

T O W A R D E M B O D I E D V I R T U A L I T Y

We need first to understand that the human form—including human desire and all its external representations—may be changing radically, and thus must be re-visioned. We need to understand that five hundred years of humanism may be coming to an end as humanism transforms itself into something that we must helplessly call post-humanism.

Ihab Hassan, “Prometheus as Performer: Towards a Posthumanist Culture?”

This book began with a roboticist’s dream that struck me as a nightmare. I was reading Hans Moravec’s *Mind Children: The Future of Robot and Human Intelligence*, enjoying the ingenious variety of his robots, when I happened upon the passage where he argues it will soon be possible to download human consciousness into a computer.¹ To illustrate, he invents a fantasy scenario in which a robot surgeon purees the human brain in a kind of cranial liposuction, reading the information in each molecular layer as it is stripped away and transferring the information into a computer. At the end of the operation, the cranial cavity is empty, and the patient, now inhabiting the metallic body of the computer, awakens to find his consciousness exactly the same as it was before.

How, I asked myself, was it possible for someone of Moravec’s obvious intelligence to believe that mind could be separated from body? Even assuming such a separation was possible, how could anyone think that consciousness in an entirely different medium would remain unchanged, as if it had no connection with embodiment? Shocked into awareness, I began noticing he was far from alone. As early as the 1950s, Norbert Wiener proposed it was theoretically possible to telegraph a human being, a suggestion underlaid by the same assumptions informing Moravec’s scenario.² The producers of *Star Trek* operate from similar premises when they imagine that the body can be dematerialized into an informational pattern and re-materialized, without change, at a remote location. Nor is the idea confined to what Beth Loffreda has called “pulp science.”³ Much of the discourse on molecular biology treats information as the essential code the body expresses, a practice that has certain affinities with Moravec’s ideas.⁴ In fact, a defining characteristic of the present cultural moment is the belief that information can circulate unchanged among different material substrates. It

is not for nothing that “Beam me up, Scotty,” has become a cultural icon for the global informational society.

Following this thread, I was led into a maze of developments that turned into a six-year odyssey of researching archives in the history of cybernetics, interviewing scientists in computational biology and artificial life, reading cultural and literary texts concerned with information technologies, visiting laboratories engaged in research on virtual reality, and grappling with technical articles in cybernetics, information theory, autopoiesis, computer simulation, and cognitive science. Slowly this unruly mass of material began taking shape as three interrelated stories. The first centers on how *information lost its body*, that is, how it came to be conceptualized as an entity separate from the material forms in which it is thought to be embedded. The second story concerns how *the cyborg was created as a technological artifact and cultural icon* in the years following World War II. The third, deeply implicated with the first two, is the unfolding story of how a historically specific construction called *the human is giving way to a different construction called the posthuman*.

Interrelations between the three stories are extensive. Central to the construction of the cyborg are informational pathways connecting the organic body to its prosthetic extensions. This presumes a conception of information as a (disembodied) entity that can flow between carbon-based organic components and silicon-based electronic components to make protein and silicon operate as a single system. When information loses its body, equating humans and computers is especially easy, for the materiality in which the thinking mind is instantiated appears incidental to its essential nature. Moreover, the idea of the feedback loop implies that the boundaries of the autonomous subject are up for grabs, since feedback loops can flow not only *within* the subject but also *between* the subject and the environment. From Norbert Wiener on, the flow of information through feedback loops has been associated with the deconstruction of the liberal humanist subject, the version of the “human” with which I will be concerned. Although the “posthuman” differs in its articulations, a common theme is the union of the human with the intelligent machine.

What is the posthuman? Think of it as a point of view characterized by the following assumptions. (I do not mean this list to be exclusive or definitive. Rather, it names elements found at a variety of sites. It is meant to be suggestive rather than prescriptive.)⁵ First, the posthuman view privileges informational pattern over material instantiation, so that embodiment in a biological substrate is seen as an accident of history rather than an inevitability of life. Second, the posthuman view considers consciousness, re-

garded as the seat of human identity in the Western tradition long before Descartes thought he was a mind thinking, as an epiphenomenon, as an evolutionary upstart trying to claim that it is the whole show when in actuality it is only a minor sideshow. Third, the posthuman view thinks of the body as the original prosthesis we all learn to manipulate, so that extending or replacing the body with other prostheses becomes a continuation of a process that began before we were born. Fourth, and most important, by these and other means, the posthuman view configures human being so that it can be seamlessly articulated with intelligent machines. In the posthuman, there are no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals.

To elucidate the significant shift in underlying assumptions about subjectivity signaled by the posthuman, we can recall one of the definitive texts characterizing the liberal humanist subject: C. B. Macpherson's analysis of possessive individualism. "Its possessive quality is found in its conception of the individual as essentially the proprietor of his own person or capacities, *owing nothing to society for them*. . . . The human essence is *freedom from the wills of others*, and freedom is a function of possession."⁶ The italicized phrases mark convenient points of departure for measuring the distance between the human and the posthuman. "Owing nothing to society" comes from arguments Hobbes and Locke constructed about humans in a "state of nature" before market relations arose. Because ownership of one-self is thought to predate market relations and owe nothing to them, it forms a foundation upon which those relations can be built, as when one sells one's labor for wages. As Macpherson points out, however, this imagined "state of nature" is a retrospective creation of a market society. The liberal self is *produced* by market relations and does not in fact predate them. This paradox (as Macpherson calls it) is resolved in the posthuman by doing away with the "natural" self. The posthuman subject is an amalgam, a collection of heterogeneous components, a material-informational entity whose boundaries undergo continuous construction and reconstruction. Consider the six-million-dollar man, a paradigmatic citizen of the posthuman regime. As his name implies, the parts of the self are indeed owned, but they are owned precisely because they were purchased, not because ownership is a natural condition preexisting market relations. Similarly, the presumption that there is an agency, desire, or will belonging to the self and clearly distinguished from the "wills of others" is undercut in the posthuman, for the posthuman's collective heterogeneous quality implies a distributed cognition located in disparate parts that may be in only tenuous

communication with one another. We have only to recall Robocop's memory flashes that interfere with his programmed directives to understand how the distributed cognition of the posthuman complicates individual agency. If "human essence is freedom from the wills of others," the posthuman is "post" not because it is necessarily unfree but because there is no *a priori* way to identify a self-will that can be clearly distinguished from an other-will. Although these examples foreground the cybernetic aspect of the posthuman, it is important to recognize that the construction of the posthuman does not require the subject to be a literal cyborg. Whether or not interventions have been made on the body, new models of subjectivity emerging from such fields as cognitive science and artificial life imply that even a biologically unaltered *Homo sapiens* counts as posthuman. The defining characteristics involve the construction of subjectivity, not the presence of nonbiological components.

What to make of this shift from the human to the posthuman, which both evokes terror and excites pleasure? The liberal humanist subject has, of course, been cogently criticized from a number of perspectives. Feminist theorists have pointed out that it has historically been constructed as a white European male, presuming a universality that has worked to suppress and disenfranchise women's voices; postcolonial theorists have taken issue not only with the universality of the (white male) liberal subject but also with the very idea of a unified, consistent identity, focusing instead on hybridity; and postmodern theorists such as Gilles Deleuze and Felix Guattari have linked it with capitalism, arguing for the liberatory potential of a dispersed subjectivity distributed among diverse desiring machines they call "body without organs."⁷ Although the deconstruction of the liberal humanist subject in cybernetics has some affinities with these perspectives, it proceeded primarily along lines that sought to understand human being as a set of informational processes. Because information had lost its body, this construction implied that embodiment is not essential to human being. Embodiment has been systematically downplayed or erased in the cybernetic construction of the posthuman in ways that have not occurred in other critiques of the liberal humanist subject, especially in feminist and postcolonial theories.

Indeed, one could argue that the erasure of embodiment is a feature common to *both* the liberal humanist subject and the cybernetic posthuman. Identified with the rational mind, the liberal subject *possessed* a body but was not usually represented as *being* a body. Only because the body is not identified with the self is it possible to claim for the liberal subject its notorious universality, a claim that depends on erasing markers of bodily

difference, including sex, race, and ethnicity.⁸ Gillian Brown, in her influential study of the relation between humanism and anorexia, shows that the anorectic's struggle to "decrement" the body is possible precisely because the body is understood as an object for control and mastery rather than as an intrinsic part of the self. Quoting an anorectic's remark—"You make out of your body your very own kingdom where you are the tyrant, the absolute dictator"—Brown states, "Anorexia is thus a fight for self-control, a flight from the slavery food threatens; self-sustaining self-possession independent of bodily desires is the anorectic's crucial goal."⁹ In taking the self-possession implied by liberal humanism to the extreme, the anorectic creates a physical image that, in its skeletal emaciation, serves as material testimony that the locus of the liberal humanist subject lies in the mind, not the body. Although in many ways the posthuman deconstructs the liberal humanist subject, it thus shares with its predecessor an emphasis on cognition rather than embodiment. William Gibson makes the point vividly in *Neuromancer* when the narrator characterizes the posthuman body as "data made flesh."¹⁰ To the extent that the posthuman constructs embodiment as the instantiation of thought/information, it continues the liberal tradition rather than disrupts it.

In tracing these continuities and discontinuities between a "natural" self and a cybernetic posthuman, I am not trying to recuperate the liberal subject. Although I think that serious consideration needs to be given to how certain characteristics associated with the liberal subject, especially agency and choice, can be articulated within a posthuman context, I do not mourn the passing of a concept so deeply entwined with projects of domination and oppression. Rather, I view the present moment as a critical juncture when interventions might be made to keep disembodiment from being rewritten, once again, into prevailing concepts of subjectivity. I see the deconstruction of the liberal humanist subject as an opportunity to put back into the picture the flesh that continues to be erased in contemporary discussions about cybernetic subjects. Hence my focus on how information lost its body, for this story is central to creating what Arthur Kroker has called the "flesh-eating 90s."¹¹ If my nightmare is a culture inhabited by posthumans who regard their bodies as fashion accessories rather than the ground of being, my dream is a version of the posthuman that embraces the possibilities of information technologies without being seduced by fantasies of unlimited power and disembodied immortality, that recognizes and celebrates finitude as a condition of human being, and that understands human life is embedded in a material world of great complexity, one on which we depend for our continued survival.