

cyberworld and the "new world" imagined by the colonizers of the modern era. This view of the Internet as primordial battleground can be seen as an extension of historical patterns of Enlightenment advance, a compulsive search for expansion and progress. In instances where the historic frontier is not directly evoked, one finds an allegorical substitute. As Frederic Jameson has pointed out, the "fiction" of science fiction is often simply a version of history projected into a distant future to make the present look bad.<sup>2</sup> Cyberspace is not so much a "new" idea as it is a repository for a variety of conventional ideologies disguised as novelty. In analytical terms, these scenarios set for the endless quests for dominance and control that can never be satisfied, and for that reason must be continually remembered and repeated.

It is precisely the familiarity of conventional formulations of class, gender, race, and technology that have made cyberspace so alluring to many people. This ethos of exploration, discovery, and conquest becomes manifest most explicitly in entities with name like the Electronic Frontier Foundation, an early Internet non-profit dedicated to preserving "freedom" of expression online. In this way cyberspace becomes yet another cultural form in which its representations (how it is perceived or thought about) can be viewed as a political position. And it is just this issue that is taken up by the contributors to this section. From the philosophical tracings by Cameron Bailey and Robert Markley to the more grounded readings by Katherine Hayles, Timothy Allen Jackson, and Vivian Sobchack, these essays "read" digital culture through the lenses of gender, education, race, social class, and critical theory, among other modes of analysis. The section ends with a consideration by Andrew Ross of the language of "smartness" that characterizes so much of digital culture. As an ensemble, these contributions point out the continuing need to scrutinize and question our understandings of this constantly changing medium. In doing so, they draw critical attention to society's unmet need for digital literacy.

#### Notes

- 1 Bill Gates, *The Road Ahead* (New York: Penguin Books, 1995); Bill Gates, *Business@The Speed of Thought* (New York: Warner Books, 1999).
- 2 Frederic Jameson, "Progress versus Utopia; Or, Can We Imagine the Future?," *Science Fiction Studies* 9, no. 2 (July 1982), pp. 147–58.

## History, Theory, and Virtual Reality

*Robert Markley*

Robert Markley, "History, Theory, and Virtual Reality," in Robert Markley, ed., *Virtual Realities and their Discontents* (Baltimore: Johns Hopkins University Press, 1996), pp. 1–11. © 1996 Robert Markley.

Robert Markley is the Jackson Distinguished Chair of British Literature at West Virginia University and the author of *The Encyclopedia of Roses* (Barons, 1999) and *Fallen Languages: Crises of Representations in Newtonian England, 1660–1740* (Cornell, 1993). In this essay he applies a materialist analysis in critiquing the writing of Michael Benedikt, Larry McCaffrey, Marcos Novak, and Michael Heim, among others.

One of the ironies of our culture's fascination with virtual technologies is its fondness for consuming books and articles that proclaim the death of print culture – or its disappearance into the matrix. In one respect, the essays in this collection are dedicated to suggesting that the death of logocentrism has been greatly exaggerated. If cyberspace is the "consensual hallucination" that lies beyond the portals of virtual technologies, its means of generating that consent, as David Porush maintains in my anthology *Virtual Realities and their Discontents*, are alphabetic and mathematical schemes of representation at least three thousand years old.<sup>1</sup> The era of virtuality has been heralded by articles in mainstream news magazines (*Time*); special issues of scholarly journals, such as *South Atlantic Quarterly* and *Genders*; collections of essays from programmers and self-styled visionaries (*Cyberspace: First Steps*) as well as from – who else? – literary and cultural critics (*Storming the Reality Studio; Fiction 2000*); popularizations by journalists such as Howard Rheingold and Benjamin Woolley; and its own user's guide, *Mondo 2000*, something of a cross between *Rolling Stone* and *Mad* magazine.<sup>2</sup> Cyberspace, in short, is unthinkable without the print culture it claims to transcend. As Marshall McLuhan suggested in the 1960s, the content of any new medium is precisely the old medium that it has replaced; and so, in McLuhan's sense, we might say that cyberspace remains fixated on the traces of the word that it ostensibly renders

The indebtedness of cyberspace to its logocentric past is one of the threads that ties together the essays in my anthology *Virtual Realities and their Discontents*. Another is the contributors' insistence on distinguishing, in various ways, virtual technologies (the hardware and software that intervene in our bodies) from the abstraction "cyberspace." In an important sense, it is this awareness of the historical and cultural implication of virtual technologies in the dreamscape of Western thought that sets Katherine Hayles, Richard Grusin, David Brande, David Porush, Michelle Kendrick, and me apart from those writers who characterize cyberspace as a new, if not always brave, world. The more visionary proponents and analysts of cyberspace (many of whom are discussed in the chapters of my anthology) come to virtual technologies from a variety of backgrounds and perspectives, but they share the belief that cyberspace marks a revolutionary expansion – and liberation – of our senses of identity and reality. In contrast, the contributors to *Virtual Reality and Its Discontents* remain sceptical of a cyberspatial metaphysics that assumes, rather than questions, the revolutionary nature of virtual worlds and electronically mediated experience. In this respect, their analyses emphasize, albeit in different ways, that the division between cyberspace and virtual technologies reflects and reinscribes the oppositions of mind/body, spirit/matter, form/substance, and male/female that have structured Western metaphysics since Plato. To historicize and theorize virtual realities, then, is to enter into a wide-ranging investigation of technology, mathematics, economics, gender politics, and psychology that resists any simple sense of narrative or conceptual closure.

Writers on virtual technologies and cyberspace, whether proponents or sceptics, thus are drawn to the problem of definition: What, after all, counts as a virtual space? In recent years, cyberspace has become a catch-all term for everything from e-mail to GameBoy cartridges, as though each computer screen were a portal to a shadow universe of infinite, electronically accessible space. But beat to this airy thinness, cyberspace loses the specificity that supposedly distinguishes it as a breakthrough in human and cultural evolution. Michael Benedikt defines cyberspace as "a globally networked, computer-sustained, computer-accessed, and computer-generated, multidimensional, artificial, or 'virtual' reality."<sup>4</sup> Marcos Novak draws together a composite definition: "Cyberspace is a completely spatialized visualization of all information in global information processing systems, along pathways provided by present and future communication networks, enabling full copresence and interaction of multiple users, allowing input and output from and to the full human sensorium, permitting simulations of real and virtual realities, remote data collection and control through telepresence, and total integration and intercommunication with a full range of intelligent products and environments in real space." This hardwired universe of simulated experience, though, is more than the sum of its parts: "Cyberspace is a habitat of the imagination, a habitat for the imagination . . . the place where conscious dreaming meets subconscious dreaming, a landscape of rational magic, of mystical reason, the locus and triumph of poetry over poverty, of 'it-can-be-so' over 'it-should-be-so.'"<sup>5</sup> The transition from the rhetoric of technocorporatism to a romanticism filtered through *Star Trek* reruns is less abrupt than it seems. The rhetoric of cyberspace characteristically invokes the pleasure and power of an imaginative

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world made whole, as Novak's emphasis (drawn in part from cyberpunk novelist Bruce Sterling) on fullness, plenitude, and mystical unity suggests.

The crucial metaphors used to evoke cyberspace, then, are self-consciously holistic, transcendent, sublime; they attempt to describe our "full human sensorium" beyond Freudian repression or Marxian alienation, to liberate our "imagination" – "poetry" – from the constraints of material existence – "poverty." Even scientists who are dedicated to promoting virtual technologies in fields such as medicine drift into a metaphysically laden rhetoric that equates poetry with an escape from the history that has brought these technologies into being. The flight into an imaginary space collapses distinctions among technological innovation, artistic creativity, and politico-economic power. Richard M. Satava of the Advanced Research Projects Agency (and a major figure in the development of virtual technologies for laparoscopic surgery) declares that "the video monitor is [becoming] the portal into the entire world of information; this 'electronic interface' will bestow power beyond imagination."<sup>6</sup> Although it might be tempting to dwell on the militaristic overtones of Satava's rhetoric, the significant point about his pronouncement is that it describes the ends of virtual technologies – "The King is Dead" – in metaphors which suggest, as Porush contends, that our consciousness itself is always and already mediated by the interventions of print and number, neurotechnologies which mark it irrevocably as metaphoric. Paradoxically, Benedikt, Novak, and Satava demonstrate that virtual technologies must invoke "poetry" – a tradition of idealization and hierarchical values – in order to acknowledge and repress the sustenance they require from a contentious metaphysics. Cyberspace, then, can never separate itself from the politics of representation precisely because it is a projection of the conflicts of class, gender, and race that technology both encodes and seeks to erase. It does not transcend the dead body of the king – "the future," says Satava, "holds [the] promise of a virtual cadaver nearly indistinguishable from a real person"<sup>7</sup> – but reinscribes the profit-based politics of accelerating and intensifying interventions in living bodies.

Technology never escapes politics. The fiction of cyberspace is useful precisely to the extent that it allows its proponents to imagine an androcentric reality in which a threatening, messy, or recalcitrant (and invariably feminized) nature never intrudes. In this respect, cyberspace is consensual primarily in its insistence that technologically mediated experience can transcend the ecological and economic constraints that have shaped and continue to shape human culture. It offers the fantasy that the more technologically sophisticated our society becomes the less it has to worry about the distribution of wealth and resources. In his characterization of postindustrialism, Benedikt asserts that "the economic principles of material production and distribution in their classically understood forms – principles of property, wealth, markets, capital, and labor – are no longer sufficient to describe or guide the dynamics of our modern, complex, 'information' society."<sup>8</sup> The claims for the revolutionary nature of cyberspace, for its "mystical reason," are compelling to many because they offer a short cut to the land of plenty: in cyberspace, scarce resources become infinite possibilities. But as Brande argues in

invoking "information" as the evolutionary successor of "writing" does little to alter the politics of symbolic, or monetary, accumulation. One of the abiding fictions of cyberspace – of all technologies, really – is that it can cut rather than untie the knot of present-day problems. In this respect, cyberspace gives a new form to an age-old dream: that through our ingenuity humanity can devise products and riches in excess of the resources required to manufacture and maintain them.

A case in point: in November of 1994, I participated in GreenSpace, a real-time Virtual Reality link between the Human Interface Technology Laboratory at the Washington Technology Center in Seattle and the NICOGRAPH (Nippon Computer Graphics) trade show in Tokyo. The University of Washington weekly, *University Week*, described the trial run as follows:

[Four] persons [two in Tokyo, two in Seattle] donned head-mounted video displays and came together in specifically created virtual meeting rooms equipped with either Occidental or Oriental furnishings [Mt. Ranier was visible in Tokyo; I sat in the cartoon graphic shadow of Mt. Fuji], suggesting that they traveled to the network's other shore. However, participants got the impression that everyone was in the same room sitting around the same conference table. They then played a short, interactive game in which creatures materialized that only can be captured with the cooperation of two or more participants using conventional hand-movement tracking devices.<sup>9</sup>

In reality (pardon the pun), I watched the digitalized face of one of my colleagues run in a loop through five facial expressions across a virtual table. Neither we nor the virtually present Japanese faces to our sides had any visible success in swatting the bouncing cartoon creatures into one of the four billiard-like pockets at the corners of the conference table. My experience of this "new era in teleconferencing" (funded, in part, by the Fujitsu Research Center in Japan) suggests that GreenSpace is more a political metaphor than a technological breakthrough. Even if the sound hookup had worked, I do not speak Japanese, and the "cooperation" that was supposed to take place was undone because all four of us were proprioceptively disoriented, a common experience in virtual worlds that lack force feedback mechanisms. If one imagines a future in which representatives of the institutions financing GreenSpace meet virtually to swat at Third World countries or redundant workers, virtual teleconferencing could easily put a dent in transoceanic travel for corporate executives. But this application of virtual technologies, it should be obvious, reinscribes rather than revolutionizes the economic power that advanced telecommunications represents. To make this statement is not to attack the potential of these technologies but to recognize that their content is the previous medium – in this instance, long distance communication – that it subsumes and recodes. The conference itself becomes the product to be disseminated rather than a means to an end. In GreenSpace, talk isn't cheap.

The unintended legacy of commodifying face-to-face conversation, though, may be to force our culture to assess the consequences of its investments in a dualistic metaphysics that divorces mind from body and that sees technology as a mere tool to be manipulated rather than as a process that disrupts and reconfigures whatever

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we take to be “essentially” human. As a projection of the imaginary spaces that structure our self-perceptions, our self-consciousness, cyberspace relies for its symbolic coherence on a narrative logic of progress which underwrites and transcends individual agency or intention.<sup>10</sup> It offers itself as the logical *telos* of technological progress. To create a history of and for cyberspace, writers such as Howard Rheingold and Benjamin Woolley describe key episodes in the development of computer technology, link them in a more-or-less causal sequence, and then extend this narrative into an imagined future. If we read our recent computer-aided past as the progress of protovirtual technologies, then it becomes easy to imagine Virtual Reality as the logical outcome of our efforts, the fulfillment of a quest for a postindustrial, postmodern transcendence, the ascent to a Leibnizian future in which the body (suitably dematerialized) becomes indistinguishable from its idealized simulation.<sup>11</sup>

In its quest to find a suitable past from which virtual realities can claim descent, Rheingold's *Virtual Reality* details the history of interactive technologies, ranging from Morton Heilig's Sensorama in the 1950s, to video games, to experimental programs in California and North Carolina. As his narrative unfolds, Rheingold crisscrosses the country, talking to computer programmers, entrepreneurs, and groupies, including veterans of the retro-sixties subculture such as Timothy Leary and Jerry Garcia, who is credited with one of the dust-jacket blurbs on the back cover of *Virtual Reality*: “They made LSD illegal. I wonder what they're going to do about this stuff.” Woolley's *Virtual Worlds* is, if anything, more eclectic: intermixed with histories of computing, flight simulators, hypertext, and graphic displays are thumbnail sketches of numerous modernist and postmodernist thinkers – from Leary, to Fredric Jameson, to Roland Barthes, to Jean Baudrillard. As his subtitle, *A Journey in Hype and Hyperreality*, suggests, Woolley analyzes the potential of Virtual Reality in the generic form of a travelogue, a picaresque account of various approaches to simulation and simulacra, to the redefinition of “reality” at the end of the twentieth century. For Rheingold and Woolley, the history of interactive technologies is necessarily inclusive. Because “Virtual Reality” seeks to mimic the complexity of proprioceptive experience, it becomes an imperialistic metaphor, a textual black hole, that encourages Rheingold and Woolley to include anything they want in their narratives. Ironically, they demonstrate that Virtual Reality remains a semiotic fiction: to immerse oneself in a fully credible “reality,” one needs to imagine a simulated world every bit as complex as the “real” world it tries to represent. This endless expanse of imagined terrain, as Porush suggests, is the metaphysical ghost haunting postmodern technologies.

Proponents of virtual technologies, of course, argue that such dualisms can be overcome or that cyberspace represents an evolution beyond the opposition of physics and metaphysics. Benedikt, for example, suggests that cyberspace mediates between the ethereal and the concrete; it describes, he contends, “a new niche for a realm that lies between the . . . worlds” of thought and body.<sup>12</sup> But even if we see cyberspace as a form of complex mediation within the traditions of Western

is to engage in a multivalent exploration of the values and assumptions of a dualism which are presented as "natural" conditions of human existence, of an ideology of a revolutionary change in consciousness brought about by new forms of technological intervention, and of the political problems posed by limited access to new and expensive technologies. Important challenges to the politics of information technologies have emerged in recent years, even as Jerry Garcia has been enlisted to portray Virtual Reality as a countercultural phenomenon.<sup>13</sup> What the contributors to *Virtual Realities and Their Discontents* suggest is that this political critique of cyberspace cannot be limited to the problems of access but must engage in a sceptical treatment of the rhetoric of the "new" that is endemic to both academic and popular writing on cyberspace, postmodernism, and late capitalism. The blind spot of many critics of virtual technologies lies in their tacit acceptance of progress as natural, as inevitable, and their casual assumption that we are living in revolutionary times in which technology intervenes in our subjectivity in ways undreamt of before the late twentieth century. This is the approach of such philosophers as Michael Heim, who traces the morphogenesis of cyberspace back to Leibniz's monadology, of graphic artists such as Nicole Stenger, and of educators such as Meredith Bricken.<sup>14</sup> To be sure, these writers recognize that political problems exist in terms of access to cyberspace, but they limit the nature of those problems – accepting the "revolutionary" nature of interventionist technologies, then suggesting that we need to find ways to time-share our rides on the whirlwind.

If Virtual Reality is already a battleground for control of the cyborg as metaphor and as moneymaker, its battle lines are multiple and fractured, and the contending forces are characterized by shifting alliances and conflicting investments. Cyberspace is irrevocably marked by competing values and assumptions about reality and subjectivity, by previous political struggles to naturalize and resist particular constructions of reality. But this recognition is only the beginning of an analysis of the era of virtuality. As cultural critics of science, we need to familiarize ourselves with the technological innovations described six times a year in *Cyber-Edge*, "The World's Leading Newsletter of Virtual Reality"; we need to explore the venture capitalist realm of such companies as High Techsplanations, Immersion Corporation, and Boston Dynamics, which are now marketing surgical simulation equipment with force feedback mechanisms; and, most importantly, we need to recognize that there are potential allies as well as antagonists who work within the complicated webs of technology and capital that define the business of Virtual Reality.<sup>15</sup> It is only by understanding virtual technologies within the histories that cyberspace seeks to deny or transcend that we can begin to dream a different kind of "real."

#### Notes

- 1 William Gibson, *Neuromancer* (New York: Bantam, 1984), p. 7.
- 2 "Cyberpunk!" *Time*, February 8, 1993; *South Atlantic Quarterly* 92 (1993); *Genders* 18 (1993); Michael Benedikt, ed., *Cyberspace: First Steps* (Cambridge, MA.: MIT Press,

is to engage in a multivalent exploration of the values and assumptions of a dualism which are presented as "natural" conditions of human existence, of an ideology of a revolutionary change in consciousness brought about by new forms of technological intervention, and of the political problems posed by limited access to new and expensive technologies. Important challenges to the politics of information technologies have emerged in recent years, even as Jerry Garcia has been enlisted to portray Virtual Reality as a countercultural phenomenon.<sup>13</sup> What the contributors to *Virtual Realities and Their Discontents* suggest is that this political critique of cyberspace cannot be limited to the problems of access but must engage in a sceptical treatment of the rhetoric of the "new" that is endemic to both academic and popular writing on cyberspace, postmodernism, and late capitalism. The blind spot of many critics of virtual technologies lies in their tacit acceptance of progress as natural, as inevitable, and their casual assumption that we are living in revolutionary times in which technology intervenes in our subjectivity in ways undreamt of before the late twentieth century. This is the approach of such philosophers as Michael Heim, who traces the morphogenesis of cyberspace back to Leibniz's monadology, of graphic artists such as Nicole Stenger, and of educators such as Meredith Bricken.<sup>14</sup> To be sure, these writers recognize that political problems exist in terms of access to cyberspace, but they limit the nature of those problems – accepting the "revolutionary" nature of interventionist technologies, then suggesting that we need to find ways to time-share our rides on the whirlwind.

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- 1991); Larry McCaffery, ed., *Storming the Reality Studio: A Casebook of Cyberpunk and Postmodern Science Fiction* (Durham, NC: Duke University Press, 1991); George Slusser and Thomas Shippey, eds., *Fiction 2000* (Athens: University of Georgia Press, 1992); Howard Rheingold, *Virtual Reality* (New York: Simon & Schuster, 1991); Benjamin Woolley, *Virtual Worlds: A Journey in Hype and Hyperreality* (New York: Penguin, 1992).
- 3 Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: New American Library, 1964); *The Medium Is the Message* (New York: Random House, 1967).
- 4 Benedikt, *Cyberspace*, p. 122.
- 5 Marcos Novak, "Liquid Architecture in Cyberspace," in *ibid.*, pp. 225, 226.
- 6 Richard M. Satava, "Medicine 2001: The King Is Dead," in Richard M. Satava, Karen Morgan, Hans B. Sieburg, Rudy Mattheus, and Jens P. Christensen, eds., *Interactive Technology and the New Paradigm for Healthcare* (Amsterdam: IOS Press, 1995), p. 335.
- 7 *Ibid.*, p. 337.
- 8 Benedikt, *Cyberspace*, p. 121.
- 9 *University Week*, November 17, 1994, p. 1.
- 10 See Larry Laudan, "Progress of Rationality? The Prospects for a Normative Naturalism," *American Philosophical Quarterly* 24 (1987), esp. p. 28; and Joseph Rouse, "Philosophy of Science and the Persistent Narratives of Modernity," *Studies in the History and Philosophy of Science* 22 (1991), esp. pp. 157–62.
- 11 Within a week of the initial appearance of the article included below (in the fall 1994 issue of *Configurations*), I received a half-dozen letters or e-mail messages from computer programmers, mathematicians, and one literary theorist, all of whom questioned my characterization of Leibniz. To reply to their queries would require another article (at least) and take us deep into the heart of a debate about the ways in which "the body" has been celebrated in and erased from both Western philosophy and recent cultural criticism. In brief, as I suggest below, Leibniz has emerged as the guru of cyberspatial metaphysics precisely because his monadology offers a means to preserve a logic of simulation in which an embodied individual can project herself as a kind of seemingly pure desire into cyberspace: agency without consequences. In a provocative move, Michelle Kendrick, in her essay in my collection, argues that it may be the sceptical philosopher of experience, David Hume, rather than Leibniz who offers us the ur-logic of virtual technologies. In a Humean framework, virtuality emerges not as a space in which to distill and conserve a holistic identity but as a testing ground for a series of noncausal, seemingly arbitrary experiences whose connection to "reality" remains always problematic, always in need of articulation. Virtual Reality is to "real" reality, then, as a surgical simulation is to an actual operation.
- 12 Benedikt, *Cyberspace*, p. 124.
- 13 See, for example, Gary Chapman, "Taming the Computer," *South Atlantic Quarterly* 92 (1993), pp. 681–712; and Kathleen Biddick, "Humanist History and the Haunting of Virtual Worlds: Problems of Memory and Remembrance," *Genders* 18 (1993), pp. 47–66.
- 14 Michael Heim, *The Metaphysics of Cyberspace* (New York: Oxford University Press, 1993); Nicole Stenger, "Mind Is a Leaking Rainbow," in Benedikt, *Cyberspace*, pp. 49–58; and Meredith Bricken, "Virtual Worlds: No Interface to Design" in *ibid.* pp.

- 15 See, for example, Jonathan R. Merrill, "Surgery on the Cutting Edge: Virtual Reality Applications in Medical Education," *Virtual Reality World*, November–December 1993, pp. 17–21.