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The Self Wired

INTRODUCTION

Riddles in the Wiring

Representing the Technologically-Mediated Subject

> The Industrial Revolution and its consequences have been a disaster for the human race . . . permanently reducing human beings and many other living organisms to engineered products and mere cogs in the social machine. . . . There is no way of reforming or modifying the system so as to prevent it from depriving people of dignity and autonomy. . . . We therefore advocate a revolution against the industrial system.
>
> —Theodore Kaczynski, *The Unabomber Manifesto*

Recent decades have been marked by intense controversy about how to best understand and represent human subjectivity in a technology-intensive era. While philosophical and popular debates over the vitalist-mechanist question have flourished since the eighteenth-century scientific and industrial revolutions, American artists typically have resolved this question—or at least the dilemma of how to represent its fundamental terms—by locating the subject within an active, organic body clearly distinct from the passive, inorganic machine. However, contemporary technologies trouble this neat distinction: microbiology and genetics promise to penetrate and reorganize bodies from within, while computer-based virtual realities and global communication systems simulate and re-present them from without. These developments raise the stakes of the vitalist-mechanist question in two closely related ways. First and most obviously, advanced technologies challenge conventional understandings of the human subject by transforming the body into a conduit between (rather than a protective barrier against) external forces and the internal psyche. Second, as the body becomes a kind of permeable interface, technological mediation seems to replace direct organic experience as the subject's primary source of information about itself and the world. Thus the increasingly intimate connections between our technologies and our selves seem to call for new modes of information processing or, in more conventional terms, new modes of representation.

Some have reacted to the shift from a "body versus machine" paradigm to a "body as machine" paradigm with distrust and near hysteria. This hysteria seemed to reach new heights in 1995 with the publication of Theodore Kaczynski's *Unabomber Manifesto*, which bitterly denounced "the Industrial Revolution and its consequences" for transforming humans into "engineered products and mere cogs in the social machine."[1] Accompanied as it was by a certain lethal violence—the package bombs that killed two and injured five others involved in technological research and development—this denunciation received widespread media attention. In his *Manifesto*, Kaczynski equates the bombings with revolutionary activity but insists that such activity "is not to be [confused with] a POLITICAL revolution. Its object [is] to overthrow not governments but the economic and technological basis of the present society" (s. 4). For Kaczynski, then, technology becomes *the* central force informing—and deforming—contemporary human experience, one that appears to take on a fantastic life of its own apart from any other kind of social or political power.

Elsewhere in the *Manifesto*, Kaczynski argues that revolutionary violence is a necessary response to the deformation of representational systems themselves. Claiming that corporate control makes it "almost impossible" for individuals to voice dissenting opinions within the public sphere, he concludes that "if [I] had never done anything violent and had submitted the present writings to a publisher, they probably would not have been accepted" (s. 96). Thus Kaczynski links changes in the general relationship between humans and technology to changes in the specific relationship between the author and representation: as the technologization and commercialization of representation increases, the author's opportunity to challenge this process accordingly decreases. The only way to assert the individual voice, then, is to supplement words with (in Kaczynski's case, quite literally) explosive action, to make space for this voice within emergent economic and technological systems by blowing them wide apart.

Taken together, Kaczynski's writings and actions encapsulate some of the very real complexities of the post–World War II era. Initially, Kaczynski's depiction of himself as a lone revolutionary voice crying out in the new high-tech wilderness might seem to simply reinforce his call for a return to an epistemological order affirming the conventional distinction between autonomous human subjects and their mechanical or engineered counterparts. At the same time, however, his actions suggest that he remained firmly embedded with the very technological networks from which he sought to distinguish himself at all times—indeed, this embeddedness both shaped and undermined his revolutionary/criminal project in significant ways. Kaczynski professed to despise the mass media, yet he chose to pursue his call to revolution through it. In doing so, he made himself legible to the systems of communication and control he wished to overthrow. Although federal investigators pursued Kaczynski for over seventeen years, prior to the publication of *The Unabomber Manifesto* they had little or no solid evidence against him; afterward, they had enough information to

arrest him within a matter of months.[2] More than a matter of mere irony, the denouement to the Unabomber case indicated the extent to which contemporary subjects are always already inserted into dominant networks of power.

While the conclusion to the Unabomber case seems to underscore Kaczynski's own worst fears about technological mediation, for others the demise of the autonomous subject provides an opportunity to explore new modes of identity and agency modeled upon the new intimacies between humans and machines. In this book, I show how a growing number of writers and filmmakers depict technological mediation as a productive (rather than disabling) experience generating a range of relationships to ourselves and our world. More specifically, I argue that the revised understandings of subjectivity proposed by these artists are enabled by revised modes of representation: although contemporary artists (like their predecessors) continue to locate subjectivity within the body, depictions of this body change significantly. By using the figure of the part-organic, part-technological cyborg to explore the experience of technological mediation, these artists revise conventional understandings of human identity and agency and, in turn, contribute to the development of a new narrative genre: "cyborg writing."

Throughout this book, I combine the analytic techniques of literary and cultural theorists to better illustrate the contours of this new genre. In recent decades there has been a virtual explosion of scholarly interest in how Americans represent the phenomenon of technological mediation. Broadly speaking, this criticism can be divided into three strands. First, literary analyses such as David Porush's *The Soft Machine*[3] and Sharona Ben-Tov's *The Artificial Paradise*[4] examine how representations of advanced technologies function within well-established romantic and/ or humanist writing traditions. Such analyses provide a necessary and important historical context for understanding contemporary depictions of human-technology relations. In doing so, they combat the cultural amnesia of an era that often claims advanced technologies represent a clean break from the past. However, their emphasis on historical continuity limits the ability of these critics to discuss how the technological mediation of bodies and embodied experience might provide authors with the opportunity to imagine new forms of subjectivity.

A second strain of literary analysis—represented by works such as Joseph Tabbi's *Postmodern Sublime*[5] and Scott Bukatman's *Terminal Identity*[6]—focuses on the technologically-mediated or cyborg body as a narrative device through which authors explore the influence of advanced technologies on contemporary understandings of subjectivity. This focus allows such critics to acknowledge how material conditions affect representations of subjectivity. At the same time, they typically confine their discussions to one specific literary genre (such as "postmodern literature" or "science fiction"). Thus, their studies provide little or no sense of the relationship between different genres of writing.[7] While my own study draws upon certain aspects of these two stands of literary criticism—most notably, the historical emphasis of Porush and Ben-Tov and the focus on material relations advocated by Tabbi and Bukatman—it also complicates them by

examining how historical and contemporary representations of technologies, bodies, and subjectivities circulate throughout diverse literary genres. In doing so, I erode the seemingly distinct boundaries between these genres and provide new contexts through which to read the narratives typically associated with them.

Cultural studies theorists offer a third approach to studying the phenomenon of technological mediation. Literary analyses often focus on understandings and representations of only one technology, such as "the computer." Thus they imply that all advanced technologies are essentially interchangeable and that they operate on the contemporary imagination in the same way. In contrast, anthologies including Judith Haberstam and Ira Livingston's *Posthuman Bodies*[8] and Chris Hables Gray's *The Cyborg Handbook*[9] show how different technologies influence our understanding of bodies and identities in different ways. By examining how technologies from diverse fields of industry such as aerospace research, toy development, and medicine transform conventional notions of subjectivity, the authors included in these anthologies address some of the silences of their literary counterparts. Unfortunately, their emphasis on "real life" cyborgs leaves little room for a sustained consideration of how these representations are imaginatively de- and reconstructed. By wedding cultural studies methodologies to their literary counterparts, I show how the trope of the cyborg emerges through the interplay of multiple texts: industrial and imaginative, canonical and popular, mainstream and minority.

The rest of this introduction shows how current debates over understandings and representations of technologically-mediated subjectivity emerged in congruence with the interdisciplinary science of cybernetics after World War II. First, I discuss the development of cybernetics itself as a legitimate field of scientific inquiry, as well as critical responses to the notions of human-machine equivalence and interdependency proposed by scientists working within this new field. Next, I examine how contemporary science historian Donna Haraway extends this critical tradition and articulates new theories of technologically-mediated subjectivity by carefully revising one of the primary narrative tropes to emerge from cybernetics—that of the part-organic, part-technological "cyborg." Finally, I provide an overview of how the authors and filmmakers discussed in this study both anticipate and complicate Haraway's theories by linking specific modes of identity and agency to engagement with specific manifestations of technology itself.

I. "THE SEARCHER FOR TRUTH CANNOT PAY ATTENTION TO HIS OWN OR OTHER PEOPLE'S LIKES OR DISLIKES": EARLY DEBATES OVER THE CYBERNETIC PARADIGM AND CYBORG SUBJECTIVITY

Examining how cybernetics historically challenged conventional notions of what it means to be human provides a crucial context for understanding contemporary debates over this issue. An interdisciplinary science concerned with the study of information, cybernetics emerged from the diverse endeavors of Bell

Laboratories and MIT researchers (most notably, Norbert Wiener, Alan Turing, John von Neumann, Claude Shannon, and Warren Weaver) in the 1930s and 1940s. Faced with new claims about the radical indeterminacy of the physical universe as advanced by quantum physics and articulated in Godel's theorem, these researchers hoped to solve the problem of uncertainty (and thus reinvigorate scientific positivism) by examining natural phenomenon in terms of communication and control rather than subatomic motion. The new field coalesced rapidly during World War II, when the Bell Laboratory and MIT scientists began to apply their theories to practical military problems such as message encryption and anti-aircraft missile targeting. This work led to the development of the first digital computers and, eventually, to the development of global communications systems as well as rapid advances in other fields of inquiry ranging from automation to medicine. The 1948 publication of Norbert Wiener's *Cybernetics: Or Control and Communication in the Animal and the Machine*[10] marked the birth of cybernetics as a formal scientific discipline, while the 1950 publication of *The Human Use of Human Beings: Cybernetics and Society*[11] made its basic principles accessible to the public at large.

As Wiener emphasized in both these works, the study of "control and communication in the animal and the machine" held the potential to do more than simply reinvigorate scientific positivism or provide technological solutions to problems of computation. Rather, in doing so, cybernetics also challenged conventional distinctions between animals (especially human animals) and machines. Specifically, Wiener argued that the second law of thermodynamics—which posits that nature tends toward disorder or entropy—was countered by "enclaves of increasing organization" or "open systems" that transformed nature into meaningful information. If all such systems—be they organic, social, or technological—operated according to this same basic principle, then it was necessary to redefine "life" itself:

> Whenever we find a new phenomenon which partakes to some degree of the nature of those we have already termed "living phenomena," but does not conform to all the associated aspects which define the term "life," we are faced with the problem whether to enlarge the word "life" so as to include them, or to define it in a more restrictive way so as to exclude them. We have encountered this problem in the past in considering viruses. . . . Now that certain analogies of behavior are being observed between the machine and the living organism, the problem as to whether the machine is alive or not is, for our purposes, semantic and we are at liberty to answer it one way or the other as best suits our convenience. . . . I do not for a moment mean that the specific physical, chemical, and spiritual processes of life as we know it are the same as those of life-imitating machines. I mean simply that both can exemplify locally anti-entropic processes . . . which we should naturally term neither biological or mechanical. (*Human Use*, 31–32)

Thus Wiener suggested that even seemingly fundamental concepts such as "life" and "non-life" were not absolute, that they historically had been (and would continue to be) redefined with the accumulation of new knowledge. In

turn, related concepts such as the seemingly inevitable distinction between humans and viruses or humans and machines also appeared to be historical and semantic constructs rather than universal truths. Confronted with new insights supplied by cybernetics, then, these older conceptual schema seemed to necessarily give way to new ones that positioned heretofore-discrete systems along a continuum of pattern recognition and message organization.

General analogies between biological and technological systems led to more specific ways of reconceptualizing the human mind and body as well. Assuming that information was always quantifiable and that all information-oriented entities could be described by formal logical-mathematical terms, cyberneticists set out to explain seemingly ephemeral phenomenon such as the mind within these terms. For instance, Wiener suggested that two of the most significant characteristics associated with the human mind—learning and memory—were essentially elaborate forms of feedback, processes in which organisms "modify their patterns of behavior on the basis of past experience so as to achieve anti-entropic ends" (*Human Use*, 48). Drawing on new findings in biology and neurochemistry, he argued that even the most elaborate forms of feedback could be explained and predicted upon determining an organism's neurochemical and physical structure. Thus organisms with neurochemical structures that were prevented from developing extensively due to relatively short life cycles or radical physical metamorphoses (such as insects) exhibited little or no ability to remember or learn, while organisms with longer and more developmentally-stable life cycles (including most vertebrates, but especially primates) developed complex neural systems that allowed for greater degrees of learning and memory (*Human Use*, 52–53). By depicting the heretofore abstract, autonomous mind as the end product of specific material constraints and interactions, Wiener implicitly (and sometimes explicitly) underscored its ultimately describable nature.

Not only did cyberneticists suggest that the cognitive processes associated with the mind were quantifiable, but that they very well might be technologically replicable as well. In his groundbreaking 1950 essay "Computing Machinery and Intelligence," Alan Turing argued that scientists already used cybernetic principles to build digital computers that "learned" by mimicking less sophisticated machines and that eventually more advanced computers would be able to do the same by mimicking human behavior.[12] Indeed, as he rather enthusiastically predicted, "at the end of the century. . . one will be able to speak of machines thinking without expecting to be contradicted" (442). More specifically, Turing proposed that if "thinking" is largely a matter of generating and communicating messages, then the question of whether or not a machine can (or can eventually be created to) think could be answered by playing what he called "the imitation game." In this game (later known as the Turing Test), an interrogator in one room would carry on a written or typed conversation with a human and a computer in another room. If the interrogator cannot determine which messages are from the human respondent and which are from the computer, then the latter had successfully mimicked the message-making patterns of

the former and, even if it did so by a process which "is very different from what a man does [while thinking] . . . we need not be troubled by [it]" (435). Ultimately, Turing's test challenged dominant understandings of the human mind as a unique entity in two important ways. First, much like other cyberneticists, Turing assumed that human cognition was both quantifiable and reproducible. Second, the Turing Test itself implicitly displaced consciousness (defined as the interplay of various cognitive processes) from its traditional location in the human body, recasting it as an effect arising from the interaction *between* bodies.[13]

At the same time cybernetics positioned cognition as a kind of bodily effect, it proposed new interpretations of the body itself. While earlier writers typically defined the body in terms of its ability to produce or conserve energy, cyberneticists depicted it as a communications network that adapted to and acted upon its environment through "the accurate reproduction" of messages and signals (*Human Use*, 15). To better contextualize this new vision of the body, scientists positioned it within larger narratives of bodies and machines. For example, Wiener argued that dominant interpretations of the body tend to parallel the four dominant modes of mechanical knowledge marking Western history. In the first two phases—the "mythic, Golemic age" of preindustrial Europe and the "Age of Reason"—the body was figured as a malleable clay figure and as a clockwork mechanism, respectively. Subsequently, the Industrial Age of the nineteenth and early twentieth centuries portrayed the body as a "glorified heat engine," and, finally, the current age of communication and control depicted it as an electronic system (*Human Use*, 51). As he did elsewhere with "life," then, here Wiener indicated that "the body" was not an absolute concept, but one subject to change over time.

While Wiener's brief history of the body drew attention to how this body has long been imagined in relation to machines, it also suggested that the postwar era heralded a certain break in this history because it demanded a more radical reconceptualization of the body than did its predecessors. Earlier machines typically were designed for limited (usually industrial or agricultural) applications; thus while they might provide models for understanding the body in certain ways, at the last instant they failed to describe accurately (and thus remained distinct from) their more complex, "all purpose" human counterparts. In contrast, Wiener claimed, cybernetics theory allowed for the design of machines—ranging from missile guidance systems and computers to door openers and thermostats—that functioned in a much wider range of situations. These new machines provided a more compelling model for the human body because, much like this body, they performed equally well in *both* the industrial and the social worlds (*Human Use*, 55). Furthermore, by providing a common language through which to describe diverse kinds of machines, theories of communication and control also provided a highly effective way to describe the human body. Much like the new electronic machine, the human nervous system could be described as "effectively coupled to the external world, not merely by [its] energy flow . . .

but also by a flow of impressions, of incoming messages, and of the actions of outgoing messages" (54). By drawing attention to the formal correspondences between bodies and machines, then, cybernetics seemed to close the conventional gap between these two previously distinct categories. In doing so, it also suggested that the heretofore closed or intact biological body—like its technological counterpart—was essentially an aggregate of components available for de- and reassembly.

New understandings of the body were more than theoretical; indeed, bodies seemed to be quite literally reconstructed by the applied technological offshoots of cybernetics as well. As early as the 1950s, Soviet scientists drew upon insights into the similarities between biological and mechanical sense receptors to explore the possibility of automated prostheses for amputees. Concurrently, American researchers examined the possibility of using these insights to cure the neurological imbalance associated with Parkinson's disease and to develop visual and aural implants for the blind and deaf (*Human Use*, 164–67). The explicit goal of this research was to restore individuals to "normal" levels of human functioning. At the same time, however, this research implicitly redefined "normal human functioning" to encompass the fusion of biological and technological activity. Because these new technological prostheses were to be integrated into the organic body in intimate ways, they became quite literal signs of the new and newly intimate connections between humans and machines as a whole.

The potential fusion of human and machine—and its impact upon what it might mean to understand and represent the human body in a high-tech era—was illustrated most spectacularly by the work of scientists Manfred E. Clynes and Nathan S. Kline. Confronted with the problem of how to help astronauts survive space travel, Clynes and Kline proposed a rather elegant solution. Rather than searching for ways to construct and carry the natural human environment into space, they suggested that the products of cybernetic research and development could be used to adapt the human body itself to new environments. More specifically, they argued that a combination of neurochemical pharmaceuticals and automated delivery systems could "bring about the biological changes which might be necessary . . . to allow [man] to live in space *qua natura*."[14] Clynes and Kline called the being that would emerge from this biological-technological interface "the cyborg," a kind of superhuman who would be free "to explore, to create, to think, and to feel" without becoming "a slave to the machine[s]" currently used to keep humans alive in hostile environments ("Cyborgs," 31). Indeed, Clynes and Kline went so far as to predict that the cyborg would do more than simply transcend its immediate environment. Instead, it would transcend the constraints of evolution as well because "starting as of now, it will be possible to [survive a range of different environments] *without alteration of heredity* by suitable biochemical, physiological, and electronic modifications of man's existing modus vivendi" ("Cyborgs," 29). Thus while Clynes and Kline developed the notion of the cyborg in response to the specific

problem of space travel, this figure gestured toward more general dreams of human control over and transcendence of biology as a whole.

Of course, these new theories and depictions of what it might mean to be "human" did not go unchallenged. Scientists such as mechanical translation researcher Mortimer Taube called for a "criticism of science . . . similar in its aims to the established arts of literary, musical, art, and religious criticism."[15,16] In his own such criticism, Taube claimed that cybernetics research consistently has been flawed by an "inverted fundamentalism": a tendency to assume that because biological systems share some operational processes with their technological counterparts, the former could be modeled upon the latter in a relatively simple and straightforward manner ("Computers and Common Sense," 77). More specifically, Taube argued that cybernetics tended to overestimate the similarities between such systems because they emphasized formal rules of information reception and organization at the expense of the (material, historical, and social) contexts in which such reception and organization occurs. In doing so, then, they gravely *underestimated* the impact of experience upon action—after all, as Taube pointed out, "the statements 'John knows football' and 'John can play football' are not equivalent" ("Computers and Common Sense," 48). While the cybernetic paradigm led to the development of technologies that clearly changed the contours of postwar life, then, it did little or nothing to prove a genuine equivalence between machines that operate according to formal rules and humans who act upon a combination of formal knowledge and informal, context-driven experience.

While Taube criticized the "inverted fundamentalism" of cybernetics from a largely theoretical standpoint, others pointed out that current cybernetic paradigms might very well have dangerous consequences in terms of their practical applications as well.[17] For instance, naval officer and nuclear researcher Hyman Rickover described an incident in which he was ordered to reduce the radiation shielding in nuclear submarine design so that (in the words of his superiors, who considered themselves well versed in theories of cybernetics and adaptation), "mankind might 'learn to live with radiation.'"[18] According to Rickover, such incidents occurred frequently in the military because research and development personnel—like their counterparts in the more abstract realm of scientific theory—tended to dismiss the importance of lived experience and to assume that "the searcher for truth cannot pay attention to his own or other people's likes or dislikes, or to. . . .[their] needs, values, and principles" ("Humanistic Technology,"113–14). Much like Taube, then, Rickover called for greater attention to material and social contexts and an increased consideration of how these contexts might inflect understandings of human-machine relations in general and of cyborg subjects in particular.

In addition to reassessing cybernetics as a discipline, critics also called for a reassessment of how to best represent the new human-machine relations suggested by this discipline. In an investigation of cybernetic metaphors, psychologist Ulric Neisser claimed that "the metaphor of man-as-machine" failed to

adequately address the complex and sometimes contradictory ways that individuals experienced new scientific principles and technologies. Unlike earlier images such as the automobile (which were used to express everything from fears about environmental destruction to hopes about technologically-enhanced freedom and independence), new ones such as the robot and the computer tended to surface in the popular imagination in largely dystopic forms.[19] According to Neisser, these images could only convey limited reactions to a technology-intensive era precisely because they represented the wrong technologies; ones that were frequently talked about but only infrequently encountered in everyday life. Pointing to the increasing (if more prosaic) prevalence of television and other global communications systems, Neisser suggested that, until the time came when robots or computers were everyday phenomena, these technologies might well provide the foundation of more adequate metaphors of life in a technology-intensive era.

Media scholar Marshall McLuhan's work on the cultural impact of specific high-tech industries provided precisely such metaphors. In *The Mechanical Bride*, McLuhan used the titular figure to explore how industrial technologies transform the subject's relation to itself and its world.[20] Elsewhere, McLuhan drew upon the cybernetic paradigm to argue that new media such as television produced "new ratios or equilibriums among the [sense] organs and extensions of the body."[21] In doing so, they implicitly knit diverse and dispersed individuals together into a kind of "global village." More specifically for McLuhan, then, the new media transformed the individual body into an information-based, collective social body precisely because subjects "living in the electric age" would "wear all mankind on [their] skin" (*Understanding Media*, 44, 47). While images of the mechanical bride, the global village, and the collectivized, electric-skinned subject were clearly indebted to the notions of human-machine equivalence proposed by cyberneticists themselves, they departed from previously established cybernetic metaphors in two related ways. First, images such as the mechanical bride and the electric-skinned subject gesture toward the sensory—and perhaps even sensual—aspects of engagements with new technologies that seemed to be downplayed or erased by more austere phrases such as "artificial intelligence," "man-as-machine," or even "man-as-cyborg." Second, by carefully choosing images which evoke community and interdependence rather than isolation, McLuhan established a cluster of narrative tropes through which to examine the lived social dimensions of the potential new interfaces between humans and advanced technologies.

As this overview suggests, then, the development of cybernetics as a scientific discipline was—and continues to be—closely intertwined with larger cultural struggles over how to best assess the impact of cybernetic technologies upon human identity and agency. While cyberneticists themselves essentially recast subjectivity as a material phenomenon by insisting on the tangible and quantifiable similarities between biological and technological systems, critics both drew upon and revised the cybernetic paradigm in their own depictions of subjectivity. Like their scientific counterparts, these critics located subjectivity within (or within the relationship among) material bodies. At the same time, however, they insisted that understandings and representations of the new, technologically-defined or technologically-mediated body must take into account the differences (as well as the similarities) between humans and machines by acknowledging the specific social and historical experiences that informed this body. Although such arguments provided a strong corrective to what seemed to be an overly simplified equivalence between humans and machines in scientific thinking, they failed to question the notion of a universalized "human experience" itself. This problem became central to later critics interested in assessing the impact of cybernetics in light of new theories about subjectivity generated by feminism and other forms of identity politics—a problem that is perhaps most clearly and compellingly articulated by science historian and socialist-feminist Donna Haraway.

II. "A CONDENSED IMAGE OF BOTH IMAGINATION AND MATERIAL REALITY": REASSESSING CYBERNETICS, REINVENTING THE CYBORG

Scientists and science critics alike continue to debate the cybernetic paradigm, especially as it bears upon representations of technologically-mediated subjectivity.[22] In particular, science historian and socialist-feminist Donna Haraway provides one of the most compelling—and most often cited—recent contributions to this debate with her essay "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century."[23] As the title suggests, "A Cyborg Manifesto" grapples with the impact of advanced science and technology upon dominant feminist and socialist movements. According to Haraway, new sciences and technologies implicitly challenge feminism and socialism because they enable new economic and technological networks that destabilize the "naturally" united groups (such as "workers" and "women") upon which these political movements are predicated. As a response to this dilemma, she offers the "Manifesto" as an "ironic political myth" that "remains faithful to feminism, socialism, and materialism" while reworking their fundamental assumptions to account for new economic and technological developments ("Cyborg Manifesto," 148). At the same time, Haraway also participates in and extends the critical tradition surrounding the science of cybernetics by re-reading this tradition through the lens of feminism and socialism; indeed, it is precisely this tradition that provides the foundation for her new political myth and a new set of representational strategies.

Like the scientists and social critics preceding her, Haraway acknowledges that postwar scientific and technological developments have profound implications for conventional ways of knowing the world. In particular, she identifies three such developments that specifically trouble conventional distinctions between animals, humans, and machines. The first is related to the advent of biological and evolutionary theories that mobilize the cybernetic paradigm to

implicitly "reduce the line between humans and animals to a faint trace re-etched [only] in ideological struggle or professional disputes between life and social science" ("Cyborg Manifesto," 152). The second stems directly from work within cybernetics itself: the creation of "self-moving [and] self-designing" machines which "have made thoroughly ambiguous the difference between natural and artificial, mind and body . . . and many other distinctions that used to apply to organisms and machines" ("Cyborg Manifesto," 152). Here, Haraway clearly echoes Norbert Wiener in *Cybernetics* and *The Human Use of Human Beings*, asking her readers to reconceptualize seeming absolutes such as "life" and "humanity" as culturally constructed and historically contingent.

Haraway's discussion of the third critical development—the advent of microelectronic technologies—bears a more complex relationship to that of her postwar counterparts. Like writers ranging from Wiener to McLuhan, she suggests that recent scientific insights into the similarities between biological and mechanical systems might well extend to *social* systems as well. More specifically, she acknowledges that if the miniaturized and even invisible technologies stemming from these insights "have changed our experience of mechanism" collectively, then they necessarily invite consideration of how this new experience might change dominant social relations ("Cyborg Manifesto," 153). However, Haraway's own conclusions about technologically-mediated social relations diverge from those of her predecessors in significant ways. Situated as they were at the verge of a new, technology-intensive era, scholars such as Wiener and McLuhan tended toward relatively simple and straightforward speculations about the ways in which this era might unfold. For example, Wiener's work on World War II military applications led him to caution that "the hour is late, and the choice of good and evil knocks at our door" and to argue *against* uncritical, wide-scale social applications of the very theories he himself helped establish (*Human Use*, 186). Meanwhile, as a consultant for the fledgling IBM corporation and a witness to the peacetime expansion of global communications networks, McLuhan, of course, more optimistically prophesied the advent of an electronic utopia—the global village. For postwar writers, then, the technological revolution seemed to have one of two (mutually exclusive) possible outcomes: either advanced technologies would become tools of economic or military oppression, or they would serve to enhance both individual and social liberation.[4]

Given that "A Cyborg Manifesto" is firmly situated with the kind of technologically-intensive era that postwar critics were only beginning to imagine, it is hardly surprising that Haraway's discussion of this era is both more detailed and more nuanced. On the one hand, throughout the "Manifesto" Haraway cites a number of studies concerning the diverse ways that new economic and technological networks merely exacerbate the inequities associated with their industrial-era predecessors. In a passage that seems to echo Wiener's own warning about the danger of failing to develop a more "human use of human beings" appropriate to these new networks, she concludes that: "A major social and political danger is the formation of a strongly bimodal social structure, with the masses of women and men of all ethnic groups, but especially people of color, confined to a homework economy, illiteracy of several varieties, and general redundancy and importance, controlled by high-tech repressive apparatuses ranging from entertainment to surveillance and disappearance" ("Cyborg Manifesto," 169).

On the other hand, Haraway also nods toward McLuhan's hope for new forms of subjectivity and political engagement produced by these economic and technological realignments. Drawing on the work of U.S. third world feminists such as Chela Sandoval, Haraway notes that the growth of subaltern movements in which women (and sometimes men) of various races, ethnicities, and nationalities forge temporary alliances with one another based on "affinity, not identity" to achieve specific, limited political goals ("Cyborg Manifesto," 155). In turn, she argues, these movements might provide effective models of identity and agency for men and women interested in reorganizing economic and technological relations as well.

Haraway's more specific discussion of how we might represent technologically-mediated subjectivity also echoes and reinflects earlier thinking about this issue. Transferring Clynes and Kline's figure of the cyborg from its place within the realm of hostile or unnatural *physical* environments to the realm of hostile or unnatural *socioeconomic* environments, Haraway proposes that the part-organic, part-technological body of this figure makes it an ideal narrative trope though which to articulate the range of technologically-mediated subject positions available in a high-tech era. According to Haraway, the cyborg provides an invaluable way to understand subjectivity as materially and socially constructed while showing how that construction may vary. Much like the Clynes/Kline cyborg, Haraway's cyborg is assembled rather than born; as such, it is freed from "biology as destiny" and its ability to regenerate and recombine its own components indicates the possibility of generating new social identities and connections to others. At the same time, she insists that her cyborg's potential to engage in such activities be linked directly to its status as a product of late capitalism. In contrast its Clynes/Kline counterpart—which seems to overcome all earthly constraints with incredible ease—Haraway's cyborg is "a condensed image of both imagination and material reality" that emerges through its engagement with and negotiation of these same earthly constraints ("Cyborg Manifesto," 150).

Haraway goes on to suggest that the potential range of cyborg subjectivities can be represented by two extreme positions, each with its own distinct relationship to the advanced technologies of postindustrialism. In the first case, the cyborg can be understood as "the awful apocalyptic *telos* of the West's dominations," reflecting both the historical impulse to transform and control the phenomenological world through advanced technologies and the more contemporary desire to transform and escape the body itself via these same technologies ("Cyborg Manifesto," 150). According to Haraway, this figure is

ultimately dystopic—"a man in space"—because the rhetoric of liberation it embodies is formulated and imposed upon this cyborg from without ("Cyborg Manifesto," 151). As such, the man in space often functions similarly to the tropes of the rampaging robots and automaton-like humans discussed by Ulric Neisser several decades previously. In both cases, such figures typically convey anxiety about and criticism of technologically-mediated subject positions that serve dominant economic or technological interests at the expense of individual or communal ones.

In contrast, Haraway's second cyborg suggests how imagination and material reality may intersect in a more positive and potentially progressive manner. Unlike its dystopic counterpart, the figure of the progressive cyborg acknowledges how bodies and identities are linked to and marked by both discursive and literal technologies. In turn, the multiplicity of these markings produce subject positions with the seemingly contradictory qualities of "partiality, irony, intimacy, and perversity" ("Cyborg Manifesto," 151). To a certain extent, this figure resembles Marshall McLuhan's electric-skinned subject in that its technological markings enable it to connect to other, similarly marked subjects. At the same time, however, Haraway's cyborg resists the unities of its McLuhanesque counterpart. McLuhan's new subject is essentially technologically-enhanced rather than technologically-mediated, seamlessly joined to "all mankind" by virtue of its place within an electronic "total field awareness" (*Understanding Media*, 47). Ultimately, then, it embodies the contemporary Western dream of perfect communication and control. Conversely, Haraway's cyborg is enmeshed within a network of contradictory social and material forces, and its task is to call attention to these forces, to "struggle against perfect communication, against the one code that translates all meaning perfectly, the central dogma" of patriarchalism and capitalism ("Cyborg Manifesto," 176). As such, this cyborg necessarily questions even the most seemingly benevolent dreams of unity such as those of McLuhan himself.

Given that Haraway's cyborg represents the possibility of "jamming" perfect communication systems and opening spaces for new articulations of the self and the world, it is hardly surprising that she locates this figure within a new mode of communication she calls "cyborg writing." Much like the hypothetical cyborg that acknowledges its markings in order to denaturalize them and make them signify differently, the real-life cyborg writer produces texts characterized by "retold stories . . . that reverse and displace the hierarchical dualisms of naturalized identities. . . . [by subverting] the central myths of origin of Western culture" ("Cyborg Manifesto," 175). Although this description of cyborg writing bears a striking resemblance to discussions of "postmodern writing" in general, Haraway insists on a certain divergence between the two.[25] According to Haraway, mainstream or canonical postmodern texts typically retell stories about the loss of original innocence and "the birth of the self, the tragedy of autonomy, [and] the fall into writing" ("Cyborg Manifesto," 177). As such, these stories seem to more specifically reflect first-world, white, masculine concerns. In contrast, cyborg

writing "is not just literary deconstruction" of one narrative tradition, but a "liminal transformation" of what counts as narrative itself. The shift from deconstruction to transformation occurs in texts that evoke dominant Western myths (in either "pure" or deconstructed forms) only to replace or merge them with the subaltern storytelling traditions that "refuse to disappear on cue, no matter how many times a 'Western' commentator remarks on the sad passing of another [such tradition] done in by 'Western' technology [or] writing" ("Cyborg Manifesto," 177). Thus cyborg writing may bear a close resemblance to and even mobilize many of the narrative strategies associated with its more general postmodern counterpart. However, in the last instant it marshals other representational strategies that undermine the tragic or ironically detached tendencies of postmodern writing itself, replacing them with narrative trajectories that tend toward a certain cautious hopefulness.

Although Haraway provides a compelling argument for this new genre of writing, her attempt to construct a kind of "cyborg canon" is surprisingly limited.[26] Given her political allegiances and her interest in speculative writing, it is hardly surprising that she includes feminist science fiction writers such as Sam Delany, Octavia Butler, and Vonda McIntyre in her discussions of cyborg authors. However, she fails to extend her new canon much beyond these writers. Elsewhere in the "Manifesto" Haraway clearly troubles the relevance of conventional political boundaries by showing how individuals ranging from third-world female assembly line workers to first-world male scientists can and do participate in progressive cyborg political action. Likewise, her survey of cyborg writing suggests a similar de- and re-construction of boundaries within the realm of narrative action. Nonetheless, by linking cyborg writing to a select group of authors who began publishing in a relatively specialized field in a relatively narrow time period (extending only from the late 1960s to the 1970s), Haraway seems to re-entrench conventional narrative boundaries in problematic ways.

This study provides the foundation for a more comprehensive cyborg canon by complicating Haraway's work in two interrelated ways. First, I consider how and when the ideas presented in the "Manifesto" can be combined with those of other theorists who more directly address the material conditions and specific technologies associated with cyborg subjectivities. Second, I examine how artists working in seemingly diverse traditions at different time periods use similar de- and re-constructive narrative strategies in their own imaginative assessments of these industries and the range of subject positions they might enable. In particular, I show how authors and filmmakers insert technologically-mediated or cyborg subjects into genres ranging from "the democratic novel" to "the feminist utopia" to "the sci-fi flick." In doing so, such artists illuminate both the limits of these genres (in terms of their ability to adequately depict the impact of postindustrialism on human identity and agency) and the ways these genres may be revised to account for new or alternative understandings of technologically-mediated subjectivity. I argue that it is only by recognizing how such strategies

are deployed within specific cultural contexts and across multiple narrative fronts that we can begin to speak of cyborg writing in terms that grapple with its potential complexity and hybridity.

III. REPRESENTING CYBORG SUBJECTIVITY IN CONTEMPORARY NARRATIVE: A BRIEF OVERVIEW

Throughout this book I assume that the "technological mediation" of subjectivity may be either abstract and indirect, as in the case of television, or quite literal, as in the case of surgery to provide patients with pacemakers or heart transplants. Thus, I assume that the depictions of cyborg identities and agencies produced by different kinds of mediation may be either metaphorical or literal. Accordingly, my first two chapters focus on representations of metaphorical cyborgs. Chapter One, "'A new mode of expression takes over': Articulating Cyborg Citizen Subjects in the Postwar Era," examines how the technologies of the post–World War II culture industries trouble traditional understandings of the American citizen subject. While culture industry advocates prophesied the coming of an "electronic democracy" in which technologies such as television would enlighten and liberate the American populace, novels such as Ralph Ellison's *Invisible Man* (1952) and Thomas Pynchon's *The Crying of Lot 49* (1967) suggest that the culture industries typically act in their own interests and transform citizen subjects into passive automatons. At the same time, both authors reject the possibility of retreating from the mass-produced world and reclaiming "pure" or unmediated identities. Instead, they represent individual engagement with new cultural technologies as a necessary first step in revising larger narratives of identity. Thus, they gesture toward the possibility of potentially progressive cyborg subjectivities that exist in relation to (rather than at odds with) the emerging postindustrial world.

Chapter Two, "'You've come a long way, baby': Imag(in)ing Gender and Race in Joanna Russ's *The Female Man* and Octavia Butler's *Kindred*" investigates how feminist writers extend the work of postwar authors by challenging contemporary depictions of specifically gendered subjects. While the 1970s advertising industry often linked representations of the newly-liberated woman to the technologies and commodities of a benevolent consumer culture, Russ and Butler insist on the need to remember historic constructions of women's identities outside those offered by Madison Avenue. By traveling to alternate times and places, characters from *The Female Man* (1975) and *Kindred* (1976) learn how to reclaim history so that it may be used in the present moment to construct cyborg subjectivities. Ultimately, then, both authors reject narratives of liberation via the advanced technologies of a patriarchal consumer culture, instead suggesting that the real technologies of liberation are inherent in the stories of bodies themselves.

The final two chapters consider images of literal cyborgs; subjects whose bodies have been technologically realigned in ways that parallel their more abstract relationships to the postindustrial world. Chapter Three, "'It's all about getting things done": Bodies Th/at Work in Recent Science Fiction," looks at representations of laboring bodies in William Gibson's *Neuromancer* trilogy (1984–88), Neil Stephenson's *Snow Crash* (1992), and Pat Cadigan's *Synners* (1991). While the information industry often claims that advanced technologies will liberate us from monotonous and alienating physical labor, Gibson, Stephenson, and Cadigan suggest that contemporary high-tech labor practices more often transform workers into cyborgs defined solely by their market value. At the same time, these authors imagine the possibility of cyborg workers who attend to the intersections between bodies and technologies outside those of the market place. In doing so, these characters produce new narratives of work and identity that allow them to survive—and begin reweaving—the webs of capitalist relations.

Finally, Chapter Four, "Of Fossils and Androids: (Re)Producing Sexual Identity in Stephen Spielberg's *Jurassic Park* and Ridley Scott's *Blade Runner*," investigates how advanced reproductive medical technologies disrupt the normative status of heterosexuality. Both *Jurassic Park* (1993) and *Blade Runner* (1991) depict cyborgs as monstrous scientific creations whose sexual ambiguity mirrors a similarly monstrous disruption in human sexuality. However, while Spielberg suggests that heterosexuality can be reestablished by attending to the "natural" dictates of the human body, Scott emphasizes the hybridity of his characters' bodies to parody and further denaturalize heterosexuality. Despite the apparent opposition between these films, both directors ultimately remain trapped in a certain representational impasse: by focusing on the viability of traditional sexual identities, neither can imagine the new ones that may be required by a high-tech era. Thus, I end this study on a cautionary note: while advanced technologies may demand that we examine the limits of conventional, organically-defined subjectivities, it is does not always seem desirable—and it certainly is never easy—to accept their cybernetic replacements.

CHAPTER 1

"A new mode of expression takes over"

Cybernetic Citizenship in the Postwar Novel

> "I imagined myself making a speech and caught in striking poses by flashing cameras, snapped at the end of some period of dazzling eloquence. . . . I would hardly ever speak above a whisper and I would always be—yes, there was no other word, I would be *charming*. Like Ronald Coleman."
>
> —Ralph Ellison, *Invisible Man*

> "[Oedipa looked upon the city of San Narciso] and she thought of the time she'd opened a transistor radio to replace a battery and seen her first printed circuit. . . . There were to both outward patterns a hieroglyphic sense of concealed meaning, of an intent to communicate. . . . A revelation trembled just past the threshold of her understanding."
>
> —Thomas Pynchon, *The Crying of Lot 49*

With the rapid expansion of high-tech "culture industries" (such as radio, film, and TV) in the decades immediately following World War II, Americans became increasingly concerned about how these industries might to transform both social and individual bodies.[1] While advocates such as NBC television president Sylvester "Pat" Weaver optimistically prophesied the coming of an "electronic democracy" where advanced communications technologies would be used to better inform, educate, and thus liberate the American citizen subject,[2] this vision of benevolent technological progress failed to address the more complex and contradictory effects of these technologies. Consider, for instance, the above passages from Ralph Ellison and Thomas Pynchon. Here, the technologies of the culture industries both penetrate and exceed the individual subject: Ellison's invisible man imaginatively refashions his body in accordance with the images of American success provided by Hollywood, while Pynchon's Oedipa Maas equates her inability to decode America with her inability to decode American technologies such as the transistor radio. Rather than using culture industry products as tools to become self-aware citizens, then, these characters become enmeshed within systems of technologies that mediate and even

obscure their understandings of themselves and their worlds. Thus, these passages suggest both a breakdown in conventional narratives of technological progress and the citizen subject and a need to generate new ones more appropriate to the changing conditions of a high-tech world. This chapter charts responses to the postwar culture industries and the crisis of identity they provoked by examining the images of technologically-mediated bodies and identities that circulated throughout this era, focusing specifically on those presented in Ellison's *Invisible Man* and Pynchon's *The Crying of Lot 49* (1967).[3] Ultimately, both authors refuse nostalgia for narratives of "pure" or unmediated identity and replace them with new ones about citizen subjects who engage with the technologies of the culture industries in personally meaningful ways. At the same time, however, they remain unable to imagine characters who—at least in the present of each novel—can use these new narratives to engage fully with the larger social and economic worlds around them.

Characters such as those depicted by Ellison and Pynchon mark a shift in conventional understandings of identity and the emergence of a new discourse concerning technologically-mediated, or "cyborg," subjectivities. Typically, humanist narratives of the citizen subject locate sociopolitical agency in the physical body and material experiences of the autonomous, organic self. However, such narratives cannot fully account for subjectivity in an era where the culture industries seem to transform experience itself through replication, simulation, and re-presentation. Not surprisingly, the newly intimate connections between individuals and the culture industries produce a range of hopes and fears about the ultimate fate of the citizen subject. These hopes and fears often coalesce into one of two distinct narratives of cyborg identity. On the one hand, as theorists Chris Hables Gray and Steven Mentor argue, this new technological situation entails the very real possibility of citizen subjects becoming passive consumer cyborgs defined solely in accordance with the economic interests of the culture industries. On the other hand, they also point out that this dystopic vision oversimplifies the reality of contemporary life because it assumes that the culture industries erase all other narratives of identity and agency, that all subjects engage with and are affected by the culture industries in equal ways. Ultimately, Gray and Mentor suggest that the postindustrial era is most accurately thought of as a heterogeneous moment where individuals inhabit a "new geopolitical territory" marked by globally pervasive narratives of the consumer cyborg that coexist (often uneasily) with other narratives of subjectivity derived from local historical and material circumstances.[4] In turn, this situation produces a range of cyborg citizen subjects located at the interfaces between specific narratives. By reconceptualizing identity as something that exists in relation to (rather than at odds with) a technologically-mediated world, we can imagine new forms of agency more appropriate to a high-tech era based on the experience of negotiating and "confronting central intelligence through [its own] dispersed, diverse bodies of information and communication" (Gray and Mentor, 459–60), rather than simply assuming that agency has been reduced to mindless consumption of the cultural goods produced by this same central intelligence.

While Gray and Mentor are primarily interested in the possibilities of contemporary *posthumanist* subjectivities, in this chapter I argue that the characteristics they ascribe to their cyborg citizen subjects initially appear in postwar attempts to map the relationship between the newly globalized culture industries of that time period and conventional *humanist* narratives of identity and agency. In the first section I examine how the narratives of "patriotism as consumption" that emerge from the culture industries in the decade immediately following World War II provoke critical debate about the possibility of individual agency in a world where identity is de- and re-constructed from without. Here, I focus on the effort to locate a cybernetic humanist subject at the interface between historically based narratives of American identity and the subject's contemporary experience of a technologically-mediated world, with particular attention to Ralph Ellison's depiction of cybernetic American identity modeled on the historic ways black Americans have engaged with a predominantly white commodity culture. In the second section I argue that technological and economic developments in the culture industries of the late 1950s and 1960s transform the American present so thoroughly that historically based narratives of political identity and agency—no matter how thoroughly revised—no longer seem able to account for these changes. In response, social critics turn to the realm of science and the intellectual task of mapping the culture industries themselves to better understand the intersections between these industries and the subject.[5] Meanwhile, in his novel *The Crying of Lot 49*, Thomas Pynchon critically interrogates the limits of this activity, suggesting that it runs the risk of simply replacing traditional grand narratives of identity and agency with new ones that still fail to account for the local, everyday interactions between individuals and the larger technologically-mediated world.

Ia. "TO MAKE THE COMMON MAN AN UNCOMMON MAN": AMERICAN SUBJECTIVITY AND THE CULTURE INDUSTRIES, 1946–1957

Of course, debates surrounding the culture industries and the commercialization of identity are as old as America itself. Throughout the 19th and early 20th centuries, critics such as Alexis de Tocqueville worried that the mass reproduction and distribution of cultural goods would overwhelm the individual subject's own productive critical and intellectual abilities, while others such as Walt Whitman argued that these new technologies could provide the foundations for a more democratic production of—and engagement with—creative expression itself.[6] Despite the apparent opposition between these depictions of the culture industries, then, both implicitly posited an organic self distinct from the processes of technological reproduction as the site of authentic identity and agency. However, as Ian Angus points out, the postwar culture industries initiated a shift from the mechanical *reproduction* of preexisting cultural objects