

## Introduction

The function of machines is to increase the power of life itself, to enhance life's capacity for mastery and conquest. The machine does not in any sense replace life.

—DIDIER DELEUZE, "The Living Machine" (1992)

The machinery of all my nature, the whole enginery of this human mill: the boiler which I take to be the heart, is fit to burst.

—CHARLOTTE BRONTË, *Shirley* (1849)

**T**oday we live in a world of hybrids and chimeras—of human, animal, and mechanical couplings and combinations.<sup>1</sup> *The Lives of Machines* explores the surprising industrial origins of these hybrids, in sites both real and imaginary, consisting of both actual factories and the fantasies that surrounded them. As its title suggests, this book recounts how "dead" mechanism also led a lively and remarkably lifelike career as metaphor. My purpose: to show how contemporary notions of humanness have emerged through visions of its undoing, as a concept shot through by the mechanical.

Treating British literature and culture from the 1830s to the 1870s, this study uncovers forms of feeling and community that combine the vital and the mechanical, the human and the nonhuman, in strikingly productive ways. To some readers, this dynamic technoculture may sound more postmodern than Victorian. Have not the Victorians long been famed for their organic sympathies, their stalwart humanism, their tragic vision of industrial alienation, and their corresponding antipathy toward the machine? *The Lives of Machines* complicates these one-sided and often technophobic views, as crucially shaped by early twentieth-century Modernism and the disciplinary divisions of the postwar academy. In order for us to understand technology and notions of the human today, I argue that we must reread and rehistoricize Victorian culture in ways that do not merely pit people against machines but that instead examine their close mingling and identification.

*The Lives of Machines* thus offers an alternate cultural history, which traces sympathies between humans, animals, and machines in novels and nonfiction about factory work as well as in other unexpected literary sites and genres, whether domestic, scientific, musical, or philosophical. These texts use a common language for the industrialization of society and the psyche, drawn both from new concepts of the mind and body and from new forms of machinery—steam engines driven by hydraulic power and ordered into responsive feedback networks. I view these industrial metaphors as figures not only for rational mechanical efficiency but also for irrational instinct, emotion, sympathy, and spirituality—in short, for all that makes us human.

It is time, I argue, to expand and redefine what we mean by machinery in accounts of nineteenth-century literature and culture. *The Lives of Machines* urges us to consider more nuanced notions of industrial metaphor and technology, rooted in complex models of affect, community, intelligence, energy, and life itself. It challenges the persistent dismissal of machinery from the realm of modern psychology, by critics still influenced by pastoralist and anti-industrial views of British cultural history: Victorian machines were not simply soulless, lifeless, predictable, and unidimensional; not simply opposed to organic feeling and vitality; and not simply reductive material objects—if objects are ever so. They led a rich figurative life, yielding a broad literary array of habits, feelings, communities, and subjectivities. As science and technology studies have shown, these engines served as coordinated dynamic networks, with systems of complex interdependence that formatively shaped physiological and thermodynamic models of life. Unlike the static Hobbesian watches of the Enlightenment, they were *power* motors,<sup>2</sup> whose regulation of fire, coal, and steam supported a capacious vision of engines as living instinctive organisms, of animal bodies fueled by industrial forces, and of allied natural, mechanical, and psychic energy driving these systems.

Certainly the factory hand's lament—"they treat us like machines"—expresses the machine's alternate aspect: its connotations of sterility, alienation, and dehumanization.<sup>3</sup> Such portraits stress the profound human and environmental costs of the industrial project—costs my study by no means seeks to minimize. Yet, despite its continuing dominance in many critical accounts, this image of deadening machines and tragically alienated workers represents only one register within a complex symbolic field. While I will return to this tragic narrative, and its

prominent formulation by twentieth-century critics, later in this introduction, *The Lives of Machines* poses a more inclusive history of technoculture. It defines Victorian industrial character and feeling not as erasures or negations of self, but as robust and complex entities in their own right.

My project historicizes a mechanical model of affect that continues to inform a variety of theorists and philosophers today. This model has been widely adapted by modern psychoanalysis, beginning with Freud's vision of the human psyche as a dynamic hydraulic engine. Yet, beyond Freud and his heirs, we find the distinctive impress of Victorian industrial metaphor in even our most recent and influential accounts of humanness and technology. Focusing on cybernetics, prosthetics, artificial intelligence, animal cognition, and the posthuman, these accounts describe human-mechanical amalgams and assemblages "whose boundaries undergo continuous construction and reconstruction."<sup>4</sup> The Victorian industrial imaginary crucially prefigured these postmodern sketches, through its emphasis on prosthetic feelings and communities, on collective flows of force and influence, and on the uncertain limits of bodies, minds, and subjects.

Consider, for instance, the account of posthuman identity posed by theorist N. Katherine Hayles. She defines the "human . . . as part of a distributed system . . . [where] the full expression of human capability can be seen precisely to *depend* on the splice rather than being imperiled by it."<sup>5</sup> In her portrait of a subjectivity formed through the interstices of cybernetic relations,<sup>6</sup> Hayles evokes a popular Victorian vision of the factory as an organic and mechanical cooperative, a vast composite network producing collective identities through its own prosthetic joins and spaces.<sup>7</sup> For Hayles, as for other recent critics, such technical configurations have accompanied a growing interest in nonsubjective forms of affect. Imagined as flows of abstract affective energy and dispersed "bodies without organs,"<sup>8</sup> these collective nonhuman feelings would seem inseparable from postmodern crises of unified humanist subjectivity.<sup>9</sup> These feelings, however, also support some of our most resilient human—and humanist—constructions. While theorists today warn against privileging humanness in new nonsubjective sites, they would do well to consider their Victorian precursors, for whom nothing was more intensely human and affecting than the nonhuman. Indeed, if "the task of posthumanism is . . . reading humanism . . . against itself and against the grain,"<sup>10</sup> this practice of reading is far from a recent inven-

tion. *The Lives of Machines* explores its industrial genealogy, in texts that undermine human identity only to redeem and reconstitute it in ever more elastic forms.

With its “animal machines” and nonhuman minds, the industrial imaginary also addresses debates still urgent in the evolving field of animal studies. For, like recent philosophers and cognitive ethologists, who pose persuasive notions of animal emotion, intelligence, and consciousness, my book weighs the difficulties involved in interpreting nonhuman forms of instinct, gesture, feeling, and community. Just as observers today evaluate animals and machines by differentiating between intelligent and intentional acts and those that are chance or unconscious, so do Victorian texts assess character through a distinctly nonhuman lens, analyzing various nonverbal gestures according to their repetition, variation, complexity, intensity, novelty, and context.<sup>11</sup> Treating emotion and consciousness as traits dependent on their reception by viewers, these texts support a vigorous expansion of sympathy beyond the human—much like what J. M. Coetzee, in *The Lives of Animals* (1999), describes as a shared community of “wounded” creatures, whose thoughts and feelings defy conventional reason.<sup>12</sup>

Beginning at the mill and ending in the middle-class parlor, *The Lives of Machines* explores the inward and outward diffusion of the Victorian industrial project, to diverse sites of labor, leisure, and community. This cultural imaginary both mimicked and creatively remade industrialism, in factory systems of the mind, the heart, the home, and the senses. *The Lives of Machines* offers representative readings of this mechanical strain of feeling in early and mid-Victorian literature and culture. I argue that in order to redefine the machine more flexibly we must also reassess the literature of the machine, questioning established critical categories that have obscured its scope and complexity. Thus, far from an exhaustive survey of period texts or genres, my book treats industrial novels from the 1840s and 1850s, realist fiction from the 1860s and 1870s, and other more loosely classified works of physiology, natural history, ethnography, physical science, political economy, music criticism, and protosociological reportage. Equally technophobic and technophilic, these texts include fiction by Samuel Butler, Charles Dickens, Elizabeth Gaskell, George Eliot, Dinah Mulock Craik, and Geraldine Jewsbury; and culturally significant nonfiction ranging from Karl Marx’s *Capital* (1867) to the industrial commentary of Charles Babbage and Harriet Martin-

eau. All the while, *The Lives of Machines* moves beyond a superficially literal sense of the industrial, to examine portraits of emotion, community, intelligence, and spirituality, in which the machine wields a figurative influence so pervasive that it has gone nearly unremarked.<sup>13</sup> When, I ask, have we ever questioned the mechanical logic that grounds our view of the psyche as a site “under pressure”—that marshals and contains its hydraulic energies against outside influence? How else could we think of emotional sympathy and community than as industrial networks of collective, regulated, interdependent force—networks that widely inform realist fiction?

This reconsideration of the machine provides my book with its unifying logic and structure. Its various chapters examine the engine as a prosthetic network (chapter 1), a living organic mechanism (the “animal machines” of chapters 2 and 3), and a power system fueled by individual and collective forms of energy (the communities of force of chapters 4 and 5). While Victorian mechanical innovation supported a vast figurative field, *The Lives of Machines* concentrates on two iconic industrial technologies: early Victorian textile factories and the stationary dual-acting steam engines that so often drove them. These two technologies serve as figures not only of utopian self-control but also of irrational animalism, fueling fantasies of idealized social coordination and dangerous affective power. Indeed, whether rooted in the mill or in more pastoral scenes, period texts locate these fantasies in literal and figurative networks of minds, bodies, spirits, and forces. In their narratives of prosthetic struggle and alliance, these texts show how technological supplements both undermine prior forms of identity and produce new communities and compensations.

My study traces these prosthetic encounters in what, at first glance, may seem two quite different sets of textual sites and subjects: the explicitly industrial concerns of its first three chapters—on factory work and allied forms of affect and recreation—and the presumably more *nonindustrial* topics of its later chapters—on rustic, riparian landscapes and scenes of musical sympathy and technique. I combine these varied topics in order to display how, through close technocultural readings, their generic and thematic oppositions ultimately collapse and coalesce. For, as its final two chapters reveal, *The Lives of Machines* also explores a broader industrialization of affect and perception, in both middle-class practices of recreation (piano playing) and domestic fiction by an author (Eliot) renowned for her distance from modern machine culture. Treat-

ing communities of feeling as networks of abstract organic and mechanical power, these texts and practices support an industrial imaginary that pervaded the psyche and the physical world.

As a recuperative history of technoculture, this book is influenced by foundational work on the modernization of subjectivity by Walter Benjamin, Dolf Sternberger, and Wolfgang Schivelbusch.<sup>14</sup> It also engages in dialogue with more recent cultural studies of Victorian literary, scientific, and technological discourses, including those of Joseph Bizup, Jay Clayton, Nicholas Daly, Richard Menke, Laura Otis, Sally Shuttleworth, and Herbert Sussman.<sup>15</sup> Many of these critics contest the division between Victorian high culture and technology,<sup>16</sup> but their premise is voiced most emphatically by Clayton, who argues for the dynamic influence of literary technoculture in an age still unmarked by current disciplinary conflicts between the sciences and humanities. *The Lives of Machines* combines this technocultural approach with a new and more pointed assessment of nonhuman feeling in Victorian literature and culture.

Although industrial systems developed and flourished in the eighteenth century, if not before,<sup>17</sup> this book addresses their remarkable discursive prominence in early and mid-Victorian culture. Unlike prior decades, the early Victorian years were distinguished both by the greater availability of past technologies and by new insights surrounding force, heat, life, mechanical structure, and industrial coordination. These factors contributed to the unprecedented complexity, efficiency, and familiarity of nineteenth-century factories and machines, and to their increasing dominance in popular debates surrounding labor, modernity, and human community.<sup>18</sup> My study promotes a more flexible, figurative view of these industrial developments, by modeling technocultural forms of reading that will also illuminate other period texts—and especially novels—not treated here. For, as we will see, the Victorian novel served—and continues to serve—as a telling index for the shifting cultural status of machinery. Prized as a reserve of human complexity and interiority, this fiction also fostered the explosive growth of industrial metaphor.

## Industrial Fantasy and the Question of the Human

While the relation between Victorian literature and industrial development has attracted persistent scholarly attention, many of these studies

treat “industrialism” as an extremely broad concern, more synonymous with social and historical change than with any specific engagement—material or symbolic—with the machine. Moreover, when literary scholars do turn to machinery and machine culture, their conclusions often assume a negative cast. *The Lives of Machines* thus responds to a critical tradition that has typically viewed Victorian literature and high culture as either hostile to or disengaged from industrial life, has condemned the machine for its destruction of human feeling, and has faulted literature as bad art when it does treat machine culture as an explicit subject of representation.

This anti-industrial stance is especially emphatic in the case of the Victorian novel. Raymond Williams stresses the persistence of a “rural” imagination in fiction from an increasingly industrial nation;<sup>19</sup> Steven Marcus describes a literary inability to grasp the newness and strangeness of machinery;<sup>20</sup> and Herbert Sussman claims that most novelists “refused to attach any aesthetic or imaginative value to the technological wonders of their time.”<sup>21</sup> Even when machinery appears in Victorian fiction, many critics find it narratively and thematically peripheral.<sup>22</sup> The “industrial novels” of the 1840s and 1850s would seem to counter this trend, as they sketch relations between middle and working classes explicitly rooted in modern mill towns. Yet, for the great majority of scholars, these novels are simply not industrial enough—at least not in the literal sense of the term. According to these critics, industrial fiction neglects the world of the factory for more domestic scenes, at best pursuing “simultaneous impulses to associate and to dissociate the private and public realms of experience.”<sup>23</sup>

Beyond the presumed antipathy between technology and Victorian literary culture, many scholars detect a similar antagonism between machinery and human psychic depth. Treating the machine as either “dulling” or utterly destructive of complex feeling, they ally it with a diminution of humanness in people who live and work in industrial settings.<sup>24</sup> These literary and historical critics describe workers “reduced to hands,” whose contact with technology yields a subjective and emotional core that is little more than a vacuum. Invoking F. R. Leavis’s vision of “spirit-quenching” factories and “dreadful” mechanical “degradation,”<sup>25</sup> their tragic humanist portraits dominate our current accounts of working-class and industrial culture.<sup>26</sup> Received opinion thus treats the Victorian industrial psyche not only as stunted and dehumanized, but also as a virtual cipher.

What is more, this critical consensus has served as a stick with which

to beat industrial fictions as a whole. If industrial personalities are defined by their own *lack* of personality, it follows that the texts that represent them display a profound failure of characterization. Not surprisingly, then, many modern readers fault these novels for their portraits of dull, wooden, and emotionally undeveloped laborers.<sup>27</sup> Blending aesthetic judgment with a tinge of condescension toward working-class experience, they regard machinery as a topic that is neither psychologically nor philosophically compelling. What, they ask, could these machine-like people possibly yield to analysis if they lack the more customary features of human character and feeling? Uninterested in the figurative possibilities of the nonhuman, such critics dismiss the emotional aspects of machine culture as void of content.

Still a leading cultural narrative, this tale of degraded mechanical feeling has a very specific critical history, shaped by two influential members of the Victorian anti-industrial elite: Matthew Arnold and John Ruskin. For, when they recount the deadening effects of technology, modern scholars often invoke a latently Arnoldian humanism, in which machinery and mechanical community represent barbaric forces against “extricating and elevating our best self, in the progress of humanity towards perfection.” Thus defined, individual “culture looks beyond machinery”; its “*inward* condition . . . is at variance with . . . mechanical and material civilisation.”<sup>28</sup> Needless to say, this ideal of a complete and perfected human self leaves few alternate possibilities for human feeling. If, for Arnold, the “best self” epitomizes civilized human subjectivity, the question persists whether other “lesser” selves might be more than a conceptual void in which affect and psychology simply cannot be theorized. In *Culture and Anarchy* (1869), Arnold repeatedly invokes machinery as an emblem for this psychic and spiritual impoverishment,<sup>29</sup> but in a vague manner that ultimately only discounts the machine’s specific figurative and material aspects.<sup>30</sup> Whereas Arnold premises individual culture on the denigration of the machine, Ruskin poses an even more negative vision, condemning factories that “smother” people’s “souls,” “blight . . . their human intelligence,” and “make . . . flesh and skin . . . into leathern thongs to yoke machinery with.”<sup>31</sup>

Beyond Arnold and Ruskin, and throughout the twentieth century, this anti-industrial story has thrived under the auspices of Leavis, Williams, and later Marxist and New Historicist accounts of culture. As Stefan Collini describes Williams’s *Culture and Society* (1958), the resulting schism between laissez-faire industrial liberalism and holistic romantic social critique continues to wield a profoundly “distorting effect on



our understanding of English intellectual history” of the nineteenth century.<sup>32</sup> Certainly for Arnold and his inheritors, this repudiation of machinery has served a variety of social and political aims: it has hardened cultural divisions surrounding industrial growth and education, forged coalitions between labor interests and the rural, *rentier* values of the gentry,<sup>33</sup> and fueled a distinctly antimodern view of literary history. In *Culture and Anarchy*, Arnold plants this technophobic stance—and its allied division between the organic and mechanical—at what many consider the founding moment of modern British literary and cultural studies.

Today this Arnoldian view has displaced other industrial narratives with its concept of culture as an alternate, antitechnological sphere of value. *The Lives of Machines* seeks to restore some of this lost variety, as obscured both by postwar divisions between the sciences and humanities and by allied accounts of literary history. After all, so many of our popular accounts of Victorian alienation are Modernist formulations, rooted in a literary antipathy toward technology and mass culture that more recent scholarship has largely complicated and discredited.<sup>34</sup> Leavis’s postwar account of Victorian fiction is one such example, drawing from the early twentieth-century writings of George Sturt, who dwells on lost organic communities and artisanal traditions,<sup>35</sup> and from a persistently anti-industrial strain of British social history, embodied by the work of J. L. and Barbara Hammond.<sup>36</sup> For Leavis and later critics, this dismissal of Victorian machine culture has also supported Modernism’s own exceptionalizing claims, which privilege both its greater aesthetic integration of culture and technology<sup>37</sup> and its pursuit of more complex forms of psychic depth—a category that defines not only the novel’s “Great Tradition” but also its antipathy toward industrial character.

While Victorian industrial texts and topics have inspired primarily tragic readings, a more redemptive view of alienation and working-class consciousness also informs their modern critical reception, promoted by Marxist thinker Georg Lukács. Treating these texts as the “intensified symptom” of “man’s . . . alienation from his work,”<sup>38</sup> Deirdre David invokes a concept that actively allies industrialism with the formation of hybrid notions of humanness.<sup>39</sup> Indebted to a particularly humanist, utopian, and Hegelian strain of Marxism, this vision of alienation encompasses nonhuman states of being, even as it ultimately leads to a more collective and “transindividual” form of humanity.<sup>40</sup> Yet, despite its crucial role in this process of human re-creation,<sup>41</sup> alienation is still, according to Marx, a “labour of self-sacrifice, of mortification.”<sup>42</sup> Lukács

sketches this state even more dramatically, as a condition both “dehumanised and dehumanising,” resulting in a pronounced “lack of will.”<sup>43</sup> Thus, for all its more hopeful aspects, alienation derives from a view of the modern industrial condition as a mere transitional stage, a state of dehumanized negation that does not yield psychic and symbolic dividends in and of itself, but rather only as it is surmounted. Because alienation supports such implicit historical assumptions surrounding the “development” of human nature, I do not draw unduly upon this concept.<sup>44</sup> This Marxist paradigm may seem to promise any number of redemptive transformations, but it ultimately promotes a notion of industrial character that, at least in the capitalist arena, remains flat, negative, and largely untheorizable.

Shaped by the Marxist literary tradition and by allied Tory and Radical critiques of modernity, these tragic accounts have promoted an anti-industrial view both of the novel and of modern British literature as a whole. *The Lives of Machines* shows how this pastoralist bias has crucially affected which texts qualify as significant works of high culture, as well as the aesthetic standards that uphold them. Certainly the anti-industrial history of literature is a remarkably *selective* history, resulting both in the selective canonization of particular texts and in selective ways of reading them. Today this history continues to fuel battles between the sciences and humanities, between technology and the literary preserve of psychic “depth” and complexity.<sup>45</sup> When do we not hear of novels such as *Hard Times* (1854) cited to support invectives against antihuman technology? When are Eliot’s organic communities not celebrated as humanist rejoinders to the sterile, shallow apparatuses of mechanism? And why do students of Victorian literature so rarely encounter more technophilic attitudes and narratives? In response, my study provides an alternate account of overlooked texts and practices of interpretation.

On the one hand, I point attention to forgotten but once influential works by Geraldine Jewsbury, Dinah Mulock Craik, and Harriet Martineau, all of whom eagerly espouse the Victorian industrial project. While Martin Wiener claims the “decline of the industrial spirit” began in full force during the 1850s,<sup>46</sup> Craik’s and Jewsbury’s novels reveal a clear enthusiasm for modern invention, the utopian potential of industrial life, and the vigorous psychological powers associated with the machine. These authors pose emphatic forms of pro-industrial discourse—what Elaine Freedgood has termed “the winning but paradoxically understudied side of the [industrial] debate.”<sup>47</sup> In their literal and figurative accounts of machinery, they offer a visionary middle-class alternative

to the models of industrial working-class feeling treated elsewhere in my study.<sup>48</sup> Moreover, their embrace of industrialism also counters an established tradition of masculine antimodernism, extensively documented by Susan Zlotnick.<sup>49</sup> Although critics have deemed Craik's and Jewsbury's fiction second-rate and merely popular,<sup>50</sup> these judgments are of course marked by the pastoralism of both postwar and earlier exponents of British high culture.

On the other hand, aside from Craik and her contemporaries, I reconsider mechanical narratives and metaphors in texts by now-venerable authors such as Dickens, Eliot, Gaskell, and Marx. I deliberately select two works—*Hard Times* and *Mary Barton* (1848)—that form the core of nearly all accounts of the industrial novel, whether in Williams's *Culture and Society* or more recent criticism. In both fictions, as in Marx's portrait of the factory in *Capital*, I question traditional readings that stress the alienating and depleting effects of machine culture. Indeed, to test this approach more pointedly, *The Lives of Machines* treats two novels considered quite distant from the industrial realm: Eliot's *Mill on the Floss* (1860) and, more briefly, *Daniel Deronda* (1876). Although the *Mill*'s rustic landscapes may first seem only to "comment on industrialization by its relative absence from its pages,"<sup>51</sup> I show how this novel—along with other pastoral and domestic texts—imagines powerful mechanical forces, feelings, and communities. All the while, my study explores an industrial imaginary that is undoubtedly middle-class in character. This book does not include more culturally marginal varieties of literary production, which a growing number of critical studies address in authoritative accounts of working-class genres and traditions of social literature.<sup>52</sup> Instead, I focus on dominant forms of industrial fantasy that are too often accepted at mere face value, as transparent vehicles of middle-class interests.

*The Lives of Machines* explores the mill and various communities beyond it as active fields of moral, emotional, and mechanical force, emerging between minds, bodies, spirits, and machines. Addressing this expansive human—and posthuman—view of industrial culture, my first chapter analyzes the Victorian factory as a site of radical spatial and psychological change. Industrial accounts by Charles Babbage, Harriet Martineau, Karl Marx, and Andrew Ure all define a territorial conflict in which workers and machines are compulsively coupled and uncoupled, dissected and rejoined, to yield new, hybrid forms of human community. While they sketch workers who are alternately depleted or amplified by the machine, Victorian texts imagine an industrial subject

that is no longer, strictly speaking, a body, but an effect of the meshing of various prosthetic parts. This model of industrial power has spiritual implications as well, which I explore in Martineau's writings on mesmerism. For Martineau, the mesmerized individual joins a complex network of active forces and sensations emitted by all objects. Fraught with concerns surrounding domination, this fantasy of invisible and interdependent forces resembles another landscape with equally utopian and superhuman implications: the mill and its coordinated human and mechanical "organs."

Offering an alternative reading of *Hard Times*, my second chapter investigates machines sketched by Dickens as "melancholy mad elephants." I show how this figure of an animal machine represents irrational instinct and unpredictable irregularity in both Dickens's fiction and period works of journalism, medicine, and natural history. In *Sketches by Boz* (1833–36) and these texts, the elephant's mad, emotional excesses seem to conflict with its otherwise regular, docile behavior. Always harboring the potential for unpredictable violence, the metaphorical elephants of Coketown allude to specters of colonial rage, working-class revolt, and disruptive forms of brute feeling. These works invite us to rethink steadiness and regularity as expressions of profoundly irregular forces, both on the part of machines and of working-class characters like Stephen Blackpool. For Dickens and his contemporaries—who often likened the factory to schemes of Asiatic despotism—such mechanical servility dramatizes both the inscrutable face of submission and the nonhuman core of all feeling. Presenting a form of subjectivity that is an effect of repetition, *Hard Times* creates a suspicion of psychic depth that infuses its most docile characters with a threatening mechanical aspect.

Chapter 3 explores the resonance between industrial labor and leisure, in portraits of working-class habit and appetite that compensate for the lost rhythms, relations, and intensities of the factory. Returning to the figure of the animal machine, I examine bestial and mechanical modes of consumption in Gaskell's *Mary Barton* and early Victorian works of social investigation by Friedrich Engels, Leon Faucher, Peter Gaskell, and James Kay. Viewing brute appetite through the lens of middle-class fantasy, all of these texts sketch a culture of working-class consumption that simultaneously flouts and emulates the mill as a model of efficiency, regularity, and prosthetic coordination. These works describe a pervasive overlap between the mechanically "regular" rhythms of the factory and the excessive and repetitive urges of the human body—whether for food, sex, alcohol, drugs, dress, or the thrill of spending itself. Yet while

Gaskell, like her peers, allies industrial culture with compulsive spending habits, deviant addictions, and “willful” female independence, her novel also pointedly confounds animal need and intentional human desire, revealing the subjective aspects of the most nonhuman urges. For, as they consume in the image of the machine, Gaskell’s characters not only reenact factory discipline, they also transform and manipulate it as an intensely physical lexicon for wordless states of longing, sympathy, and community.

While the first three chapters of this book treat the mechanical feelings of people located in hybrid industrial networks, its final two chapters explore how Victorians understood the forces driving these networks. Examining both domestic fiction and middle-class musical recreation, chapters 4 and 5 show how communities of feeling also serve as industrial energy systems, combining the organic and the mechanical, the physical and the emotional, the living and the dead. Chapter 4 traces industrial forms of psychic force in Eliot’s *Mill on the Floss* and popular accounts of the early Victorian fusion of water and steam power. For Eliot and her peers, this blend of hydraulic and pneumatic energy supports a corresponding language of mechanical impulse and feeling—of force imagined abstractly, industrially, and intersubjectively. Along with Craik’s *John Halifax* (1856) and nonfiction by Ure, Carlyle, and Samuel Smiles, *The Mill* treats the steam engine both as a model for regulating psychic conflict and as an aid for simulating and perceiving power—a “natural-force” motor combining vital, mechanical, and affective energy as diffuse metaphorical principles. Eliot invites us to “feel” this pressure in her novel’s various mills, motors, canals, and landscapes, which all serve as analogues for the expansive breadth and “oppressive narrowness” of the Tulliver family and its provincial, riparian community. Through this mechanical interplay of force and structure, Eliot imagines depth psychology and social tension as intensities of convertible energy, pervading both natural and industrial worlds.

My final chapter explores industrial habits of leisure among the Victorian middle classes, in scenes of musical sympathy and technique that complement this book’s earlier emphasis on working-class recreation. Chapter 5 thus uncovers a machine at the heart of the bourgeois home: the piano in the parlor. Serving as only a brief case study of a broad cultural development, it addresses industrial networks of musical energy, sympathy, and influence in Eliot’s *Daniel Deronda*, essays by Heinrich Heine, Jewsbury’s *Marian Withers* (1851), and various period writings on piano virtuoso Franz Liszt. In their sketches of performers and listen-

ers, these texts ally emotional spontaneity and mechanical perfection, treating the piano both as a medium for intense spiritual affect and as a field of near-automatic technical skill. As *Marian Withers* shows, the piano serves as the ultimate middle-class complement to industrial scenes of working-class discipline. A perfect standard for the government of threatening emotions, this mechanical ideal exists not only in period accounts of the factory but also in other domestic texts, which reserve their greatest enthusiasm for spiritual displays of regularity and self-mastery. Revealing hidden sites of industrial affect, the piano gives voice to two overlapping realms of feeling: the language of the soul and of the steam engine.

In my last chapter and those that precede it, I explore a profound human identification with technology, whether located in the mill, in the home, at the piano, or deep in the heart. *The Lives of Machines* thus questions our easy denigration of the “mechanical” in a culture where machinery also represents our most powerful and unspeakable notions of emotion and community. For, as we will see, the Victorian steam engine became the figure par excellence of modern psychology, if not of affect beyond the self. Today, more than ever, these industrial networks and narratives serve as exciting sites of possibility, both shaping and challenging the limits of human identity.