Industrial Revolution, Empire, and the Novel _____

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During the nineteenth century, humans interacted with technology with unsurpassed intensity and frequency. The Industrial Revolution, a major historical, economic, and political landmark, brought immense changes to the social and cultural climate of the period. This era marks the shift toward what we would term the "modern" age of machines and technology, an age marked by invention and rapid growth in numerous areas of industry. During this period, the discovery of steam power placed Great Britain at the center of industrial progress. The impact of this shift toward a modern, industrial society resulted in major changes in the way of life for individuals—concepts of time and space rapidly changed, and the effects of the Industrial Revolution impacted both life at home and in Britain's widely expanding colonies overseas. Thus, at this moment, industrial and technological progress expanded across the globe and created notions of what it meant to be a civilized and productive society. Further, while the expansion of technologies produced big cultural shifts and new objects of human and machine interaction, they also became more visible in fictions and narratives of the period, as many nineteenth-century texts were inspired by and addressed technological change.

One of the major shifts in this period was the transition from a rural or agrarian society toward growing cities and industrial centers. Populations that were scattered across rural areas and small townships prior to the nineteenth century began to centralize within growing industrial and city centers. The Industrial Revolution created new opportunities for growth in these regions, and large numbers of people flocked there seeking work. In Britain, where the steam engine was invented, these areas included Manchester, Liverpool, and Birmingham—locations that quickly became congested and overpopulated. New technological advances in transportation, such as the development of railway and subway systems and the growth of steamships, facilitated the ability

to travel quickly from one location to the other, and supported both industrial growth and the timely transportation of both people and things from one location to another, thus increasing the circulation of new goods to new markets, and the movement of people toward growing urban centers. Concepts of both time and space were rapidly changing, and technological innovations visibly shifted the view of the landscape as well as the pace of life within it. The first steam-powered public railway line, the Liverpool Manchester Railway, emerged in 1830. By 1850, at least 6,000 miles of railway line had dramatically reconstituted the landscape. In 1863, the world's first subway line was built in London. Thus the vision of a picturesque English landscape that had been recorded and idealized by romantic poets such as William Wordsworth and William Blake earlier in the nineteenth century was literally remapped and demarcated by thousands of miles of track, which visibly changed the landscape, and by the sound of trains, which symbolized the shift toward an increasingly industrial and mechanical moment in time. Charles Dickens noted the development of the railway with dramatic and destructive images in his novel *Dombey and Son* (1848):

> The first shock of a great earthquake had, just at that period, rent the whole neighborhood to its center. Traces of its course were visible on every side. Houses were knocked down; streets broken through and stopped; deep pits and trenches dug in the ground; enormous heaps of earth and clay thrown up; buildings that were undermined and shaking, propped by great beams of wood. . . . Everywhere were bridges that led nowhere; thoroughfares that were wholly impassable. (60–61)

Space became reorganized by the railway, as Wolfgang Schivelbusch has noted (54–58), and this reorganization of space marked in turn the birth of modern concepts of standardization.

Industrialization brought a sense of progress and "newness" to Britain, and many early inventors and engineers seized this moment as

one of boundless opportunity and possibility. Figures such as Isambard Kingdom Brunel, an ambitious and innovative engineer who built bridges, railways, and steamships, and Joseph Paxton, who designed the Crystal Palace, were monumental forces shaping the energetic and enterprising mood of the age; however, these rapid changes brought both opportunity and struggle for the millions of people who flocked to growing towns and cities. While industrial expansion provided opportunities for many, and while the increased engagement with technology allowed for greater economic and social exchange, this era was also marked by devastating poverty, illness, and social unease. Many writers of the era attempted to capture the mixed effects of industrialization within their writing, and a range of cultural forms, such as novels, paintings, and philosophical essays, responded to technological progress and industrial innovation.

Industry, Technology, and the Realist Mode in the Nineteenth Century

One of the big literary shifts visible from the early to the late nineteenth century marks a transition toward realism of representation. Artists and writers tried to capture the mood of the period and the socioeconomic struggles—psychological, social, and cultural—of individuals through the narrative and realistic qualities of their work. The push toward social reform was supported by their vivid and detailed depictions of industrial and urban life. Visual representations such as Ford Madox Brown's *Work* (1852–65) captured the numerous forms of labor that became more and more a part of individual lives, and depicted the increasingly visible class differences that emerged as the physical labor of the working classes was distinguished from the leisurely life of the upper classes and the more intellectual and managerial work of the growing middle class. Other paintings, such as *Found Drowned* (1848–50) by George Frederick Watts and *The Outcast* (1851) by Richard Redgrave, captured newly visible "social evils" such as prostitution and narrated the fate of so-called fallen women who had been

banished to life on the streets. Some of the powerful prose writers of the period, such as Thomas Carlyle, Henry Mayhew, and Friedrich Engels, took as their focus the struggles of the lower classes and the new challenges that an industrial society had placed upon individuals. While Engels focused on the larger landscape of industrial change, noting the ways that building and progress shifted lifestyles and living conditions, other writers including Henry Mayhew and Thomas Carlyle commented on the ways that industrialization impacted the poor and created new class distinctions; they also emphasized how industrialization and new technologies created an emerging fusion between humans and machines. For example, in *Signs of the Times*, Carlyle's famous critique of industrial expansion, he notes that "men are grown mechanical in head and heart, as well as in hand" (67).

Just as much of the prose writing of the period addressed the impact of industrial expansion and technological growth, a number of nineteenth-century fictional works took as their focus the rise of industry and technology and its intersections with humanity. In one of the most sustained and compelling examples, *Hard Times* (1854), Charles Dickens creates a fictional industrial town, Coketown, as the setting for his narrative. The novel is filled with vivid descriptions of the industrial landscape of Coketown:

> It was a town of red brick, or of brick that would have been red if the smoke and ashes had allowed it; but as matters stood, it was a town of unnatural red and black, like the painted face of a savage. It was a town of machinery and tall chimneys, out of which interminable serpents of black smoke trailed themselves forever and ever, and never got uncoiled. It had a black canal in it, and a river that ran purple with ill-smelling dye, and vast piles of building full of windows where there was a rattling and trembling all day long, and where the piston of the steam engine worked monotonously up and down, like the head of an elephant in a state of melancholy madness. It contained several large streets all very like one another, and many small streets still more like one another inhabited by people

equally like one another, who all went in and out at the same hours . . . and to whom every day was the same as yesterday and tomorrow, and every year the counterpart of the last and the next. (19)

In this passage, Dickens references the blackened, industrial landscape of Coketown through repetitive language, highlighting the drudgery of factory work, and the monotony of the buildings and the lives of people who live and work there. While he posits the stark imagery of blackened brick and a foul-smelling, darkened river to emphasize the inhospitable landscape of Coketown and the harshness of the "rattling" windows, he also juxtaposes images of the natural world within his industrial scene. The rattling windows are also "trembling" as if they themselves are alive, the smoke coils like a serpent, and the steam engine works monotonously, "like the head of an elephant in a state of melancholy madness." Tamara Ketabgian has discussed such imagery in the novel through the concept of the "animal machine." She notes:

the concept is twofold: on the one hand, it envisions machines as bestial and instinctive organisms; on the other hand, it refers to animal bodies fueled by powerful mechanical drives that reproduce the hydraulic energetics of steam. Spanning a number of disciplines, this figure was commonly invoked by Victorian industrial critics, philosophers, and medical writers. (651)

Dickens presents his readers with exotic creatures that inhabit worlds far from the industrial center of Coketown, fusing the monotony of the industrial scene with wild, savage, and animalistic scenes of nature. This fusion mirrors the oppositional forces in the novel, forces of "fact," "fancy," "factory," and "circus." While the Gradgrind family and their cold, dreary home of Stone Lodge (note Dickens's use of names) is at the plot's center, the novel is framed, both at the beginning and at the end, with characters and scenes from the circus. Along

with emphasizing the oppositional worlds of the circus and the factory, Dickens presents his readers with a sympathetic portrait of the lives of workers through Stephen Blackpool—who suffers not only because of the monotony of the life he leads as a "Hand," or worker in the factory, but also because of his inability to seek a divorce from his alcoholic wife. Through the scenes surrounding a labor strike, Dickens also narrates the tensions between workers and factory owners and depicts the conditions in industrial towns. While the novel paints a realistic, albeit occasionally sentimental, portrait of the working classes, it also suggests that the rigidity and monotony of the factory model has entered middle-class, respectable homes. Stone Lodge is

> a great square house, with a heavy portico darkening the principal windows, as its master's heavy brows overshadowed his eyes. A calculated, cast up, balanced, and proved house. Six windows on this side of the door, six on that side, a total of twelve in this wing a total of twelve in the other wing; four-and-twenty carried over to the back wings. A lawn and garden and an infant avenue, all ruled straight like a botanical account-book. (8–9)

This square, balanced, and practical home mirrors the staid, monotonous model of the factory. Even the children within the home are surrounded by scientific and technological tools that enhance the teaching of "fact" and standardized notions of knowledge: "the little Gradgrinds had cabinets in various departments of science too. They had a little conchological cabinet, and a little metallurgical cabinet, and a little mineralogical cabinet, and the specimens were all arranged and labeled" (9).

The mid-nineteenth century spawned a number of novels that contributed to this sociological and realist mode of writing. Other notable examples include Elizabeth Gaskell's *Mary Barton* (1848) and *North and South* (1855), as well as Charlotte Brontë's *Shirley* (1849). Major novelists of the period such as George Eliot alluded to the impact

of technology and industry even if their novels were set in preindustrial England or in agricultural settings. Although Eliot's novels *Adam Bede* (1859) and *The Mill on the Floss* (1860) were written in the mid-Victorian period, their earlier historical and geographical settings allow the author to provide commentary upon the ways that life has changed. In *The Mill on the Floss*, her narrator often pauses and provides nostalgic references to the past, reminding readers that their own age is one of rapid technological change. Describing the town of St. Ogg's and the early-nineteenth-century era, Eliot notes:

> It was a time when ignorance was much more comfortable than at present, and was received with all the honors in very good society, without being obliged to dress itself in an elaborate costume of knowledge; a time when cheap periodicals were not, and when country surgeons never thought of asking their female patients if they were fond of reading, but simply took it for granted that they preferred gossip; a time when ladies in rich silk gowns wore large pockets in which they carried a mutton bone to secure them against cramp. Mrs. Glegg carried such a bone, which she had inherited from her grandmother with a brocaded gown that would stand up empty, like a suit of armor, and a silver headed walking stick; for the Dodson family had been respectable for many generations. (185)

Eliot's references to the "cheap periodicals" and notions of family history and respectability allude to the rapid changes within society that created anxieties about both reading and the mixing of social classes and families. Her readers confronted such concerns within the modern age of technological change. Eliot's novel was published when new technologies allowed for a boom in publishing and in the distribution of written matter, and when new "sensation" novels—often categorized in contrast to the intellectually and psychologically realistic novels that Eliot wrote—began to dominate the literary marketplace.

Technological advances in printing and transportation supported the rise of the novel as a major literary form in the nineteenth century. This

was the era in which "triple decker" (three-volume) novels flooded the marketplace and were made available to a widening audience through various forums, including new circulating libraries, popular journals, and magazines, which published many of these novels in serialized versions. Reading became a primary source of entertainment for families, and also a greater source of circulating information. Newspapers, magazines, household guides, pamphlets, and numerous other textual forms could be easily reproduced and distributed, and printed matter thus became a part of the household. While novels such as Dickens's *Hard Times* and Gaskell's *Mary Barton* attempted to provide realistic and psychological portraits of characters living in an age of industry, other narrative forms also became popular. Of these, the sensation novel was a genre that caused controversy and that aptly represents the technological and industrial growth of the age, and the birth of mass media.

Sensational and Gothic Texts and the Rise of Technology and Mass Media

The publication of three popular novels between 1860 and 1862 contributed to the term *sensation fiction*, which would characterize much of Britain's fiction in the 1860s. The term was assigned to Wilkie Collins's *The Woman in White* (1859–60), Mary Elizabeth Braddon's *Lady Audley's Secret* (1861–62), and Ellen Wood's *East Lynne* (1860–61). The almost instant popularity of these works, along with their utilization of the dangers of home to create page-turning plots, marked their leadership on the path toward an era of sensationalism. All of these novels were initially serialized in popular journals, which meant they were read in installments over a long period of time. Thus, like popular serialized television shows in the twentieth and twenty-first centuries, these novels provided sustained entertainment, and installments often ended with dramatic plot twists that kept readers engaged and enticed. They also attracted vast audiences of varying social and economic classes—as Susan Balee notes, "*East Lynne* has the honor

of being *the* best-selling novel of nineteenth century England" (143). Critics read these novels as being potentially dangerous to readers because of their bold plots—which often included adultery, bigamy, mistaken identities, and murder—and also because of their association with a new, fast-paced, industrial society. Such novels were sometimes called "railway novels" because they were associated with the fast pace of railway culture, and because they were sold cheaply at railway stations. David Allen notes that "the first railway bookstall opened at Euston Station in 1848 and publishers rose to the challenge with great numbers of special cheap editions the equivalent to today's paperbacks—expressly aimed at this new market. Technical improvements in printing and illustration also helpfully coincided" (123).

The plots of sensation novels often depended on technologies that had emerged by the mid-nineteenth century, and the narratives often included references to scandalous crimes, real events, and tabloid stories that could now be distributed to hungry audiences more widely. Critics of the genre such as H. L. Mansel implied that the novels were consuming and addictive, and often noted that "a commercial atmosphere floats around works of this class, redolent of the manufactory and the shop" (573). An anonymous critic of *Lady Audley's Secret*, writing in 1863 argued that "the 'sensation novel' of our time, however extravagant and unnatural, yet is a sign of the times—the evidence of a certain turn of thought and action, of an impatience of old restraints, and a craving from some fundamental change in the working of society. . . . sensation writing is an appeal to the nerves rather than to the heart" (qtd. in Braddon 485–86). Such examples increasingly associated sensation novels and the process of reading them with the dangers of a new and uncertain technological and industrial age. The novels themselves also alluded to the relationship between their characters and new technologies and mass media. In *Lady Audley's Secret*, a novel filled with depictions of household commodities and technologies, such as telegrams and trains, Braddon describes the deterioration of an "old" and "noble" home, Audley Court, under the intrusion of a

young, poor governess with an unstable past who marries Sir Audley and quickly gains control of the household.

Lady Audley's Secret and *The Woman in White* have plots that address the question of madness and, like *East Lynne*, the use of new technologies. Connecting characters' morality with technology, they raised new concerns about identity, family lineage, and respectability by incorporating such topics as mistaken identities, madness, and hereditary disease.

These novels also emphasized the newness of a modern, industrial, consumerist, and global society. Lady Audley, a beautiful but dangerous heroine whose crimes rely upon telegrams and trains, surrounds herself with the luxurious commodities of Audley Court, her new aristocratic home: "Beautiful in herself, but made more bewilderingly beautiful by the gorgeous surroundings which adorn the shrine of her loveliness. Drinking cups of gold and ivory . . . cabinets of buhl and porcelain . . . gilded baskets of hothouse flowers, fantastical caskets of Indian filagree work; fragile teacups of turquoise china" (308). Throughout the text, Braddon emphasizes the "newness" and complexity of modern society in contrast to the past, her references to "hothouse flowers" implying that even nature has become technologized. Further, her emphasis on the foreign commodities cluttering the home reveals the ways that the mid-century English home is tied to British empire's trade of exotic goods, and the consumption and display of these objects by British women. With such authors as Braddon, Wood, Rhoda Broughton, and Ouida (also known as Maria Louise Ramé) producing some of the major fictions, women writers dominated the marketplace of sensation fiction. The genre was also associated with women readers, as many of the novels focused on middle-class families and domestic spaces.

While sensation fiction alluded directly to the technological and industrial innovations within mid-nineteenth-century culture, novels published later in the period continued to emphasize scientific and technological ideas. Late-nineteenth-century texts linked technologi-

cal innovation with scientific and medical progress and addressed the broader cross-cultural interconnectedness that technology produced. If Mary Shelley's early gothic novel *Frankenstein* (1818) and later works such as *The Last Man* (1826) suggested how medical and scientific ideas could capture the attention of readers, later Victorian texts such as Robert Louis Stevenson's *The Strange Case of Dr. Jekyll and Mr. Hyde* (1886), H. G. Wells's *The Island of Dr. Moreau* (1896), Henry Rider Haggard's *She* (1887), and Bram Stoker's *Dracula* (1897) deeply relied on scientific ideas and technological innovations. *Dracula* engages with technology, medicine, and industry throughout. The structure of the novel—a palimpsest of journal entries, newspaper articles, medical records, and personal letters—reflects a modernist narrative approach, in which the story itself relies on technologies (typewriters, stenographs, cable messages) and offers the reader multiple shifts in time and perspective, creating a sense of repetition and emphasizing the rapidly changing interconnectedness of a global world. Jennifer Wicke's influential article "Vampiric Typewriting: *Dracula* and Its Media" addresses this important aspect of the novel. She notes:

> A narrative patchwork made up out of the combined journal entries, letters, professional records, and newspaper clippings that the doughty band of vampire hunters had separately written or collected, it is then collated and typed by the industrious Mina. . . . *Dracula*, draped in all its feudalism and medieval gore, is textually completely *au courant*. Nineteenth-century diaristic and epistolary effusion is invaded by cutting edge technology, in a transformation of the generic materials of the text into a motley fusion of speech and writing, recording and transcribing, image and typography. (469–70)

Just as the construction of the text itself is inscribed by technology and the intermingling of different media forms, the narrative of *Dracula* expresses late-nineteenth-century anxieties about the vulnerabilities of the British Empire and industrial prowess, and tensions

between "old" and "new" technology. In the early pages of the novel, Jonathan Harker prepares for his journey to Transylvania with his camera, with which he can record "Kodak views," as well as his journal, in which he records the primitive qualities of natives and their lack of modern technology: "I had to sit in the carriage for more than an hour before we began to move. It seems to me that the further east you go, the more unpunctual are the trains. What ought they to be in China?" (33). The novel contrasts these observations with the new technologies of the modern world—transfusions, telegraphs and gramophones, trains and ships—but also implies that these advances cannot protect England from the dangers of a primitive and powerful enemy. Van Helsing's traditional approaches—the use of garlic and crucifixes—become crucial in the struggle against the vampire, and Stoker suggests early in the novel that England's technological advancements and wide influence actually make the nation more vulnerable to the threat of foreign enemies. Dracula has access to English books, magazines, and newspapers; the sweep of English texts has made maps of London, law journals, and Army and Navy lists available (50). These publications expose the city and allow Dracula to successfully plan his journey and secure real estate in London. *Dracula* is thus a novel about journeys from east to west, and the technologies that enabled such journeys in the late nineteenth century. Exposing an increasingly interconnected global world, Stoker presents what Stephen Arata has termed "reverse colonization"—a late-nineteenth-century reversal of the colonial model in which an ancient figure from the so-called primitive world travels to the imperial center, echoing the haunting violence of imperial expansion and evoking fears of degeneration, a decline in imperial power.

Technologizing Nature: Natural History, Scientific Travel, and Nineteenth-Century Global Expansion

Texts of the late nineteenth century, such as Stoker's portrait of the horrors and anxieties surrounding travel, reveal how far society had progressed in terms of technology, scientific inquiry, and global inter-