economists" to address the social problems and accepted that the industrial changes were inevitable.

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[41] Misa, *Leonardo to the Internet*, 76-77.
[42] Ross, David, *A History of the Steam Locomotive*, (Glouscestershire: Tempus Publishing Limited, 2004): 28.
[43] Carlyle, Thomas, "The Mechanical Age," in *Industrialisation and Culture*, 22.

There were, however, repercussions to this technological development as the Luddites rose to prominence. The most violent of the Luddite machine-breaking campaigns in factory towns like Nottinghamshire, Lancashire/Cheshire, and Yorkshire took place between 1811 and 1813, but the concept of Luddism persisted into the Victorian era and persists even to this day.[44] To explain the source of Luddism, Kirkpatrick Sale wrote, "at bottom the workers' grievance was not just about the machinery—it was *never* just the machinery throughout all these years— but what the machinery stood for: the palpable, daily evidence of their having to succumb to forces beyond their control."[45] This narrative was relatively weak compared to the larger sentiments of technological optimism that swept Britain during this same period. The defeat of Luddism meant that "economic conditions for labor in the Luddite areas did not improve after 1813, nor would they, except in short fits and starts, until well past the middle of the century."[46] The more profound impact of the Luddite's actions was fear, echoed in the Victorian era during the rise of Chartism, that Luddism would return.

This fear began to tarnish the pristine love of the steam engine, especially as boilers continued to explode and safety concerns continued to increase. Samuel Smiles' 1857 account of the Liverpool and Manchester Railway opening in 1830 described the death of Mr. Huskisson who, "unhappily, alighted from the carriage, and was landing on the opposite road, along which the 'Rocket' engine was observed rapidly coming up."[47] Mr. Huskisson's death cast a pall on the railway's opening and spread doubts regarding the perfection of the railway.

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[44] Sale, Kirkpatrick, *Rebels Against the Future: The Luddites and Their War on the Industrial Revolution: Lessons for the Computer Age,* (Reading: Addison-Wesley Publishing Company, 1995): 191, 278.

[45] Sale, *Rebels Against the Future*, 68.

[46] Sale, *Rebels Against the Future*, 201.

[47] Smiles, Samuel, "The Opening of the Liverpool and Manchester Railway" from *The Life of George Stephenson: Railway Engineer.* (London: John Murray, 1857) in *Victorian Literature,* 24.

Dramatic social changes also set the stage for the Victorian perspective. The Reform Bill of 1832 began the process of democratizing the British Parliament. The abolition of slavery throughout the empire in 1833 shifted Victorian understandings of the cost of labor.[48] The Poor Law Amendment Act in 1834 made workhouses "central to support for the poor,"[49] though the quality of this 'support' was widely debated. As steam technology led to industrialization, urbanization followed in its wake. Disease, civil unrest, and crime all saw significant increases due to the close proximity of so many workers.[50] By the time Queen Victoria was crowned in 1837, Victorians were beginning to see "the disparity between rich and poor, the visible unfairness of it all, made all the more visible in the railway age, when communications between the big manufacturing cities became so easy."[51] I argue that it was this newly visible disparity—demarcated by human suffering—that most dramatically affected the shifts between technological optimism and pessimism in Victorian, and parallel neo-Victorian, narratives of steam technology.

IV. Technological Optimism Over Growing Social Anxiety: 1837-1851

"Science discovers these laws of power, motion, and transformation: industry applies them to the raw matter, which the earth yields us in abundance, but which becomes valuable only by knowledge."[52]
  –Henry Cole quoting Prince Albert, *Official Descriptive and Illustrated Catalogue of the Great Exhibition 1851* (1851)

If modern narratives of steam technology reflect the shifts in technological optimism and pessimism expressed by the Victorians themselves, how did the Victorian narrative shift? To examine this question, I divided the Victorian era into three time periods: 1837-1851, 1852-1879,

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[48] "A Brief History of Victorian England," *Daily Life in Victorian England*, Sally Mitchell. 2nd ed. (Westport: Greenwood Press, 2009): 1-15.
[49] *Victorian Literature*, xvi.
[50] Perkin, "An Age of Great Cities," 6.
[51] Wilson, A.N, *The Victorians*, (New York: W.W. Norton & Company, 2003): 30.
[52] Cole, Henry, *Official Descriptive and Illustrated Catalogue of the Great Exhibition 1851,* vol 1, (London: Spicer Brothers, 1851) in *Victorian Literature,* 36.

and 1880-1901 to illustrate my points. In analyzing the first time period (1837-1851), I describe

how Victorian accounts (and modern narratives addressing this period) expressed considerable

social anxiety, while technological optimism persisted throughout. Interestingly, this first part of

Victoria's reign sees surprisingly little commentary from modern enthusiasts writing in the

Victoriana and Steampunk genres. While there are some exceptions, e.g. the scene featuring the

Great Exhibition in the modern BBC mini-series *North and South* and more significantly Sydney

Padua's *The Thrilling Adventures of Lovelace and Babbage*, many Steampunk and Victoriana

narratives focus on Victorian history after 1851. While this paper does not address *why* modern

enthusiasts neglect the early part of Victoria's reign, one speculative reason might be that steam

was a new enough technology that the Victorian primary source narratives were not as

comprehensive or accessible to enthusiasts—the "industrial novel" genre did not begin featuring

steam technology until late in this period.[53] A more likely explanation is that modern

commentators feel more comfortable with later periods in history. Sarah and Gabriel Chrisman

live an as-close-to-Victorian-as-possible lifestyle, consciously choosing to focus on the 1880s

and 1890s. Among the many reasons why they emphasize this period, Mr. Chrisman cites an

"untarnished optimistic view of technology."[54] In the early Victorian era, technological optimism

was certainly present, but also tarnished by narratives of social anxiety.

  The Chartist movement was, in large part, the most significant expression (and to some

Victorians the *source*) of social anxiety. The movement itself originated not *from* the working-

class, but *for* the working class, in response to the Reform Act of 1832 and the Poor Law

Amendment Act of 1834. The People's Charter (for which the Chartists were known) included

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[53] Some might argue that Dickens' early works like *Oliver Twist* (1841) show technological pessimism, however, while I don't address this work in depth, a cursory understanding suggests that *Oliver Twist* is a social commentary protesting the 1834 Poor Laws.
[54] Gabriel Chrisman, personal interview, July 2016.

six demands: "annual parliaments, voting rights for all adult men, the end of property

qualifications for members of the House of Commons, voting by secret ballot, equal electoral

districts, and salaries for members of Parliament so that men without private wealth could afford

to run and be elected."[55] The Charter was published and circulated in 1837, rejected in 1839,

brought to mass meetings in 1842 and 1848, and finally, "faded away as prosperity began to

grow."[56] This growth in prosperity can be attributed, at least in part, to the end of the "Hungry

'40s" as the potato famine that devastated Ireland faded into memory.[57] While the modern

inclination is to attribute the unease generated by the Charter to industrialization, the Chartists

themselves seemed less inclined. One key element of their campaign was, "the comparative

cheapness and speed of producing a newspaper, and the ease of disseminating its ideas *using the

newly built railways,*"[58] suggesting a more symbiotic relationship with steam technology than the

earlier Luddites.

Vocal supporters of the Charter, like Thomas Carlyle and Benjamin Disraeli, turned first

to social causes of unrest like a lack of Christian sympathy or unjust government before

industrial causes. While Carlyle and Disraeli might not have been the *foremost* technological

optimists of their time, their narratives do not attack technology like later pessimists do. In

Carlyle's work, *Chartism*, he rails against *laissez-faire* economics and Benthamite utilitarianism

while cautioning against an overly rosy view of democracy and encouraging strong leadership.[59]

Disraeli's tactic was to illustrate the disparities between the rich and the poor in *Sybil; or The

Two Nations*. When his ignorant character Egremont suggests that, "our Queen reigns over the

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[55] "A Brief History of Victorian England," 6.
[56] "A Brief History of Victorian England," 6.
[57] Goodman, Ruth, *How to be a Victorian: a dawn-to-dusk guide to Victorian Life,* (New York: Liveright Publishing Corporation, 2014): 165.
[58] Wilson, *The Victorians*, 41. Emphasis added.
[59] Carlyle, Thomas, *Chartism,* (London: James Fraser, 1840) in *Victorian Literature*, 51.

greatest nation that ever existed,"[60] the voice of Disraeli speaks through "the stranger" saying, "Which nation…for she reigns over two…between whom there is no intercourse, no sympathy, who are as ignorant of each other's habits, thoughts, and feelings, as if they were dwellers in different zones…the Rich and the Poor."[61] This is not to suggest that Victorians did not notice how increased industrialization brought suffering, but their narratives often moved the blame away from steam technology itself and onto social concerns like lack of democracy, lack of sympathy for Disraeli's "the poor", or excess of utilitarianism. Although these social concerns were brought to the fore by industrialization, these authors held onto the technological optimist perspective that technology—if combined with improved social mentalities—could and would improve quality of life.

In response to the abysmal working conditions of the labor force in places like the Manchester cotton mills, some Victorians took a willfully ignorant position of the negative effects of industrialization. James Phillips Kay wrote a long and detailed piece expounding the sufferings of Manchester cotton workers in 1832, but declared in the same text that "they [the cotton workers] are in great measure the architects of their own fortune… mechanical inventions and discoveries are always supremely advantageous to them."[62] With the growing prominence of utilitarianism (despite Carlyle's best efforts) it is likely that the Victorians noticed that, "though life was tough in the industrial towns where all this wealth was manufactured, more, numerically, benefitted than suffered."[63] Not all were utilitarian or willfully ignorant, however. Prince Albert's 1848 response to Lord John Russel—the highly self-interested then-Prime

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[60] Benjamin Disraeli, *Sybil; or The Two Nations,* (London: Henry Colburn, 1845) in *Victorian Literature*, 52.
[61] Disraeli, *Sybil*, in *Victorian Literature*, 53.
[62] Kay, James Phillips, "Manchester Cotton Workers," *In Industrialisation and Culture: 1830-1914.* Ed. Christopher Harvie, Graham Martin, Aaron Scharf (London: Macmillan, 1970): 113.
[63] Wilson, *The Victorians*, 15.

Minister—emphasized that, "the Government is bound to do what it can to help the working classes over the present moment of distress."[64] Note how even this statement was couched in terms of addressing social needs, not altering the course of technological innovation.

The narratives of technological optimism surrounding steam power were not entirely unfounded. Technology was completely reshaping Britain and, "foreign observers were astounded to watch Great Britain, in 1830, producing 2,000 tons per working day of iron—that is 650,000-700,000 tons per year."[65] Misa describes how "Britain blazed a pioneering path to industrial society while the rest of the world followed behind in its wake."[66] Sussman adds that "by 1823, there were approximately ten thousand steam-powered looms in operation in Great Britain."[67] This was seen as fantastically exciting for most Victorians, especially industrialists like Andrew Ure and Edward Baines, Jr. This is not to imply that these early Victorians were oblivious to the negative influences of technology. Edwin Chadwick compared industrial and non-industrial health in *Conclusions from the Sanitary Report*, and noted that "laboring classes [experienced] no exemptions from attacks of epidemic disease, which have been as frequent and as fatal in periods of commercial and manufacturing prosperity than in any others."[68] He did not advise less industry or technology. Instead, Chadwick pushed for "the removal of noxious physical circumstances, and the promotion of civic, household, and personal cleanliness."[69] In contrast, Tennyson's 1842 poem "Locksley Hall," was one of the most critical narratives from

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[64] Prince Albert, "Prince Albert to Lord John Russell," *The Letters of Queen Victoria: A Selection from Her Majesty's Correspondence Between the Years 1837 and 1861,* ed. Arthur Christopher Benson and Viscount Esher, vol 2 (London: John Murray, 1908) in *Victorian Literature,* 34.

[65] Wilson, *The Victorians*, 15. Citing Clapham, J.H., *The Early Railway Age 1820-1850.* (Cambridge: Cambridge University Press, 1950): 425.

[66] Misa, *Leonardo to the Internet*, 59. Citing E.J. Hobsbawm, *Industry and Empire* (London: Weidenfeld & Nicolson 1968; reprint, London: Penguin, 1990): 34.

[67] Sussman, *Victorian Technology*, 34.

[68] Chadwick, Edwin, "Conclusions from the Sanitary Report," in *Industrialisation and Culture*, 140.

[69] Chadwick, "Conclusions from the Sanitary Report," 141.

this time, with the line, "there [in a purely natural Eden] methinks would be enjoyment more than in this march of mind,/ In the steamship, in the railway, in the thoughts that shake mankind."[70] Yet even Tennyson's poem—considered "an articulate despair" by his contemporaries[71]—was created to address social concerns and express his sympathies toward a wild, technologically-unaltered, rural Britain.

Although narratives expressing mixed feelings toward technology were present, the technologically optimistic narratives were far more prevalent. Charles Babbage, best known for his design of 'the Difference Engine'—a proto-computer that was never completed—wrote on transportation and communication that "the power of steam…bids fair almost to rival the velocity of these contrivances [message delivery services that used animal power]; and the fitness of its application to the purposes of conveyance, particularly where great rapidity is required."[72] This statement may sound dry to a modern reader, but it is quite enthusiastic by Victorian standards. Ada Lovelace wrote in even more positive terms about the Analytical Engine and science in general that, "those who think thus on mathematical truth as the instrument through which the weak mind of man can most effectually read his Creator's works, will regard with especial interest all that can tend to facilitate the translation of its principles into explicit and practical forms."[73] Babbage and Lovelace were influential in their own time, but not widely-read or given particular weight due to Babbage's abrasive personality and Lovelace's gender. The Analytical Engine was never given funding, despite its promise. This is one of the factors that makes it surprising to see how much their work has inspired writers in modernity.

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[70] Tennyson, Lord Alfred, "Liberal Doubts," in *Industrialisation and Culture*, 366.

[71] *Industrialisation and Culture*, 363.

[72] Babbage, Charles, *On the Economy of Machinery and Manufactures* (London: Charles Knight, 1832) in *Victorian Literature: A Sourcebook*. ed. John Plunkett, Ana Parejo Vadillo, Regenia Gagnier, Angelique Richardson, Rick Rylance, and Paul Young, (Houndsmills: Palgrave Macmillan, 2012): 270.

[73] Lovelace, Ada, 'Notes By the Translator,' for L.F. Menabrea 'Sketch of the Analytical Engine Invented by Charles Babbage, Esq.' *Scientific Memoirs* 3 (1843): 666-731, in *Victorian Technology*, 272.

One prominent example of the way the writings of Lovelace and Babbage influenced modern writers most significantly was through the tone of Sydney Padua's comic, *The Thrilling Adventures of Lovelace and Babbage* (2015). Since *The Thrilling Adventures* comic does not fit perfectly into either the Steampunk or Victoriana genres, I let Padua's work stand in its own right as a modern narrative of steam technology. The history of Ada Lovelace and Charles Babbage is succinctly summarized by Padua in the preface: "Lovelace died young. Babbage died a miserable old man. There never was a gigantic steam-powered computer."[74] However, Padua steps into the narrative of historical revisionism with a fun retelling of what might have happened if Babbage had received funding for his Analytical Engine and Lovelace hadn't died so young, complete with extensive footnotes and endnotes explaining their historical context and primary-source references. The book itself takes on a very technologically optimistic tone. In the section entitled "Lovelace & Babbage vs. the Economic Model," Padua's characters work to avert the global financial crisis in 1837, caused by, "an American property bubble inflated by easy credit and deregulated banks."[75] When a runaway locomotive representing the "economic model" wreaks havoc on England, Lovelace's response is, "after all this creative destruction, all that is required to restore growth is an outlet for the productive powers…" Together, they use the Difference Engine to address the crisis and Babbage concludes, "Well, Lovelace, once again science and mathematics are triumphant."[76] This sense that the solution to the problems caused by technology requires more technology is exactly the kind of technological optimism seen in small doses through the early Victorian era.

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[74] Padua, Sydney, *The Thrilling Adventures of Lovelace and Babbage: the (mostly) true story of the first computer*. (New York: Pantheon Books, 2015): 7.
[75] Padua, *The Thrilling Adventures*, 101.
[76] Padua, *The Thrilling Adventures*, 130.

Yet, "no single event [or narrative, in this case] so epitomizes the Victorian celebration of the machine as does the Great Exhibition of the Works of Industry of All Nations that opened in the center of London in 1851."[77] The Great Exhibition opened on May 1st, seeing, "20,000 visitors on that opening day," and, "6,039,195 visitors (or more accurately one should say visits, since many, like the Queen, returned again and again) before the exhibition closed in October."[78] The event itself was largely inspired by Prince Albert to "encourage manufacturing in England, raise the standard of design for British machine-made goods, and demonstrate the position of England as the world's leading industrialized nation."[79] Henry Cole, a prominent organizer of the event, wrote, "Great Britain offers a hospitable invitation to all the nations of the world, to collect and display the choicest fruits of their industry in her Capital."[80] Indeed, the industry-oriented machinery was the best received and most popular. Removed from the suffering of industrial towns, the cotton-spinning machines now "seemed like gleaming incarnations of progress and progressivism."[81] While machines had been small-scale curiosities in London before, their presence in the massive Crystal Palace, centralized in Hyde Park, "expanded this sense of machinery as spectacle in a mode suited to the heroic scale and grandeur of steam-powered devices."[82] By making the Exhibition accessible to people from across the gender and class divides, Prince Albert succeeded in making mechanical wonders delightful to the majority of the Victorian people and renewing the sense of technological optimism that prevailed over earlier social anxieties. My argument here—that modern narratives reflect Victorian technological values—implies that a similar technological optimism should be manifest in

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[77] Sussman, *Victorian Technology*, 54.
[78] Wilson, *The Victorians*, 138.
[79] Sussman, *Victorian Technology*, 54.
[80] Cole, Henry, *Official Descriptive and Illustrated Catalogue*, in *Victorian Literature*, 35.
[81] Wilson, *The Victorians*, 138.
[82] Sussman, *Victorian Technology*, 63.

modern commentaries addressing this period in general and in modern interpretations of the

Great Exhibition in particular.

The Great Exhibition comes up in both Steampunk and Victoriana works, such as the

2004 BBC TV serial *North and South* based on Elizabeth Gaskell's 1854 novel. In the book, the

character Margaret Hale never visits the Great Exhibition—in fact, it is likely that Gaskell's

work takes place a few years after the Exhibition ended—but in the BBC serial, Margaret attends

and has the following exchange with her extended family.

> Mrs. Shaw (Margaret's aunt): I suppose it's only right that we've invited people from all over the empire, even if some of the exhibits are a little exotic.
> Margaret: I think it's wonderful. It seems as though all the world is here for us to see.
> Captain Lennox: I was impressed by the machinery. I have to say, I never realized the power and the money to be made from cotton.[83]

The technologically optimistic themes present here are exemplified by Margaret's sense of

wonderment at the aesthetic beauty of the exhibition and Captain Lennox's appreciation of the

power and wealth associated with the displayed machinery.

This exchange echoes accounts from the Victorian era, even in an adaptation that

diverges from the original work. Comparing the original accounts of Babbage and Lovelace to

Padua's comic and the original feeling garnered by audiences at the Great Exhibition to the

modern BBC adaptation shows that modern narratives of steam technology tend to reflect the

sentiments expressed by the Victorians themselves. Using the Chartist movement to represent the

existing social anxiety and examining the statements of Carlyle and Disraeli further supports my

assertion that the Victorian perception of the relationship between steam technology and

suffering was—in this early time period—not one of causation. Since steam technology and

suffering were not considered causally related, technological optimism was the pervasive

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[83] *North and South*, DVD, directed by Brian Percival. (United Kingdom: BBC One), 2004.

narrative both for the Victorians and in modern interpretations relating to the time period

between 1837 and 1851.

V. Industrial Pessimism: 1852-1879

"A man climbed to the top of his machine to put the strap on the drum: he wore a smock which
the shaft caught; both his arms were then torn out of the shoulder-joints, both legs were broken,
and his head was severely bruised: in the end, of course, he died. What he suffered was all
suffered in mercy. He was rent asunder, not perhaps for his own good; but, as a sacrifice to the
commercial prosperity of Great Britain."[84]

– Henry Morley, 'Ground in the Mill,' (1854)

Victorian authors wrote prolifically between 1852 and 1879, which gave modern writers

plenty of primary source material to research and reinterpret. To narrow the scope of this section,

I address only four specific novels. Charles Dickens' *Hard Times* (1854) and Elizabeth Gaskell's

North and South (1854) represent the tone of the Victorian industrial novel. To support my thesis

that modern narratives of steam technology reflect Victorian themes, I use Michael Crichton's

novel *The Great Train Robbery* (set in 1855) to represent the Victoriana perspective and William

Gibson and Bruce Sterling's novel *The Difference Engine* (set in 1855) to characterize the

Steampunk genre. Each of these novels reflects a tone of technological pessimism as they

emphasize the causal relationship between steam technology and suffering in Britain.

It is important to keep in mind the nature of British narrative at this point. The novel itself

was relatively new,[85] but beginning to challenge previous constraints "set by 'the modesty of

nature'."[86] Where earlier Victorian writers might have tried to avoid depictions of the suffering

working class, industrial novelists relished the grittiness and used it to shock their readers. The

"industrial novel" phenomenon was not new to 1852 (or 1854 in the case of *Hard Times* and

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[84] Morley, Henry, "Ground in the Mill," in *Industrialisation and Culture*, 54.

[85] Recall that the Victorian testimonies from Babbage, Lovelace, and Carlyle between 1837 and 1851 were drawn
from notes, and non-fiction sources.

[86] Keen, Suzanne, *Victorian Renovations of the Novel: Narrative Annexes and the Boundaries of Representation,*
(Cambridge: Cambridge University Press, 1998): 43.

North and South). Sussman points to the 1840s as the origin of this, "new form of fiction seeking to show ways to ameliorate the conditions of factory labor and to diminish class conflict."[87] Ketabgian notes that some scholars believe "these novels are simply not industrial enough…neglect[ing] the world of the factory for the more domestic scenes."[88] I argue here that the narrative before 1851 sought legislative social changes whereas novels published after 1851 accuse technology of expressly creating the suffering of the working class. Industrial novels were additional ways of investigating what Thomas Carlyle called, "the condition of England"[89] and what others termed the 'social novel.' Sussman emphasizes that, "for all its energy, the industrial novel had a short life," and faded from popularity in the 1860s as the conditions of industrial labor became more familiar and the conflicts that continued "lost the aura of novelty that draws readers to novels." [90] I argue, however, that the *feeling* of discontentment associated with steam technologies persisted throughout the 1860s and 1870s.

The general technological background of these industrial novels was one of mixed conflict and prosperity. On the one hand, telegraph systems were becoming so pervasive that Queen Victoria was able to communicate with the President of the United States by telegraph in 1858.[91] On the other, steam-driven railways were being used to transport troops into the Crimean region to fight the war between 1853 and 1856 and then in India in 1857 to quell the Indian Mutiny.[92] Yet it was around this time that steam ceased to be the sole source of non-animal power. Although steam powered dirigibles and steam elevators were still in operation, the

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[87] Sussman, *Victorian Technology*, 113.
[88] Ketabgian, *The Lives of Machines*, 7.
[89] Nunokawa, Jeff and Gage C. McWeeny, "The Condition of England" in *Hard Times: A Longman Cultural Edition*. Ed. Jeff Nunokawa and Gage C. McWeeny. (New York: Pearson, 2004): 267.
[90] Sussman, *Victorian Technology*, 115.
[91] Sussman, *Victorian Technology*, 78.
[92] "A Brief History of Victorian England," 10.

internal combustion engine was also in development (effective 1877) and Thomas Edison was becoming a key player in electric-powered innovations.[93]

Charles Dickens wrote *Hard Times* early in this period and set a dismal tone. He described the setting of his novel, Coketown, as a place "where the piston of the steam-engine worked monotonously up and down, like the head of an elephant in a state of melancholy madness."[94] He references the consumption-causing effects of the "shower-bath of something fluffy"[95]—the airborne by-product of cotton manufacture. His loathsome character, Mr. Bounderby, says, "you see our smoke. That's meat and drink to us. It's the healthiest thing in the world in all respects, and particularly for the lungs."[96] These narratives surrounding the negative by-products of steam technology itself—melancholy atmosphere, disease, and air pollution to name a few—directly correspond, in Dickens' narrative, to negative values and worldviews.

Right from the start, Dickens highlights the absurdity of the men who run schools designed to cram "Reason" and "Fact" down the throats of students. By the end, Dickens drives home the negative impacts of a too-technologically-oriented worldview with an exchange between Mr. Gradgrind, who used to teach the mechanically-fact-centered curriculum in a Coketown school, and Gradgrind's old student, Bitzer, who took the teachings to heart. This exchange takes place when Gradgrind's son has just been apprehended by Bitzer for stealing money from a bank safe. Gradgrind hopes to help his son escape, but Bitzer was too well-trained in mechanical reason.

"Bitzer, said Mr. Gradgrind, broken down, and miserably submissive to him, "have you a heart?"

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[93] *Timetables of Science,* 323-353.
[94] Dickens, Charles. *Hard Times: A Longman Cultural Edition*. Ed. Jeff Nunokawa and Gage C. McWeeny. (New York: Pearson, 2004): 23.
[95] Dickens, *Hard Times*, 112.
[96] Dickens, *Hard Times,* 117.

> "The circulation, sir," returned Bitzer, smiling at the oddity of the question, "could n't [*sic*] be carried on without one. No man, sir, acquainted with the facts established by Harvey relating to the circulation of the blood, can doubt that I have a heart."
> "Is it accessible," cried Mr. Gradgrind, "to any compassionate influence?"
> "It is accessible to Reason, sir," returned the excellent young man. "And nothing else."[97]

This underscores how a mechanical or technologically-oriented philosophy can lack charity, compassion, and kindness, human attributes not easily captured in terms of facts. This further shows that factory life and industrialization could also have negative impacts on upper and middle class Victorians, not just factory workers. Dickens' argued that "these attributes of Coketown [the dreary/miserable/suffering] were inseparable from the work by which it was sustained."[98] Through the industrial novel *Hard Times*, Dickens expressly relates steam technology and suffering, emphasizing the negative impacts of steam technology for Victorian readers.

Dickens was not the only one to cite technology as the cause of suffering. Elizabeth Gaskell's industrial novel *North and South* depicts the suffering associated with technology in a number of ways. The first, subtle hint at the negative influence of steam appears as Gaskell's protagonist Margret Hale is forced to leave her picturesque village in accordance with, "Railroad time,"[99]—a new shift in standardizing timekeeping across Britain to avoid train collisions. When Gaskell's other leading character Mr. Thornton, a cotton-mill owner and businessman, describes his beloved textile-manufacturing trade to Margaret and her father, even he has to admit, "[a man's] sense of justice, and his simplicity, were often smothered under the glut of wealth that came down upon him…there can be no doubt, too, of the tyranny they [the masters] exercised over their work-people."[100] Yet, in that same conversation Mr. Thornton voices the popular

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[97] Dickens, *Hard Times*, 253-254.
[98] Dickens, *Hard Times*, 24.
[99] Gaskell, Elizabeth, *North and South*, ed. Alan Shelston, (New York: W.W. Norton & Company, 2005): 53.
[100] Gaskell, *North and South*, 77.

Victorian argument in favor of technology: "it is one of the great beauties of our system, that a working-man may raise himself into the power and position of a master by his own exertions and behaviour."[101] Gaskell promptly slaps down this idealistic notion by emphasizing the vast inequality between the workers and the masters throughout her novel. The arc of Gaskell's story also reveals substantial technological pessimism. Margaret, in the fictional textile manufacturing town, Milton (modeled on Manchester), watches her good friend Bessy Higgins die slowly, "being torn to pieces by coughing o' nights."[102] If that wasn't enough for Margaret, the next character to die in Gaskell's industrial novel is Margaret's mother, her illness brought on by air pollution. Other workers in Milton suffer brutal working conditions enforced by cruel mill owners and starvation during a strike meant to improve those conditions. This dismal view of the lives of factory workers—which her contemporaries *did* see as realistic[103]—reinforced the message for the audience of Dickens' publication *Household Words* in which both *Hard Times* and *North and South* were published in weekly installments. It read: steam technology causes human suffering.

This narrative was picked up by modern enthusiasts. Michael Crichton wrote *The Great Train Robbery* based on the court records and historical accounts of the actual event, considered by Victorians to be "The Crime of the Century and The Most Sensational Exploit of the Modern Era."[104] Crichton's introduction highlights how the Victorians initially viewed the railway optimistically and progress, "in the sense of better conditions for all mankind,"[105] as inevitable. Crichton argues that Victorians initially believed the railway would eradicate criminal behavior,

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[101] Gaskell, *North and South*, 78.
[102] Gaskell, *North and South*, 82.
[103] A.W. Ward, "*North and South* in context," in Gaskell, *North and South*, 510.
[104] Crichton, Michael, *The Great Train Robbery,* (New York: Harper Collins, 1975): xiii.
[105] Crichton, *The Great Train Robbery*, xv.

which was why The Great Train Robbery itself was so shocking—"'the criminal class' had found a way to prey upon progress—and indeed to carry out a crime aboard the very hallmark of progress, the railway."[106] Although the narrative itself is told in such a style as to make the reader sympathize with the criminals, an aura of technological pessimism rides along with the plot. For example, Crichton wrote, "In August, 1857, Burgess, the railway guard, pleaded the stresses of his son's illness, claiming that it had so warped his moral inclinations that he fell in with criminals. He was sentenced to only two years in Marshalsea Prison, where he died of cholera that winter."[107] Employment associated with the railroad had previously been considered moral, but Burgess' statement reflected a newfound sense of technological pessimism—even a railway guard could be corrupted. The increase in cholera episodes in urban areas, like the one that killed Burgess, was also recognized by society at the time as a side effect of industrialization. While Crichton's tone is more flippant than Dickens' or Gaskell's, his depiction of London's underbelly has a similar dark quality. Prostituting girls as young as twelve to wealthy men hoping to cure the man's "French malady," dog-fighting, domestic abuse, and violent crime are all connected to this otherwise innocuous train heist. Thus, Crichton reflects on technological pessimism indirectly, but in the same vein as Victorian writers referencing this time period between 1851 and 1879.

The Steampunk perspective warrants a brief preface because what Steampunk *is* is often challenging to define. Enthusiasts such as "Brass Screw Confederacy" volunteer coordinator Kimberly Snow, might use a definition like, "I define Steampunk as 'Victorian science fiction or fantasy. A mix of the past we dream and the future they might have foreseen.'"[108] In a similar

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[106] Crichton, *The Great Train Robbery*, xviii.
[107] Crichton, *The Great Train Robbery*, 359.
[108] Kimberly Snow, e-mail message to author, June 4, 2016.

vein, scholars of neo-Victorian studies, such as Rachel Bowser and Brian Croxall might say Steampunk is a genre "wherein our projections and fantasies about the Victorian era meet the tropes and techniques of science fiction, to produce a genre that revels in anachronism while exposing history's overlapping layers."[109] These broad definitions work to encompass the entire sub-culture featuring music, fashion, entertainment, and engineering *as well as* literature.

Narrowing in on Steampunk literature (which is how I address the *narrative* of steam technology), Lindsay Schopfer, a Steampunk author, defined Steampunk in part as "cultural cherry-picking," or "a way to nostalgically look through rose-colored glasses at the past and just imagine the best version of history."[110] The roots of Steampunk literature were addressed by Jess Nevins, who pointed to the 1980s as the beginning of the Steampunk genre—when the Victorian aesthetic crept into sci-fi writings. Nevins posited that Steampunk rose, in part, as a rebellion against the "Edisonade"—an American genre featuring "technological optimism, exploitative capitalism…, juvenile daydreams…,and the vicarious exercise of bigoted wish-fulfillment."[111] Edisonade stories often featured a lone underdog-inventor who became rich and famous by exploiting or killing native peoples. Steampunk writers, Nevins wrote, "are all too aware of the realities which the Edisonade writers were ignorant of or chose to dismiss…it is a genre aware of its own loss of innocence."[112]

The novels that often serve as the holy trinity of Steampunk origins include K.W. Jeter's *Morlock Night* (1979), Tim Powers' *The Anubis Gates* (1983), and William Gibson and Bruce

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[109] Bowser, Rachel A. and Brian Croxall. "Introduction: Industrial Evolution." *Neo-Victorian Studies* 3 vol 1. (2010): 1.
[110] Schopfer, interview, 7/
[111] Nevins, Jess, "Introduction: The 19th-Century Roots of Steampunk," in *Steampunk*, ed. Ann & Jeff VanderMeer. (San Francisco: Tachyon Publications, 2008): 9.
[112] Nevins, "Introduction" in *Steampunk*, 10.

Sterling's *The Difference Engine* (1992).[113] There is a temptation to assume that Steampunk is or includes Victorian science fiction like the works of Jules Verne or H.G. Wells,[114] but Verne and Wells were *Victorian* and while their works provide the foundation for much Steampunk enthusiasm, most fans do not consider these works "Steampunk" themselves.

Returning to the argument at hand—that modern narratives of steam technology reflected the technological pessimism prevalent between 1852 and 1879—I draw attention to the Steampunk novel, *The Difference Engine*. William Gibson and Bruce Sterling use a variety of Victorian primary sources including Charles Babbage's writings, Disraeli's novel *Sybil*, and works by Charles Darwin and Karl Marx. The book is set in 1855 and based on the premise that Babbage's Analytical Engine did receive funding and initiated the information age in the 1850s. However, unlike Padua's upbeat comic set in the 1830s and 40s, Gibson and Sterling present a far grittier version of the Victorian era. The technological pessimism of the novel is presented in a number of different ways, the first, by following a character—Sybil—forced into prostitution by circumstances directly related to the new steam-driven technology. When she encounters technology throughout the story, it is consistently used to keep her disadvantaged. For example, Sybil's lover/client teases,

> "'You keep your card in your bag,' he said. 'I took that number to a rum magistrate I know. He ran it through a government Engine for me, and printed up your Bow Street file, rat-a-tat-tat, like fun.' He smirked. 'So I know all about you, girl. Know who you are…'"[115]

Ada Lovelace's character is shifted onto "Lady Ada Byron" and instead of being empowered by technology (as in Padua's comic) *The Difference Engine* introduces her having, "recently lost a large sum of money at the Derby, though her gambling-losses, common knowledge among her

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[113] "What Is Steampunk? - The Ministry of Peculiar Occurrences," The Ministry of Peculiar Occurrences RSS. http://www.ministryofpeculiaroccurrences.com/what-is-steampunk/.

[114] Science fiction is a modern term read retrospectively onto these authors. Verne and Wells would have considered their works "fantasy."

[115] Gibson, William and Bruce Sterling. *The Difference Engine*. (New York: Bantam Books, 1991): 4.

inmates, seem to have covered the loss of even larger sums most likely extorted from her."[116]

The narrative surrounding the "steam gurney" used to transport the heroes of the novel into battle

against Luddites and Communists is described as "lumpy," "lurching," and "creaky," while they

ride through the heavily polluted London air.[117] And even that novelty of engineering is smashed

to bits by the Luddites in the city. While Victorian writers would have been disinclined to

portray violence or sex in the same manner as Gibson and Sterling, a similar undertone of

technological pessimism is present in both of these sets of Victorian and modern works.

Dickens and Gaskell ushered in an era of technological pessimism between 1852 and

1879 with their portrayals of the suffering associated with steam technology in Coketown and

Milton respectively. Crichton and Gibson and Sterling echoed this sentiment in their works

centering around the criminal and destructive elements connected to steam technology. Taken

together, these narratives serve to support my thesis that modern accounts of steam technology

reflect Victorian accounts. This section also shows how the Victorian narrative changed

depending on their understanding of the relationship between steam technology and suffering.

VI. Optimism Renewed, Suffering Unseen: 1880-1901

> "That having been said, I would eventually really love to have a steam car."
> – Gabriel Chrisman (2016)

In this section regarding the third and final time period (1880-1901) I limit the scope of

my research by addressing a few select works. I compare the depiction of steam technology

within Sir Arthur Conan Doyle's *Sherlock Holmes* corpus (1891-1904) and H.G. Wells' *The

Time Machine* (1898) with Anthony Horowitz's *The House of Silk* (2011) and K.W. Jeter's

Morlock Night (1979). *Sherlock Holmes* and *The Time Machine* represent the Victorian narrative,

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[116] Gibson and Sterling, *The Difference Engine*, 99.
[117] Gibson and Sterling, *The Difference Engine*, 267.

Morlock Night represents the Steampunk view of steam technology, and *The House of Silk* touches on the Victoriana outlook. This section ends with a more thorough examination of the Victoriana perspective through an analysis of Sarah Chrisman's writings *Victorian Secrets* and *This Victorian Life* as well as an interview with Sarah and Gabriel Chrisman.

Although this paper focuses on narratives of steam technology expressly, it is important to recognize the role electricity and internal combustion played during the end of the Victorian era. During this time period, electric railways and streetcars became accessible, the desire for electric and telephone wiring swept Britain and the US, the earliest form of the automobile hit the road, and other inventions like the Maxim machine gun and photosensitive paper fed the technologically hungry. Gabriel Chrisman mentioned expressly, "I think that it's a little reductionist to think of it [the Victorian era] as the 'age of steam.'" And Sarah Chrisman agreed that "steam wasn't quite as hegemonic as modern people would imagine."[118] Yet even with all of the innovation in other areas, steam technology was still a competitive source of power and invention throughout this period, e.g. Samuel Langley's 1896 (unsuccessful) test run of his steam-driven flying machine.[119]

In addition to *which* technologies were available, *who* was producing them was also changing. While the British Empire had previously been unrivaled in terms of industrial production, in this part of the Victorian era, other nations were beginning to increase their own industrial development. Sussman draws attention to how "the story of Victorian technology in the latter nineteenth century, then, is no longer the narrative of England as supreme in the invention and application of the machine."[120] To address this shift in this paper, I use the *British*

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[118] Sarah Chrisman, personal interview, July 2016.
[119] *The Timetables of Science*, 355-377, 389.
[120] Sussman, *Victorian Technology*, 117.

Victorian narratives from Conan Doyle and Wells. The modern narratives reflect more national

diversity: Horowitz is a British writer who set his novel predominantly in London; Jeter is an

American writer who set his narrative in London as well; and the Chrismans focus on the

American experience in the Pacific Northwest, specifically in Port Townshend, Washington.

Although this section jumps around in time (Victorian to modern Victoriana back to Victorian to

1980s Steampunk to 2016 Victoriana) I try to track these shifts by clearly demarcating that

Steampunk and Victoriana are *modern* narratives whereas the Victorian narratives come from the

Victorian era—in this section 1880-1901.

With this understanding of the narratives I address, I outline some political and social

context for these works regarding steam. The extensive infrastructure of the railroads was

exceedingly impactful during these years as this efficient form of transportation allowed for

increased agricultural, industrial and military campaigns. As mentioned earlier, Misa argues that

the railroad and telegraph laid the foundations for British and (in different ways) American

imperialism. Misa cites the American railroad official, Creed Haymond, who wrote in 1888, only

two years before the Battle of Wounded Knee in South Dakota, that "'the construction of the

road virtually solved the [American] Indian problem.'"[121] While a good portion of imperialism at

this time was violent, some was not. Misa points out that, "with few options in sight, and a hope

that railroads might bring 'order and progress to Mexico, Díaz gave concessions to the U.S.

railroads to build five lines totaling 2,500 miles of track. Something like free-trade imperialism

followed."[122] This imperialism was due in part to "the confidence with which white Europeans

[and I would add white Americans] assumed racial superiority over the African or the Indian [or

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[121] Haymond, Creed, *The Central Pacific Railroad Co.*, (San Francisco: H.S. Crocker, 1888) in Misa, *Leonardo to the Internet*, 120.
[122] Misa, *Leonardo to the Internet*, 121.

native peoples in the U.S. and Mexico]," which was, as Wilson notes, "one of the most shocking aspects of the Victorian sensibility."[123] I postulate that the narratives of the people oppressed by industrial expansion and imperialism in places like China, India, Africa, (what we now consider) the U.S., and Mexico would be significantly less technologically optimistic during this time period, but these narratives don't reach modern scholars or enthusiasts with as much force. I speculate that this is due to a number of reasons including, but not limited to, the persistence of racism, 'Western-centrism,' and language barriers. While the lesser-known narratives of steam technology warrant an entire paper in and of themselves, my investigation focused on British and white American narratives.

As Britain and white Americans in the U.S. profited enormously from industrialization and imperialism, their narratives of steam technology shifted more towards distinct technological optimism. For example, in "The Industries of the Monklands" published in 1896, the coal and iron works in Scotland were being praised by the people who lived there as "almost magical," with "scarcely any limits…set to the vast aggregate production," which "have contributed to the almost unparalleled advance of Old Monkland in population and prosperity."[124] Rudyard Kipling was similarly celebratory of "the connection between technology and imperial strength."[125] Wilson addresses Kipling's complex reputation for being both a brilliant short-story writer while also composing poems like "The White Man's Burden" depicting people in the Philippines as, "Your new-caught, sullen peoples,/Half-devil and half-child,"[126] and praising the white men who "tamed" them. In a similar vein, Lewis Morris also reflects on the attitude of technological

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[123] Wilson, *The Victorians*, 493.
[124] "Industries of the Monklands," from *The Ordinance Gazetteer of Scotland* vol 5, 1896, in *Industrialisation and Culture*, 65.
[125] Wilson, *The Victorians*, 495.
[126] Kipling, Rudyard, "The White Man's Burden," in *The Complete Verse.* With a foreword by M.M. Kaye, (London: Kyle Cathie, 1990) in Wilson, *The Victorians*, 496.

optimism resulting from imperialism in his 1887 poem "A Song of Empire," performed for

Queen Victoria's 50-year celebration of her reign. Morris wrote,

> "Oh England! Empire wide and great
> As ever from the shaping hand of fate…
> Did issue on the earth, august, large grown!
> What were the Empires of the past to thine,
> The old, old Empires ruled by kings divine –
> Egypt, Assyria, Rome? What rule was like thine own,
> Who over all the round world bearest sway?
> Not those alone who thy commands obey"[127]

It is easy, looking back, to see the negative impacts of industrialization on people who were not

permitted a voice at the time and recognize that there was cause for technological pessimism, but

the more prominent narrative from Victorian sources suggests strong technological optimism as

depicted in the article promoting Scottish iron-workers and Kipling's, and Morris' poems. I

argue that as the sensational novelty of the steam engine gave way to narratives of new

inventions like internal combustion and electricity, and as imperialism displaced the suffering

associated with manufacturing to the far corners of the British Empire like India, the narrative of

Victorian steam technology became more optimistic.

With this context in mind, the texts I examined in more depth—*Sherlock Holmes*, *The

House of Silk*, *The Time Machine*, and *Morlock Night*—can now be analyzed. Publications of

Conan Doyle's Sherlock Holmes stories began in *The Strand Magazine* in 1891 and did not end

until 1904, featuring fictional cases that took place in 1880. Sherlock Holmes never had to deal

with the *introduction* of steam technology to his life—it was a given in his London. Thus, the

technological optimism presented in the Holmes narratives looked different from the optimism of

the 1840s. Not the least of these differences was that Sherlock Holmes was never called on to

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[127] Morris, Lewis, 'A Song of Empire,' from *Songs for Britain,* (London: Kegan Paul, Trench & Co., 1887) in *Victorian Literature*, 44.

work a case featuring industrial workers. Rather, he worked primarily with the wealthy middle

and upper classes. Therefore, he was not exposed to (and did not recount) the suffering that

persisted in manufacturing towns. The most pervasive narrative surrounding Sherlock Holmes

and steam technology was in relation to the railroads. For example, in "The Boscombe Valley

Mystery," Dr. Watson stated, "we had the carriage [on the train] to ourselves save for an

immense litter of papers which Holmes had brought with him."[128] Steam trains provided

transportation for Holmes and Watson back and forth to remote areas like Briarbrae for "The

Adventure of the Naval Treaty" and Devonshire for "The Hound of the Baskervilles" case.[129]

The view of "steam as king" persisted into this era, almost subconsciously, as shown when

Holmes's client—Mr. Trelawney Hope—came to the anxious realization that an important

document "is probably speeding on its way thither at the present instant as fast as steam can take

it."[130]

The technological optimism derived from the association of steam technology and

positive social change in England is exemplified by one exchange between Holmes and Watson

as they take a train back into London in "The Adventure of the Naval Treaty".

> "'It's a very cheering thing to come into London by any of these lines which run high to allow you to look down upon the houses like this.' [Holmes]
> I thought he was joking, for the view was sordid enough, but he soon explained himself.
> 'Look at those big, isolated clumps of building rising up above the slates, like brick islands in a lead-coloured sea.'
> 'The Board schools.'
> 'Lighthouses, my boy! Beacons of the future! Capsules with hundreds of bright little seeds in each, out of which will spring the wiser, better England of the future.'"[131]

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[128] Conan Doyle, Arthur, *The Original Illustrated Sherlock Holmes: 37 Short Stories plus a Complete Novel, Comprising The Adventures of Sherlock Holmes, The Memoirs of Sherlock Holmes, The Return of Sherlock Holmes and The Hound of the Baskervilles*, (Secaucus, NJ: Castle Books, 1978): 53.
[129] Conan Doyle, *Sherlock Holmes*, 321, 373.
[130] Conan Doyle, "The Adventure of the Second Stain," in *Sherlock Holmes,* 624. (Published December, 1904.)
[131] Conan Doyle, "The Adventure of the Naval Treaty," in *Sherlock Holmes*, 314.

It was narratives like this that showed a dramatic shift in tone from Dickens and Gaskell's novels, revealing renewed technological optimism. This optimism is then echoed in modern Holmesian narratives.

Anthony Horowitz's *The House of Silk* is the first book to be endorsed by Sir Arthur Conan Doyle's estate. As in the original canon, this modern version of Holmes' character works most frequently with the upper classes, one of whom "had made a fortune from the Calumet and Hecla mines and had also invested in the railroads and telephone companies."[132] This subtle statement suggests an optimism similar to what is found in the Victorian era—the sense that investments in overseas and technological endeavors would generate wealth and benefit investors. *The House of Silk* also features the story of a train robbery—armed and violent, unlike the Great Train Robbery of 1855. However, the account of the robbery in *The House of Silk* does not contain the same sense of shock at the amorality of the deed, despite that act resulting in a man's death and the loss of important works of art. Instead, there is only a kind of resigned dismay at the damage caused. The arc of the novel contains plenty of abhorrent and amoral acts, but, like Conan Doyle's original canon and similar to the sentiments of the early Victorian era, these moral transgressions are seen as the faults of humanity, not technology. Both the original "Holmes" stories and Horowitz's modern iteration of the story illustrate how the narratives of steam technology during this period are parallel in optimism, focusing on the opportunities steam technology afforded, and do not recognize human suffering as necessarily caused by steam.

A comparison of Wells' *The Time Machine* and Jeter's *Morlock Night* reveals a similar pattern of technological optimism as technology and human suffering are no longer expressly linked. Wells began his Victorian novel (1898) with a description of the Time Traveler under

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[132] Horowitz, Anthony, *The House of Silk: A Sherlock Holmes novel*, (New York: Mulholland Books, 2011): 19.

incandescent lightbulbs. The description of the Time Machine itself reflected a renewed awe of new technology as well as a sense of imperialism being taken for granted. Wells wrote that "parts [of the Time Machine] were of nickel, parts of ivory, parts had certainly been filed or sawn out of rock crystal."[133] The availability of these resources was taken for granted, though ivory would have been sourced from Africa or Asia. The arc of Wells' story presents an interesting duality. On the one hand, industry (and steam technology) is presented as, "the work of ameliorating the conditions of life—the true civilizing process that makes life more and more secure."[134] On the other, the Morlock villains of the story are associated with "a certain sound: a thud-thud-thud, like the beating of some big engine…"[135]

A modern scholar could argue that Wells' final goal was to highlight how technology and industry would eventually lead to the ruin of civilization which would suggest that Wells expressed a view of technological pessimism. This view that Wells was a technological pessimist might be supported by statements like, "instead, I saw a real aristocracy, armed with a perfected science and working to a logical conclusion of the industrial system of to-day [*sic*]. Its triumph had not been simply a triumph over Nature, but a triumph over Nature and the fellow-man."[136] However, I argue that Wells was *not* a technological pessimist per se because in this quote the *cause* of suffering is placed on social factors—as it was in the earlier part of the Victorian era—not on technology itself. In another example, the Time Traveler posited, "as I see it, the Upper-world man had drifted towards his feeble prettiness, and the Under-world to mere mechanical

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[133] Wells, H.G, *The Time Machine*, (New York: Scholastic, 2002): Location 116.
[134] Wells, *The Time Machine*, loc. 382.
[135] Wells, *The Time Machine*, loc. 516.
[136] Wells, *The Time Machine*, loc. 650.

industry."[137] While 'mere mechanical industry' is criticized, it is on the same level as 'feeble prettiness' and the burden of the blame is placed on human inclinations.

As I have defined technological optimism as the view that technology has the ability to improve quality of life, the Time Traveler's reactions in times of need supports my understanding of Wells as fundamentally a technological optimist. To document the underground Morlock colony, he cries, "if only I had brought a Kodak [early form of camera]!"[138] and to fight off the Morlocks, the Time Traveler wishes he had a functional gun. Additionally, the longing for the time machine itself throughout the majority of the work is a feature of distinct technological optimism—the thought that, when in a sticky situation, technology could make it better. To avoid oversimplifying and polluting Wells' point, I note that Wells is encouraging a *balance* of industry and environmental consciousness, emphasizing how, "an animal in perfect harmony with its environment is a perfect mechanism."[139] Yet, even this use of the idea of *mechanism* as attainable perfection reinforces my view that Wells is expressing technological optimism.

Jeter's Steampunk novel, *Morlock Night* follows Wells' *The Time Machine*, the first scene taking place as everyone leaves the Time Traveler after having heard his extraordinary story. What ensues would have blown Wells' mind: the Morlocks become super-intelligent and take over the world, King Arthur and Excalibur become pivotal plot devices, and a woman—yes, a woman—saves the day. Intermingled in some of the more fanciful and absurd elements of Jeter's novel is a distinct tone of technological optimism. The whole novel is written with the assumption that the only way to save the world is by using the Time Machine. Regarding steam

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[137] Wells, *The Time Machine*, loc. 1037.
[138] Wells, *The Time Machine*, loc. 716.
[139] Wells, *The Time Machine*, loc. 1032.

technology specifically, this optimism is seen in one especially important aspect toward the end

of the novel when our hero "*traveled by train* all the way from Berlin to the Franco-German

border in a state of high anxiety, unable to sleep or rest for fear of further Morlock attempts on

my [his] life."[140] The steam train acts in this section to save the main character's life, but it is

almost taken for granted that there will be a steam train present. This indicates that, a) steam

trains were prevalent and not sensational and b) that steam trains were beneficial—in this case,

the vehicle of rescue (from Morlocks).

Elsewhere, steam technology is expressly beneficial when, for example, the protagonist

states that "a great exhaust of steam bubbled into the water from an aperture a few yards away

from me, and I was grateful for the warmth it gave me."[141] The biological and technological

landscape is further assumed and integrated as positive. The hero states "some small mechanism

of my heart felt at rest."[142] Recall that in Dickens, a mechanistic heart was considered a terrible

thing. In this passage, the idea that the heart is a mechanism is not only taken for granted (i.e. the

heart really *is* a mechanism), but also associated with a positive moment in the story when the

hero is no longer in frantic conflict with the Morlocks. These examples from *Morlock Night*

show how steam technology fills part of the background landscape, and a beneficial part at that,

and reveals the echoes of technological optimism reverberating from Wells' novel.

These narratives of steam technology were integrated into the novels I analyzed. To

supplement this content, I read autobiographical accounts and interviewed the Chrismans,

considering their perspective with respect to the values associated with Victorian technology to

develop a deeper understanding of how modern narratives of the Victorian period are similar to

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[140] Jeter, K.W, *Morlock Night*, (Nottingham: Angry Robot, 1979): 307. Emphasis added.
[141] Wells, *Morlock Night*, 169.
[142] Jeter, *Morlock Night*, 300.

and/or different from nineteenth century accounts. Much of the societal infrastructure that facilitated *steam* technology is now lost. The Chrismans recognize this, so their narrative centers around other Victorian technologies including a, "refurbished 1880s kitchen stove,"[143] corsets and clothing,[144] and a plethora of bicycles. They associate positive values with the technologies they use. For example, Mr. Chrisman sees modern technology as catering to a convenience culture and notes that "a lot of the values of Victorian technologies are deeper than convenience…they have much more to do with, in many cases, nearly an environmentalist or conservationist mentality." He adds, "Victorian technology was all about options…different technologies that were coexisting, in many cases for decades," and later states, "I can't see too many items of Victorian technology that represent values that I couldn't embrace."[145]

In the process of their extensive historical research, the Chrismans came across the same sense of optimism that was pervasive in the late Victorian era. When asked what values were associated with Victorian technologies, Mrs. Chrisman noted beauty, functionality, and "the idea that humans can and will make the world a better place through technology."[146] Mrs. Chrisman wrote, "part of why Gabriel and I admire the Victorians so much is because they did such an incredible job of seamlessly marrying form *and* function."[147]

My argument that the Victorians themselves saw technology as separate from the imperialism that facilitated greater sources of wealth is also reflected in the Chrisman's narrative, framed in terms most modern consumers are reluctant to address. Mr. Chrisman said,

> "I don't deny that there was certainly imperialism in the Victorian period, but there's imperialism now. I either find it the pot calling the kettle black, or…they may completely buy

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[143] Chrisman, Sarah A. *This Victorian Life: Modern Adventures in Nineteenth-Century Culture, Cooking, Fashion, and Technology*. (New York: Skyhorse Publishing, 2015): 287.

[144] Chrisman, Sarah A. *Victorian Secrets: What a Corset Taught Me about the Past, the Present, and Myself*. (New York: Skyhorse Publishing, 2013).

[145] Gabriel Chrisman, personal interview, July 2016.

[146] Sarah Chrisman, personal interview, July 2016.

[147] Chrisman, *This Victorian Life*, 72.

into the justifications given in the modern era, but they totally dismiss the justifications given in the Victorian era. I bet those same people in the Victorian era would have utterly believed the same lines—the same justifications—but now, of course, they see right through them."[148]

This reframing of the relationship between Victorian technology and imperialism indicates that the suffering previously associated with steam technology is no longer emphasized. Through the narratives of Conan Doyle, Horowitz, Wells, and Jeter, and the autobiographical reflections of the Chrismans, these works reinforce my argument that modern narratives of steam technology reflect the technological optimism expressed in this time period by Victorians. This shift towards technological optimism was because of the recognition that steam technology itself was no longer new or sensational and the suffering previously associated with steam technology was displaced from the dominant British and American narrative.

VII. Steampunk Fantasy and Modern Technological Views

"We like our aesthetic so much that the aesthetic will kind of grow over the boundaries of what is logical and what is reasonable and what is actually useable and functional."[149]

–Lindsay Schopfer (2016)

Modern narratives of steam technology reflect the shifts in technological optimism and pessimism expressed by the Victorians themselves as their perception of the relationship between steam technology and suffering changed. However, the Steampunk genre is not limited to historical accuracy and often co-opts Victorian technology to comment on modern technology and values in fantasy settings. When this happens, my thesis does not apply because there are no express Victorian values to reflect. This trend in Steampunk narratives may be seen as a loss of depth and meaning as the Chrismans assert. Mr. Chrisman expressly notes, "the clothing [as a manifestation of technology] *means* something, it embraces a set of values, a whole set of practices, it embraces a whole set of meanings and knowledge and study, that aren't readily

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[148] Gabriel Chrisman, personal interview, July 2016.
[149] Schopfer, personal interview, June 2016.

apparent on the surface, but are part of a very meaningful and comprehensive whole."[150] I speculate that while there is undoubtedly a loss of *historical* value, Steampunk fantasy works address the *modern* values associated with technology overlaid onto steam.

This portion of my research is not as grounded in historical research because I have not been investigating narratives of *modern* technology, but there is a strong similarity between how modern technology is described and how Steampunk fantasy addresses steam technology. In our interview, Mr. Chrisman noted that one modern inclination is to disregard older technologies, painting them "in that brushstroke 'obsolete' and 'obsolete' means, at least in modern culture… 'avoid this at all costs'."[151] This modern inclination manifests itself in Steampunk literature like Jim Butcher's novel, *The Aeronaut's Windlass*, set on the fantasy planet between "Spires" where the main fuel for the airships is fantasy crystals. The steam engine comes into play as a less effective power source when Butcher describes how, "most airships she [the main character] had read about had steam engines in place as their secondary propulsion system."[152] This outdated technology is described in the 'obsolete-and-therefore-to-be-avoided' way Mr. Chrisman mentioned. Butcher further writes, "its clublike limbs hammering the ground with cracks of impact like heavy steam pistons slamming the spirestone floor,"[153] and, "one need not puff like a steam engine."[154] Mr. Chrisman expresses how the view of antiquated technology being seen as 'obsolete' is a modern one and Butcher reflects this view by using negative connotations to incorporate the antiquated steam technology of his world into his Steampunk fantasy novel.

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[150] Gabriel Chrisman, personal interview, July 2016.
[151] Gabriel Chrisman, personal interview, July 2016.
[152] Butcher, Jim, *The Aeronaut's Windlass*, (New York: The Penguin Group, 2015): 208.
[153] Butcher, *The Aeronaut's Windlass*, 346.
[154] Butcher, *The Aeronaut's Windlass*, 354.

Lindsay Schopfer highlights another way in which modern values are applied to Steampunk narratives. In our interview, he notes, "if there's something that happened *socially* in the Victorian era, like women didn't have equal rights, or immigrants were not looked on with equality, we can just brush that aside…we can all have our modern day sensibilities, but with technology that is not intimidating."[155] In Schopfer's novel, *The Beast Hunter*, he manifests this 'cherry picking values' ideal by situating the familiar history of dysfunctional railways and class-inequality driven protests[156] next to fantasy beasts that could be, for example, "covered in bony plates and resembled nothing so much as a gigantic, armored leech."[157] In this manageable fantasy setting, introspective dialogues regarding racism can force readers to reflect on their own (and Victorian) systems of inequality without shame or accusation. This allows some modern values like social justice to be read into a world in which the technology feels less intimidating and supports my speculative view that steampunk fantasy—not grounded in a specific historical period of the Victorian era—reflects modern values while celebrating steam technology.

VIII. Conclusion

"I think what we need is human centered technology and human directed choices."[158]
–Gabriel Chrisman (2016)

In this paper, I have traced narratives of steam technology through the Victorian era and beyond to investigate whether Victorian steam technology represented optimistic progress or oppressive imperialism. My conclusion, as supported by Mesthene, Hughes, and Barbour, was complex and depended on context. I argued that modern narratives of steam technology reflect the shifts in technological optimism and pessimism expressed by the Victorians themselves as

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[155] Schopfer, personal interview, June 2016.
[156] Schopfer, Lindsay. *The Beast Hunter: a Keltin Moore Adventure.* (Middletown: L. Schopfer, 2014): 35.
[157] Schopfer, *The Beast Hunter*, 77.
[158] Gabriel Chrisman, personal interview, July 2016.

their perception of the relationship between steam technology and suffering changed. I provided some historical background for Victorian values, the invention of the steam engine and development of steam technology, and the generally optimistic pre-Victorian reception of steam. Between 1837 and 1851, the accounts from Victorians like Carlyle, Disraeli, Chadwick, Tennyson, Babbage, and Lovelace set the stage for the technological optimism expressed during the Great Exhibition, despite the social anxiety the Chartists movement inspired. Modern commentaries centered on this time period, like Padua's *The Thrilling Adventures of Lovelace and Babbage* and the 2004 BBC adaptation of *North and South* reflected this sense of optimism. The technologically optimistic narrative shifted between 1852 and 1879 when industrial novels like Dickens' *Hard Times* and Gaskell's *North and South* drew attention to the relationship between steam technology and suffering in Britain. This sense of technological pessimism was perpetuated in modern Victoriana and Steampunk narratives like Crichton's *The Great Train Robbery* and Gibson and Sterling's *The Difference Engine*. The Victorian narrative then shifted a second time by 1880, as steam technology became part of the background infrastructure of the British Empire and a tool of American expansion and the suffering associated with industrialization was no longer sensationalized, but displaced. Victorian narratives like Conan Doyle's *Sherlock Holmes* and Wells' *The Time Machine* expressed this sense of renewed technological optimism. In modernity, Horowitz's *House of Silk* and Jeter's *Morlock Night* echoed late Victorian optimistic sensibilities. The Chrismans, in their Pacific-Northwestern Victorian lifestyle, also consciously reflected this sense of technological optimism.

While my research focused on Victorian steam technology, my findings prompted questions that can apply to modernity. How much of the narrative concerning technologies like the juke box, the nuclear bomb, and the iPhone comes out of their respective cultural contexts?

More significantly, in recognizing that Victorian technological optimism and pessimism

fluctuated depending on the suffering associated with steam technology, how do we see suffering

in relation to modern technology? Perhaps, in our own way, we still see through steam.

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