HYPERBODIES, HYPERKNOWLEDGE: WOMEN IN GAMES, WOMEN IN CYBERPUNK, AND STRATEGIES OF RESISTANCE

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Beyond other media representations of popular culture (including film) 3-D computer games, digital art, and cyberfiction are at the forefront of defining cyberculture. For example, as a capitalist affirmation of "digital culture," the gaming industry is now more profitable than the film industry. However, for feminists studying or working at the intersection of technology and culture, this statistic is symbolic. "Woman" in cyberculture is primarily created and represented by men, leaving women less and less interested in cyberculture's artifacts. Female pleasure machines and haglike monsters proliferate digital culture; there are now more female protagonists in popular computer games, for example, than in cinema, and these protagonists are prone to rigid styles of representation based on men's fantasies. Thus the representation and experience of woman in cyberculture is connected to structures that epistemologically shape those experiences—by this, I mean the types of representation in digital cultural artifacts (from cyberpunk fiction to netgames to films about cyberculture), the motivations and styles of gameplay that are offered to players or participants in media forms, and the structure of the relationship of the user to the media experience. These ultimately create cognitive and epistemological environments that position the user/participant/interactor in significantly problematic ways.

In Western tradition, knowledge has been characterized with reason, identified as masculine and separated from the corporeal body. This paradigm has excluded women, who have commonly been identified with the body and thus lie outside the scope of knowledge. More recently, tracts in feminist epistemology hold that our experiences as individuals with specific race, class, historical roles, and gender associations significantly shape our perspectives about the world. Many feminist writers join Donna Haraway in the belief that knowledge is situated in the body, at a given standpoint situated by class, race, and gender, as opposed to a unified knowledge system, a "truth" to someday be found through rational study.[1]

Yet women trying to create an alternate "feminist epistemology" find difficulties in defining such an approach. Alcoff and Potter note that a feminist approach to the study of knowledge is inherently heterogenous and diverse and thus difficult to define, but they do argue that the connections between values, politics, and knowledge are fundamental and that these connections must be considered when formulating alternate models of epistemology.[2] Working to find the epistemological implications inherent in technocultural artifacts, I want to explore the intersection of the hyperbody—boundary-less, multiple, prosthetic, or as Sandy Stone would see it, the "subject, *independent* of the body within which the theories of the body are accustomed to ground it" and the hyperknowledge produced by the conditions of such a hyperbody, through a assemblage of media forms that converge when we examine them through the lens of feminist epistemology: popular electronic games, women's fiction, and VR-style art.[3] Though they only exist when the power switch is on, game characters like Lara Croft and Aya Brea represent important sites for exploring concepts of gender, knowledge, and subjectivity. In addition, cyberpunk fiction plays an integral role in the development of digital culture. Cyberpunk has shaped more than the average Hollywood action film or teenage boy's bedroom; according to techno-entrepreneur-academic Mark Pesce, cyberpunk novels are instrumental in the development of convergent media technologies, specifically VR media. Pesce notes that for the last twenty years, science fiction "has functioned as a 'high level architecture' (HLA), an evolving design document for a generation of software designers brought up in hacker culture, a culture that prizes these works as foundational elements in their own worldviews."[4] If science fiction has such a narrative hold on technological developments by shaping worldviews, it is important to look to it and to the cybercultural narratives working around it (such as women's cyberpunk and digital art) to examine how women might imagine different kinds of philosophies and systems. Both digital art projects and women's cyberpunk fiction are among the few sites where women are authoring cutting-edge cultural forms; they represent the body differently than does mainstream media and thus offer an alternate to traditional "knowing" in their work. This chapter seeks to expose the epistemological possibilities with contemporary manifestations of bodies in order to formulate strategies of resistance against prevailing tenets in technoculture and redefine cyberculture for women. From games such as *Tomb Raider*, which represent woman in cyberspace, to liberatory art projects and cyberpunk novels by authored by women, we can track challenges to prevailing assumptions in popular culture's relationship among the body, the machine, and knowledge.

Using Lara Croft and Aya Brea, characters in computer games created primarily for men, and Laura J. Mixon's 1998 novel *Proxies*, I will attempt locate the complex position

of possible feminist subject positions in cyberculture. Through relationships to "avatars" and virtual bodies such as Lara Croft in the action game series *Tomb Raider* or Aya Brea in the game *Parasite Eve*, we have a new kind of interaction with knowing. Yet this assertion is still working under the belief that feminist epistemology is fundamentally a battle between embodied, situated knowledge as opposed to the rational, Western, male mind—a great impasse that urges cybertheorists to look to Donna Haraway and her cyborg for resolution. If, according to feminist writers like Haraway, knowledge is situated in the body, how can we understand knowing in relationship to the virtual body? What does popular culture have to tell us about this relationship? With this in mind, I will present digital art projects that challenge assumptions among the body, the machine, and knowledge—in particular, projects that specifically rethink gender, technology, and subjectivity. Perhaps we are now seeing in various cybermedia forms—games and women's cyberpunk novels—ways out of the impasse, possibilities for articulating the formation and workings of knowledge for women within technoculture.

Lara—The Hyperbody

To examine computer games critically, we start by analyzing the means of their production. Three-dimensional modeling and animation applications and the images they create are useful for a variety of purposes. They can be used to model difficult scientific principles, such as chemical reactions or the workings of jet propulsion. 3-D models and animations—human-made virtual objects—can be used as "proof" in legal cases (e.g., modeling a car accident to prove that the engineering of a road is misaligned) or provide "proof of concept" in architecture. The layout of most 3-D software packages and virtual world-making software reinforces a reading of these products as useful, practical, and unbiased or objective. To the makers of many 3-D products, this does not constitute "representation"; rather, it is the world as it *really is*. Most make three or four views available at any given time—top, side, front, and perspective—some allow a grid view mode, a "joints only" mode, and even an X-ray mode of viewing models while constructing and animating. These multiple views with windows representing a variety of perspectives are essential to the construction of 3-D spaces. Arguably this construction could suggest that the use of multiple views offers a powerful avenue for complex, concurrent "realities." Through the simultaneity and variety of perspectives, however, the software packages used to create these virtual worlds and characters evoke complete omniscience rather than multiplicity, fostering instead an "old school," white, masculinist epistemological model. Virtual environments are entirely mathematically based constructions that create the sense of a cohesive, seamless, scientific system, and a unified order of knowledge; 3-D graphics generation is a science perhaps even more than

an art. Thus, the construction of 3-D spaces through not only the tightly bound look and feel but also the very calculable numeric system behind the manufacture of the imagery represent the traditional epistemologic tropes of reason and objectivity by a "reliance" on objectivity and science. Further, graphics in three dimensions are designed to provide a sense of objectivity and omniscience within gaming experiences—SIGGRAPH audiences, for example, cheer "realistic" and "scientific" 3-D visualizations precisely because they are "so real" and thereby exempt from critical analysis beyond the aesthetic. Typical *Tomb Raider* fan Matt Richards notes that the 3-D game "feels more 'real' than any other digital environment I have ever experienced." If, therefore, an object in cyberspace is knowable and measurable, the bodies constructed within it are as well, including the virtual body. Indeed, this "design from nowhere" aspect is prevalent not only in 3-D games but in the broader scope of information technology.[5] Ultimately, the construction of virtual environments and characters is coded in ways that strongly affect the creation of knowledge in these environments (see figure 22.1).

Seeing and knowing are inextricably intertwined in media culture, and this has epistemological implications. Evelyn Fox Keller and Christine Grontkowski trace the history of vision and knowledge to Platonic discourse, where visual imagery is used to describe "pure knowledge." The forms that this pure knowledge takes are "eidos" and "idea"—in other words, things that are seen.[6] This same path to knowledge is born through 3-D games such as *Parasite Eve* or *Tomb Raider:* The way players and the characters "know" in the virtual worlds, and come to understand their experiences and selves, are pivotal issues in games in particular. We can watch someone like Aya Brea from afar, a third-person perspective, or we can inhabit the body of a character and see through her eyes. Does this mean that we "can be simultaneously in all, or wholly in any, of the privileged (i.e., subjugated) positions structured by gender, race, nation, and class"?[7] Postmodern feminists writing about situated knowledge would argue that the only claim to knowledge we can make is from the viewpoint, the origin, of a physical body: always complex and changing, contradictory, yet structured by both biology and culture. Views of a virtual world offered by games such as *Tomb Raider, Unreal, Black and White*, and *Resident Evil* are "godlike" or omniscient, originating in "the view from above, from nowhere" where no one person can be said to be responsible for the design of an interactive system or world.[8] Evelyn Fox Keller pays particular attention to the construction of objectivity and reason as gendered concepts and argues for an alternative notion of scientific practice. Keller describes how scientists favor dictatorial or controlling models rather than interactive models to explain scientific phenomena. Thus "objectivity" as the result of rational thought and omniscient values is masculine,
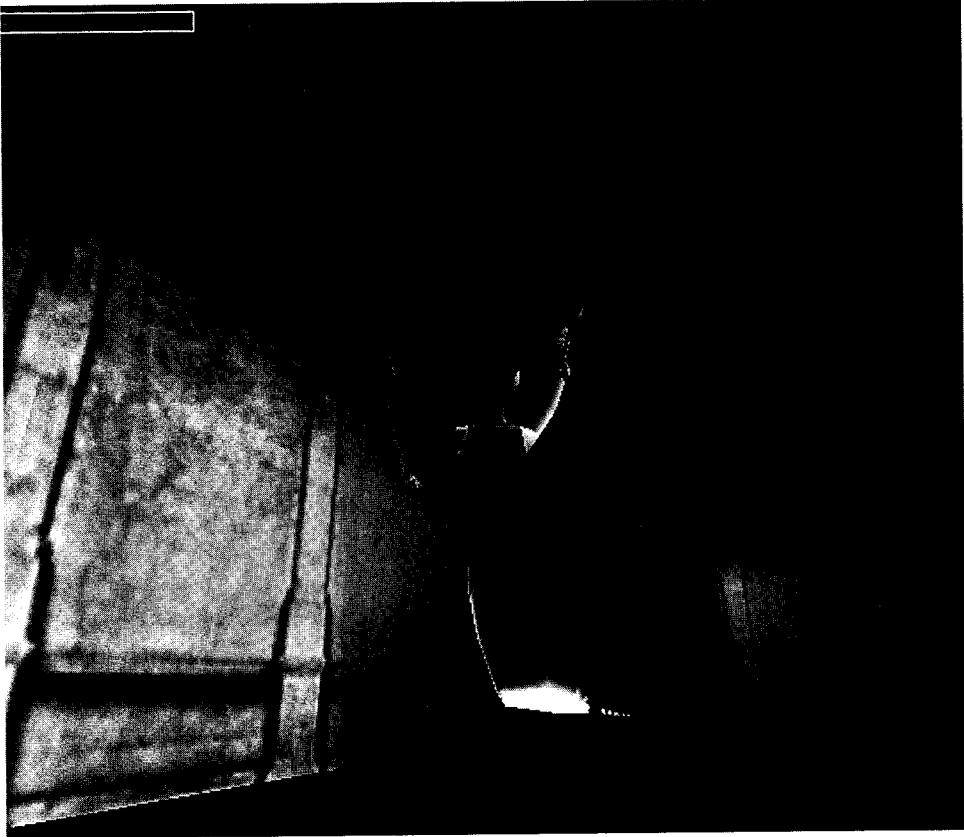
| Figure 22.1 |
A screen grab featuring Lara Croft, from *Tomb Raider: Chronicles* (Tomb Raider 5 ©2000 Eidos Interactive).

and perhaps because the 3-D game worlds are created primarily by men in the gaming industry who act to fulfill graphic and narrative desires, the notion of omniscience lingers and is in fact reinforced through their games.[9] As philosopher Sandra Harding points out, subjects and agents of knowledge in conventional epistemology must be "invisible and disembodied" for the knowledge to be "real"; and while knowledge is presumed to be "initially produced by identifiable individuals or groups of them, not by cultures, genders, races, or classes," it must not, most of all, be multiplied, heterogeneous, or conflicted.[10] But this position must be challenged by feminist standpoint epistemology, which recognizes that one's social situation limits what one can know or

represent, and that dominant social positions limit the ability to critically question both the method generating data and the knowledge garnered from it.[11]

By exploring the construction of 3-D work a bit further, one finds that 3-D modelers do more than just create shapes: Animators must give matter, mass, and gravity to objects and to worlds. While most 3-D designers seek "realism," it is a realism defined both by science and through the modeler's eyes and preferences in a work environment that situates the modeler as omniscient; the maker controls the laws of physics with god-like power. To model a virtual body like an avatar from the multiuser Onlive Traveller! world or a game character like one of the snarling monster women from Resident Evil, the intent is not merely to create something real; it is to create the hyperreal, a chimera. Bodies are overly dimensioned, practically bursting, and these bodies become fashioned as artists' ideal fantasy girls or figures from nightmares. These constructions of 3-D worlds, by the assumptions designed into the technology through context, authorship, and use, work to reinforce traditional tenets of mainstream Western epistemology that contain both knowledge and gender assumptions.

Controlling Lara Croft–like characters is fun; they are difficult to break; they are talented and exact. They are a "continued present," since the technology of the present is the only way to maintain our ability to play. "She" exists for us as a site of becoming— winning or losing the game, adventuring, controlling, pleasuring, moving, fighting. The unknown element in this human-computer relationship is the physical body of the user. Because game makers occupy a godlike role when creating the game, it is implicit that the user will assume that privileged position as well; however, we will see a bit later that this is not necessarily inherent in such systems but is rather a design choice. That users must regularly be identified in some relationship with a female body such as Lara Croft's does have significant implications. Alkeline van Lenning pinpoints concerns about technology and the means of the construction of gender. In her essay, "Utopian Bodies and Their Shadows," van Lenning contests Haraway's idea of a postgender utopia outlined in "A Cyborg Manifesto," recognizing that digital technology, far from being gender neutral, is in fact structured by gender: "When we surf, we reproduce old meanings of gender."[12] Beyond the idea of the utopic cyborg, digital worlds are constructed most often by men with technology, for men using technology, and are thus doubly structured by gender norms.

Postmodernism brought us the disintegration of the subject, the fragmented receptor constantly in flux. The boundaries between humans and machines are becoming irretrievably blurred by the daily use of gadgets and communications technology. So too have the boundaries blurred between the subject and object, the voyeur and the object of the gaze, the user/participant and the avatar representation of that user in a virtual

world. It is at the site of the female body and computer imaging that epistemological implications arise, precisely because it is this body that exists at the forefront of popular media and culture, carrying with it a set of assumptions about the position or shape of knowledge. While there are compelling studies of women in cyberculture or cyberpunk, they are rooted in an analysis of representation;[13] such research remains primarily occupied with the representation itself rather than the significance of structural meaning that the representation forms. In other words, if the physical body is the central site of epistemologic debate and questions of identity in Western culture, we must approach the virtual body and its relationship to the user/participant's corporeal self from an epistemological standpoint rather than look at the surfaces (the grim presentation of women's images) proliferating in cyberculture. How does the interface of Lara's digital body, or a similar body, affect users/players/partners of that body?

I touched on the unknown in the relationship of the virtual body to that of the physical one, the user, when discussing Aya Brea; I mentioned that game authors assume an omniscient role when creating games, and commonly assume users will take the same position, but this is not the case. Players in fact describe multiple ways they position themselves in relation to a virtual heroine. One young female player remarked, "You don't just feel like you're playing the game, you're going adventuring with Lara Croft."[14] The experience of playing a game like *Tomb Raider* importantly includes different subject positions for the user to occupy; for example, a player may decide that she is Lara's sidekick while she also has control of Lara from the third-person perspective. Subjects in 3-D worlds are constructed by graphics; visuals are the point of inscription of knowledge. With experiences like *Tomb Raider* or other games such as female character–centered *Parasite Eve*, we acquire literally multiple, naturalized viewpoints. Articulating these viewpoints through language, however, immediately points to the contradictions inherent in this identity, imbued as it is with political specificity. Fans describe playing the game in a variety of ways, but inevitably, subjects are crossed. One *Tomb Raider* player described a "scene" of gameplay: "Lara was in Xi'an, looking for the treasure, when I jumped up onto this hill to fight the monks. They immediately attacked me, so I fought back with a gun and the knife I had in my pocket. Then she found what she needed and we were off to the next location."[15] All this action and complex and confusing identification takes place with the sole image of Lara Croft on the screen—the images are not multiple, the story is seemingly clear. We could examine Gilles Deleuze's writing to find meaning in such a situation: A useful idea might be that of his phantasm—neither active or inactive, neither imaginary (virtual) or real, phantasms "have only an indirect and tardive relation to language and that, when they are verbalized

afterward, the verbalization occurs in accordance with ready-made grammatical forms" even when these forms don't quite match the experience. [16]

These interviews with players raise important questions. Does Lara Croft represent a manifestation of situated knowledge in cyberspace? Does she represent a site of "double vision," a place for women and members of oppressed groups to possess both their own and their oppressors' knowledge? [17] The underlying question must be addressed by examining the subject position, the "I," created in such a gaming experience. 3-D action games commonly present at least five points of action/identification/subject positioning within the gaming environment. First and most obviously, players cause a character to act. Using keys, joystick, or mouse, users control a main character's movement and interaction in the game world. We often have the choice to "play from within the character's head" or to play from an omniscient perspective, and through omniscience, control characters like puppets with intricate keyboard commands. For example, in Tomb Raider, users can jump forward or backward, flip to the side, do a back flip, roll, or jump, grab, and flip all at once—while pulling out weapons and shooting. Second, the character acts independently; she can have many types of built-in agency and is given limited autonomy. As part of the animation or the actions in a scene, the character may have a certain breathing style, gesture, or series of statements that originate entirely from the character. Thus, the body is watched closely by the player to see these "signs of life"—Lara Croft breathes and her ponytail randomly sways, for example. Third, users act with the character (or next to the character) as friends or co-adventurers, and so embody a second-person perspective. [18] Here, users are addressed implicitly by the narrative, yet so is the main character, implying a doubling of the subject—a "we." Players see the character's figure ahead of us; in this view they are hovering to the left or right side of her. In a panic, players may shout "jump!" at their character as they see a tiger appear; but, throughout, they occupy a companion position, a position that could be directly addressed through language and gesture. Fourth, players react to her as a virtual character through a spectatorial relationship, thinking about her experiences in neither a controlling nor firsthand manner. Players occupy a third-person position here. Finally, players act through her/within her as they identify themselves as the avatar/character. Through the act of the game, the player identifies with the virtual body as her own body; *her* sight as her own sight. The first-person point of view can be disorienting since individual points of view tend to have quite narrow "lenses," but there is definitely the sense of "first person" imparted to the user that goes beyond simply controlling her. The user is, through this connection, the character completely repositioned and migrated within the game. This media represents such a

unique axis of complex identification with the audience, and the female identity, virtually embodied, further complicates this intersection. Users may see these bodies as powerful female figures, but the digital females have limited agency and most gameplay is dictated by the user's desire. So while the possibilities for fostering remarkable, multiple, situated knowledges is present technically and practiced through user identification, game content, primarily produced by a dominant group and consumed by a dominant group, leaves little room for critical questions and meaningful change.

Let us move out of the gaming world and look to cyberpunk fiction to see how women authors are consciously shaping this multiple "gaming consciousness." Laura J. Mixon's multiple-bodied and multiple-presenced characters such as Pablo-he-Krueger and Dane Elise Cay seem quite similar to the multiplied subject offered in games such as *Tomb Raider;* perhaps Mixon has developed a vocabulary, or at least a linguistic treatment, for discussing subjectivity in contemporary culture.

Laura's Space: Multiplied Body, Hyperhuman

The representation and experience of women in cyberculture is connected to structures that epistemologically shape those experiences. Popular cyberpunk novels such as William Gibson's *Idoru* and *Neuromancer* celebrate body enhancements, virtual bodies, and the representation of women in cyborg and virtual terms. In speaking of the emergence of cyberpunk, Heather Hicks notes that its major authors privilege disembodiment over embodiment. "This transcendence of the material body," she says, "has been staged by William Gibson, Bruce Sterling, Neal Stephenson, and others in sites that have collectively become known as "cyberspace."[19] Many women's cyberpunk stories, however, explore the consequences of virtuality, the negative aspects of the manipulation of the body, and challenge the very concept of "perfection" of physical bodies. Interestingly, two particular themes reoccur in women's cyberpunk. First, women writers tend to explore ideas about imperfect bodies in their texts, utilizing physical disabilities and deformity as themes in their work. Second, women tend to explore the manipulation of both male and female bodies, complicating notions of gender norms, heterosexual desire, race, and class.

Laura J. Mixon's *Proxies* fits at a right angle into the canon of cyberpunk. Unlike cyborg characters in other narratives of human-machine hybrids, Mixon's human-piloted "proxies" embrace the "noise and pollution" advocated by Haraway in her writings about cyborg politics.[20] Like other feminist science-fiction writers, Mixon's work focuses on the reconceptualization of the body, communication, and identity. While subjects in 3-D worlds and games are constructed by graphics, *Proxies* offers complicated

prose to demonstrate the multiple knowledges enacted through the control of physical, proxy bodies in the physical world. *Proxies* begins as a bewildering read precisely because of the multiplied subject immediately presented to the reader.

Mother Taylor's summons started Pablo out of a sound sleep. He-Krueger awoke and eye-clicked on the alarm chiming in his ears. As the bells faded, Pablo-Krueger yawned in proxy—for what good it did—and rubbed his-Krueger's eyes. He was so tired. What time was it? Elsewhere, his flesh—a half-felt, ghostly entity,—yawned, too, to better purpose, and stretched in its crèche, briefly breaking the seal of its respirator mask. Eddies of disturbed liquid lapped against its face, limbs, and torso. For a moment he smelled soap, till the respirator system carried it away. . . And Buddy was gone again, he noted, from the emptiness that greeted him from the corner of his mind—or was perhaps just giving him the silent treatment.[21]

In *Proxies*, the active body or bodies becomes a surrogate for the "real" body in the "real" world. Identity becomes fluid and multiplied for the "proxy pilots"—primarily children and young adults who lie in crèche containers hooked up to neurotransmitter and receiver modules. Senses become tuned for piloting a proxy or series of proxies with a noticeable but short delay in reaction—a lag—so the users of the robotic, almost bionic proxy body become synched with dissonance as a primary reality. The pilots who did not begin piloting from early childhood take breaks every week or two to be "inbody" for a while; however, the pilots put inside the crèche as young children—often disabled, deformed children of color sold into experimentation—need never leave the crèche nor abandon their proxy selves.

In the novel, the scientists who developed the proxy technology need our scientist hero, Carli D'Auber, to help crèche children, their proxy bodies, and their scientist surrogate parents escape into outer space—the crèche experiments are illegal and, according to the scientists, the children will lead a life of misery if forever trapped in their original, deformed, and limited bodies. But one/several of the children inhabiting a female proxy tries to kill Carli, so an interesting and sympathetic proxy pilot named Daniel is sent to guard her and lead her to help the team. The conflict between the child "others" and science as an institution supposedly liberating them from their "marked" bodies is an unanswered tension throughout the text.

Gender is a significant point of distanciation and disjuncture in *Proxies*. Because pilots can move back and forth in proxy bodies, they also accordingly move back and forth between sexes. In the text, these consciousnesses rise, fall, do battle, or shut out others to dominate the body. One such body, a woman's body with mottled cocoa and alabaster

"skin," contains several pilot consciousnesses as it sets out to kill Carli D'Auber. A personality named Dane Elise Cay and one named Pablo both inhabit this particular female body, but Pablo dominates in some scenes, Dane in others. When Pablo "wakes up" in the middle of a scene where Dane is captured and monitored, he observes his body. "While his hands were disconnecting the probes, he glanced at his naked body, at the high, round breasts and the broadened hips. The triangle of pubic hair with no male genitalia. It shocked him—He—no, she—had faced into a gender blender . . . the skin of her simile body was mottled, cocoa and alabaster . . . Her body, acting on apparently a preprogrammed sequence, leaped down from the table and went toward one of the doors."[22] During this sequence, Dane, the "subject" earmarked for this body, does not see things this way but may know she's not alone. Both floating guests and preprogrammed simulations give the disturbing feeling of unauthorized surveillance.

Some characters find other characters attractive only when housed in particular types of bodies. Daniel, one of the oldest proxy pilots at twenty-three, finds a friend most attractive when she proxies as a young African American male body, although the characters are not categorized in homo- or heterosexual terms. Rather, because of the multibody and multisensory experiences proxy pilots have, sexuality in bi- or multi-sexed terms is normalized and reflects the multiple nature of perception and subjectivity as proxy pilots. In fact, desire and agency, or at least voyeurism, transcend human bodies altogether. Pilot Daniel is able to shift his "self," his subjectivity, out of his proxy body into the security system of a house, and into the home's servant robot while it serves cocktails. "The robot, with Daniel floating, rolled over to her [Carly] and offered her a goblet of wine. She looked down, directly into Daniel's eyes it seemed. Daniel felt like a six-year-old, looking back up at her."[23] While Daniel can float almost any digital system or appliance, he does not always control it—consciousnesses become adept surveillance systems.[24] In addition, proxy bodies can be controlled by multiple pilots. The female proxy body housing the female persona Dane Elise Cay is frequented by other personae, but she cannot sense this until well into the novel. "Someone was watching her. She could feel someone's attention on her. Was someone floating her? Or was it part of the simile?"[25] The character could not even tell if her own experiences, so removed through the distanciation of the body, were preprogrammed or if they were her own, and even whether the body she thought was hers really was.

In *Proxies*, the characters have not only multiple subject experiences, but multiple and networked consciousnesses. In fact, the children who "grew up" in proxy know this "consciousness hopping" as a normal way to communicate with each other. Dane Elise Cay is occasionally controlled by her own pilot/consciousness; however, she is often overridden by the Pablo or Buddy characters, or both; other times they are all

overridden by an automated program. They also become caught up in similes, or games, and might think they are playing a game when in fact they are piloting a real body through a real space. For pilots, it would be difficult to tell the difference.

Sometimes there is a conscious effort to shut out one of the personalities, to cut off their ability to perceive the thoughts of another. Yet strangely enough for consciousnesses which can float computer networks and home alarm systems, the primary means of communication for these disembodied pilots is language. Each personality can coexist and, at times, perceive the others' memories. In one scene, Pablo, the first child to become a pilot from the crèche, must cope with the impending death of the scientist who purchased him at a young age. He had always called the scientist "mother," and she had been with him daily. But upon her death, the fragmented consciousnesses grow larger, and readers experience parallel realities and memories.

He shrieked at the top of his volume. "NO!" You promised! You can't go!"

"Pablo!" She grabbed his arms and gave him a hard shake. Her voice was low, but sharp. He stared at her.

Betrayal.
Betrayal.

She's leaving me!
The memory came back, as jagged and raw as if it had happened yesterday. She sat in the dark woman's lap.

The wild distress that emanated from Pablo disrupted his concentration so thoroughly, Buddy barely noticed when the Cyclops ran him through with its spear.

He canceled the game and tuned in.

What the hell was going on? Pablo was screaming, Dane was screaming; Buddy could barely think. He shut Dane out to better tune Pablo in.[26]

Mixon uses her description and layout of the multiple dialogues to create a virtual space for the characters in the text; in this case a tripartite map of the environment is at hand. This style offers readers the chance to study the relationships between characters closely. We can see Pablo's panic, for example, ripple through the other consciousnesses. When the panic gets to Buddy, on the right, he tunes it in. But since characters' consciousnesses can be supplanted by other's memories, the mix becomes more confusing.

"I still remember that first day, when your mother handed you over to my care. You cried for days, and for long afterward you let no one near you but me. I came to love you more deeply than I'd have believed was possible."

Mother, no. You can't leave me. No.

She read his expression, and touched his face with a sigh.

I was just a little boy. I trusted you. My God, how you hurt me.

> And Dane—but no. Not Dane. She was only a spectator. It was Pablito—tiny Pablito: frail, sick, and trusting—who realized as his mother signed the paper what was about to happen.
> He clung to her, shrieking, while she tried to pry his arms loose and hand him over to the old white woman standing there.

Bullshit. You don't know how to love.

Pablo . . . Buddy felt despair. You poor, deluded fool.[27]

The proxy narrative space Mixon develops is unusual, even for "hard" science fiction. Knowledge here is multiple, heterogeneous, and conflicted; multiple aspects and characteristics of the narrative bubble up and at times contradict each other. Yet the text truly forms a space in which dialogue and thinking works to create the same kind of simultaneity that being next to and inside a 3-D game character could create. In a way the virtual space offered by Mixon could be considered a manifestation of the only kind of "omniscience" that could be possible—a conflicting but somehow overall knowledge, but clearly not the kind offered by conventional empiricist epistemology and models of omniscience in which control is never questioned. This "omniscience of sorts" generated here is from multiple sources, and in the style of Kurosawa's 1951 film *Rashomon* or Tom Tykwer's 1998 film *Run, Lola, Run*, the novel refreshingly recognizes its own shortcomings in offering "truth." Mixon's truth is both embodied and disembodied or multiple-bodied; authority and knowledge shift per paragraph, body, or thought; it operates in many space/time planes, and it is produced by single and multiple individuals with various cultural, gender, class, and ethnic backgrounds. In the end, the subject who shifts the least, Carli, understands that she cannot make decisions for the proxies based

on her experiences with/as a solitary consciousness, and her Western scientific knowledge is clearly both insufficient and problematic.

Toward a HyperKnowledge: Navigating + Folding

Feminist game advocate J. C. Herz notes in an interview, "In *Tomb Raider,* Lara Croft is the protagonist, the hero. When a boy plays the game, Lara is not the object, as she would have been in older games: she is the game. The boy who plays the game plays it as a woman."[28] One might be persuaded by this argument—that new technologies are allowing us to live lives and experience events that would have been impossible years ago. In fact, it is an argument touted by cyberspace advocates for several years—notably, Sherry Turkle and Donna Haraway embrace technology's disruption of categories and boundaries such as those between humans and machines; the obscuration of gender identity as allowed by technology such as chatrooms has been described as liberatory. On the contrary, many gender scholars find this problematic. Uma Narayan, for example, argues as a non-Western feminist that those who are not members of an oppressed group cannot suddenly "become" members of an oppressed group; men who share household responsibilities, for example, are mistaken if they believe this act of choice is anything like experiencing women's predetermined social role.[29] Carrying this line of argument into cyberspace, I find that participants who control Lara Croft are not truly experiencing what it like to be female; rather, their original subject location creates them as knowers: a position from which they cannot escape (see figure 22.2).

Yet the experience of what I call this "double embodiment" differs from both the "transcendent" approach of computer culture idealists and the "body-based" views of scholars such as Narayan. I would argue that the computer world user experience a kind of double consciousness: the class, race, and gender identity of the user's physical body, as well as the virtual body (bodies) of the character he or she "becomes"; when we "look" at a screen while we play a game and also "look" through a character's eyes and turn the head, both are simultaneously "real." Through the act of navigating a game or virtual world, the signifying practices in 3-D experiences establish an identity, an "I," but there are multiple "I" identities. The dichotomy between the physical subject and the "I" formed through the user/screen object relationship is interestingly undefined and flexible, but it must not be allowed to replace a real user's raced, classed, and gendered experience. Further, because motion in these examples is so important, the incorporation of movement, or agency within the virtual world, has tremendous possibilities for repositioning the subject if we also do not disregard the user's real body and experiences.

The virtual bodies in the cases I've mentioned, onscreen or in text, represent for us a significant juncture in the production of knowledge. Unlike women in other media
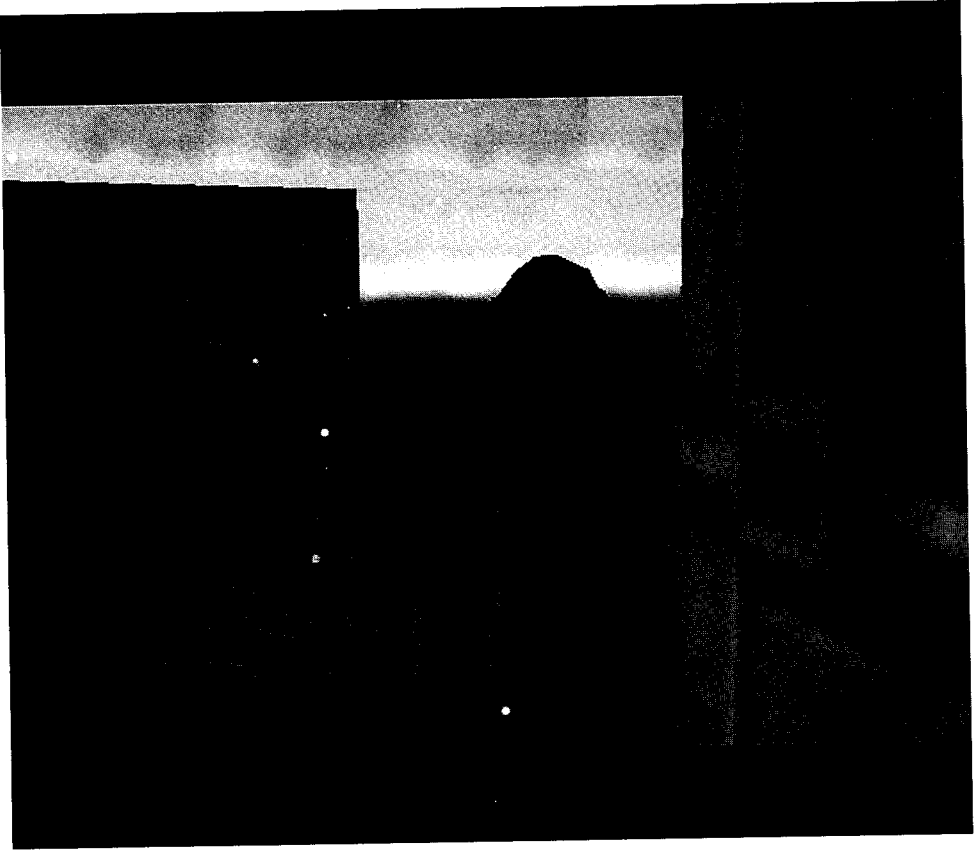
| Figure 22.2 |

A screen grab featuring Lara Croft, from *Tomb Raider: Chronicles* (Tomb Raider 5 ©2000 Eidos Interactive), hints at the "double embodiment" aspect of computer game playing; are we with Lara or "in" her?

forms, the body of the virtual game character is distanced, "proxied" through the mechanism of the user interface. This distance could be thought of as a manifestation of Judith Butler's notion of performance, the space in which gender becomes part of the creation of the subject. The type of knowledge established through these virtual characters becomes a way of "knowing" through performance. There is the performance of the body: the performance of the gender of the virtual body and the relationship between this secondary performance and that of the gender of the knower. The performance is a result of the navigation in the world and the combination of gender, self, and other. In her strategy to help readers understand notions of gender and performance,

Butler has argued that in examining the implications of agency, rather than there being a "doer behind the deed," we should note that a "doer" is constructed "in and through the deed."[30] With this in mind, how can we come to terms with the multiple positions offered by the figure of the proxy in virtual embodiments? How can we say that knowing subjects are produced in this paradigm? If the body is the site for the construction of knowledge in feminist epistemological models, and if bodies in games such as *Tomb Raider* are at the very least twofold (Lara's and the user's), then perhaps it is through both the multiple positioning of the user and the implications for agency within these worlds that a combined subject position is made available. This has implications for future communications and interaction paradigms, since more and more the physical body is mediated in digital discourse by avatars and digital body imagery; and yet race and other "marks" on the physical body seem to be further instituted.

It is important to utilize several strategies to approach an understanding of knowing in computer-generated worlds, since they are multiple, fragmented, and always in flux. Sandy Stone has examined the social construction of the body as a starting point where we can examine the way we interact with virtual systems.[31] She notes, "If we consider the physical map of the body and our experience of inhabiting it as socially mediated, then it should not be difficult to imagine the next step in a progression toward the social—that is, to imagine the location of the self that inhabits the body as also socially mediated—not in the usual ways we think of subject construction in terms of position within a social field or of capacity to experience, but of the physical location of the subject, independent of the body within which theories of the body are accustomed to ground it, within a system of symbolic exchange, that is, information technology."[32] With Stone, participants in virtual worlds are neither tied to their own bodies or their bodies of their avatars, but are situated in information technology without relation to either. Yet the floating subject in a generic "information technology" universe is problematic precisely because of the unfortunately apolitical assumptions about such technology; the term information technology, in its blandness, drifts by us seemingly uncoded with class or gender assumptions. Floating in such seemingly apolitical brine does not describe the experience of knowledge generated *between* these bodies. While Narayan is fundamentally correct in her view that we can never completely be "the other," and while Stone is correct in her assumption that the physical body is not all there is to subjectivity and identity in the age of information technology, knowledge in virtual space is always negotiated as a product (a very political product) of a located *and* a roaming subjectivity. Hyperknowledge is created within this third space, in the relationship between the virtual body and the physical. I compare the creation of hyperknowledge to the act of "folding." Folding is a way to birth the three-dimensional from

the two-dimensional; by folding one item or concept over another, a third object or meaning is produced. Traditional epistemology, with its particular rational, omniscient, deterministic, and scientific worldview (one can see that the idea of the "disembodied subject floating in information technology" is a surprisingly traditional view), and post-modernist feminism, with its multiplicity that calls into question the very question of knowing outside the body (such as Narayan's argument) are both planes in the construction of the subject. Extruding them creates a third way of approaching knowledge in the technological age: The shape of knowledge becomes polygonal if we combine a situated approach with the empirical approach and add ideas of performativity. Thus, knowledge is no longer embodied, nor empirical, but it can be a combination of both simultaneously. This shifting space between bodies offers a gap in which new ways of identification in space and within narrative, especially for feminists, can develop, without ignoring the importance of the situation. The battle between traditional concepts of knowledge and feminism's embodied, situated knowledge has represented a great impasse: a gap that would urge cybertheorists to look to Haraway and her cyborg for a type of resolution. But perhaps what we are seeing now is a living solution to the impasse, a new way of articulating the formation and workings of knowledges and subjects. The possibilities offered through feminist rewritings of gaming and through narratives such as Laura Mixon's *Proxies* finally further the arguments made by feminist epistemologists and deliver us to a new way of thinking about consciousness and knowledge. For too long woman has been positioned at the opposite end of reason and logic; her perverse, intuitive, irrational, and corporeal feminine self would need to be conquered, controlled, and dominated. This novel way of knowing is articulated not through edits in a film but through movement in a computer-generated space.[33] Lara's body is created entirely of surfaces. Everything about her is visual, visible. "Just as bodily surfaces are enacted as natural, so these surfaces can become the site of a dissonant and denaturalized performance that reveals the performative status of the natural itself."[34] Lyotard focused upon the idea of the event using performativity as a working principle of knowledge—namely, that a figure could claim its own descriptive space no more or no less "universal" than any other, but that it is mobile. He wrote of performance as knowledge, "No single instance of narrative can exert a claim to dominate narratives standing beyond it."[35] Performance as "a rendition" through movement or experience seems appropriate because, first, it allows performance to be an "incident" at each viewing event, and, second, it changes from viewer to viewer, from time to time. The agency of navigation, situated in multiple subjectivities, offers an alternative epistemological model.

Perhaps we can apply Lorraine Code's call for a new geography of epistemic terrain, "one that is no longer primarily a physical geography, but a population geography

that develops qualitative analyses of subjective positions and identities and the sociopolitical structures that produce them."[36] That is, the foregrounding of spatial realism (or hyperrealism) as a foundation for knowledge in virtual space must give way to a focus upon the possibilities in constructing the gaming subject, and the array of views, the fluidity, and movement within virtual worlds is one of the primary means by which this subject is created.

If primarily male spaces—cyberpunk and gaming culture—reflect and inform our myths and conventional ideologies, then what do women's interpretations of technoculture do for us as cultural critics and media makers? Expanding the definition of cyberpunk fiction, and rethinking the common myths of male-dominated cyberculture at large, allows us to consider bodies, relationships, and knowledge in the future in more complex—and positive—ways than those offered by earlier cyberpunk manifestations in popular culture.[37] Clearly as a genre cyberpunk is one in transition, with women such as Laura Mixon leading the way. And we can see the possibilities for expanding meaning and knowledge in games, if only the gaming industry were following this progressive wave and fostering the creation of content for and by "others." If women were to create games like Mixon's texts, we might begin to dwell together on potentials brought by considering meaning in virtual bodies. The representation of our technoculture in this area of science fiction writing—the writing of women—offer us alternate, important, and theoretically sound avenues to envision and invent our present and our futures. This essay has located the hyperbody and the generation of a hyperknowledge through that body, and looked at the possibilities offered through such an intersection. Outside of digital games and fiction, how are women in cyberculture challenging assumptions about the relationships among the body, the machine, and knowledge? Let us look to creative projects and other texts that can work toward creating a strategy of resistance to prevailing tenets in technoculture and help define areas for redefining cyberculture for women.

Web artist Linda Vigdor provides an interactive exploration of subjectivity in virtual space. In several of her projects, she balances what she calls the "real," the "unreal," and the "surreal."[38] Her *Spaces of Form* online VRML project allows users to enter into a virtual space to explore the inside and outside of a female body form. Users approach a 3-D female torso. It has green bands wrapped around the chest, like measuring tape— perhaps the body becomes a virtual dress dummy. On this fly up, the body vanishes, and only the tape remains; we are then for a moment surrounded in black, seeing the tape, and then a shutter closes. Are we inside the woman's body or inside part of a camera? The act of spectatorship, spatial agency, and participation are merged in the images (see figure 22.3).
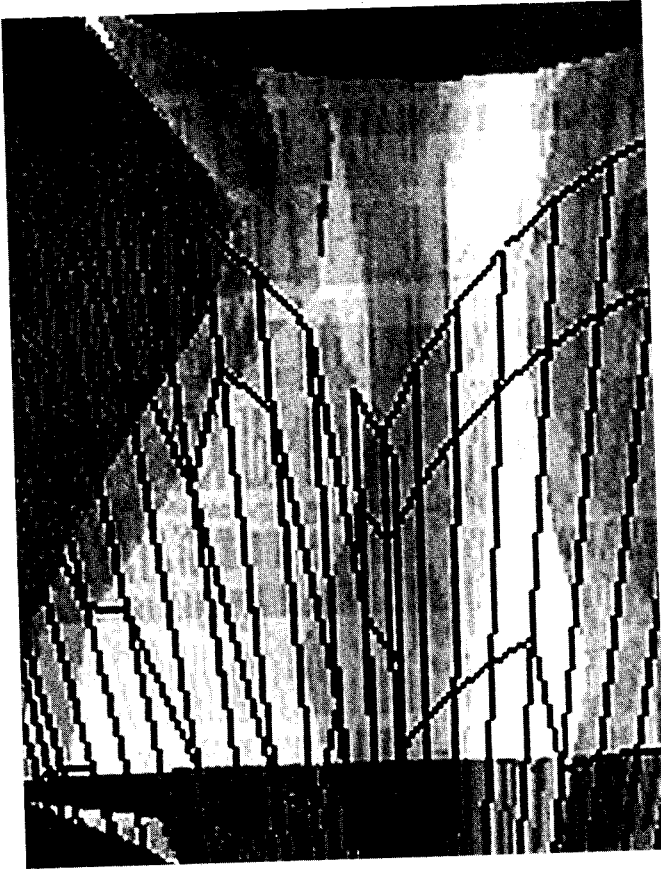
| Figure 22.3 |
Linda Vigdor's VRML project *Spaces of Form* ©1999 Linda Vigdor.

In Vigdor's work, the interplay of spaces and forms are confusing and, contrary to the narratives discussed earlier in this chapter, narratively dissatisfying. For the user, it is very difficult to see cause and effect. Then we float through blue space looking down at the fragmented body. Or do we look up at it? Like a virtual game character, this body is made up of surfaces, fragments, but unlike a *Parasite Eve* experience, in its fragmentation it is incomplete. The body could act as our proxy, however; the animations take us on a disturbing tour of the body, inside and out, and through its design the project pose the questions, "what and where is this body" and "where am I as subject?" The intimacy and permeability of the form, its incompleteness, and the fluid motion of the

| Figure 22.4 |
Char Davies's *Osmose* (©1995 Char Davies/Immersence Inc. and Softimage, Inc.).

animating camera give users the sense that they can traverse multiple spaces and occupy multiple points at which to experience the work (see figure 22.4).

In her work, VR artist Char Davies explores the "paradoxes of embodiment, being and nature" in the immersive virtual spaces she constructs.[39] The 1995 VR project *Osmose* was created by a team led by Davies while she was at Softimage, a 3-D graphics software company based in Montreal. To use *Osmose*, users wear head-mounted displays and "breath tracking" vests. When the "immersant," to use Davies's term, breathes, the virtual environment changes, taking users into various visible and audible abstractions with a focus on nature. Users navigate the worlds within *Osmose* through breath and balance. Rather than use more traditional high-level rendering techniques focusing on ultrarealism and science (like the kind most users of Softimage's packages would be likely to create), the graphic aesthetic of *Osmose* is soft, unprecise, and fluid. Spatial relationships are purposely ambiguous so that the space might "evoke" rather than illustrate, as so many conventional 3-D works tend to do. Sounds respond to the immersant's location and consist of a sampled blend of male and female voices. The goal of the work is not necessarily to navigate but to experience a particular state of being.[40]

In her next major work, *Éphémère* (1998), Davies structures the virtual experience vertically into three levels: landscape, earth, and the interior body.[41] Throughout *Éphémère*, elements of nature, environments, and body organs are created and vanish. A central organizing "river" runs through the work and acts as a portal; participants can enter the river to switch between the vertical levels of the work (from nature to the interior body, for example). They appear and withdraw based on the vertical position, movement direction and speed, direction and duration of gaze, and breathing of the immersant. One example consists of seeds sprouting if the immersant looks upon the earth for a length of time, thus training the user to patiently observe the world around them (see figure 22.5).

Davies is committed to the idea of removing the restrictions so common to other virtual-space environments. "Immersive virtual space, when stripped of its conventions, can provide an intriguing spatio-temporal context in which to explore the self's subjective experience of 'being-in-the-world'—as embodied consciousness in an enveloping space where boundaries between inner/outer, and mind/body dissolve."[42] In Davies's projects, one experiences rather than navigates. This, combined with a connection to the physical body, is a way in which subjects are constructed that serves to make one aware of the subject position, enticing or encouraging participant to reflect upon knowing.

A third project also serves as an example of how women artists are turning the tables on the construction of the subject and exemplifies a way of thinking about the computer in a nonhierarchical way. [phage] is a beneficial computer virus I created in 1999
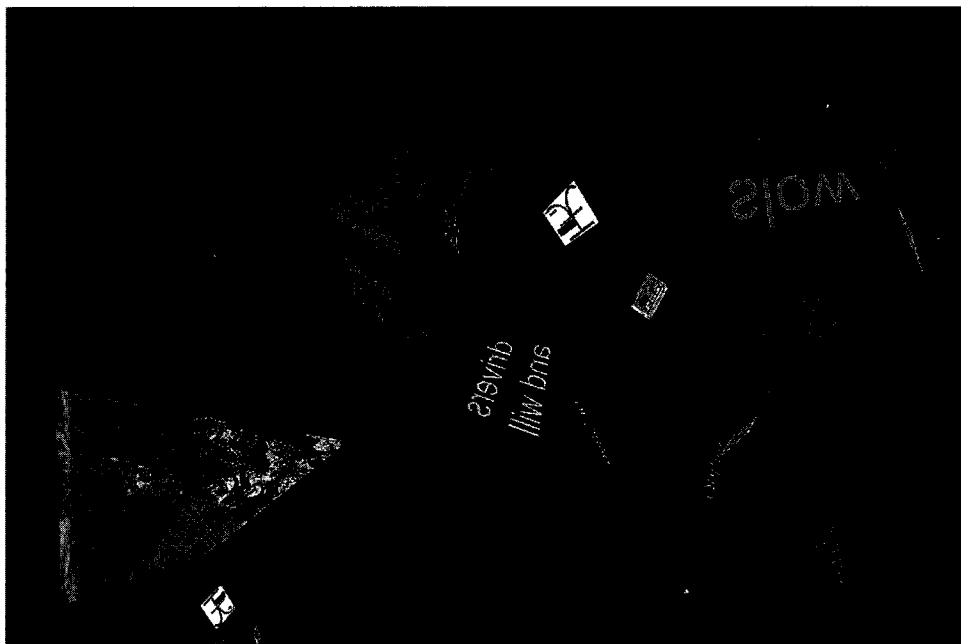
| Figure 22.5 |
Char Davies's *Éphémère* (©1998 by Char Davies/Immersence Inc. and Softimage, Inc.).

that allows users to shift their own subject position amid their own data through an application which explores a workstation's architecture and creates an artwork based on each user's data. [phage], referring to the constructive bacteriophage, comes from the Greek *phagein*, meaning "to eat." By form or function, a virus is not inherently harmful.[43] Like their biological counterpart, computer viruses do not need to be destructive. Biology in fact presents us with a constructive virus type: Bacteriophages, viruses used for healing, do not harm the human body but can destroy other bacteria.

A digital equivalent to this "constructive virus" was created to come to an understanding of our relationship to our data. We need to examine not only the content but the technical framework that creates and stores it. When [phage] is ready to act, it opens, filters through all available material on a specified workstation, and visualizes it in a 3-D space. [phage] places a user's experiences in an alternate context—a visible, audible, and moving 3-D computer world, where the rules of what is shown, for how long, and why are created by the virus itself instead of the user. [phage] is a type of artificial life form that explores a workstation's architecture and creates a poetics of the computer. The program possesses its own organizational parameters for the mapping of virtual space and thus works to reorient the user to the computer; it exhibits viral behavior by scouring the drive, then manipulates and creates, or births, the data into a visible and audible 3-D environment. Using [phage], participants experience the computer in an exceptional way; it becomes a space for examining digital cultural creation and the structures behind the myths of digital space and identity by melding user data with that of the machine language and OS. [phage] has only the lifespan of a computer application: It can run for days or months, or it can crash quickly. Much depends on what it discovers on the hard drive. The program breaks down virtual space's hierarchy by displaying information in a non-Cartesian 3-D space, granting random and often unknown pieces of data trajectories, lifetimes, and the power of random movement. The computer in this context acts as its own creator and its own enactor of memory. Like University of California at San Diego art professor Harold Cohen's computer program Aaron, which uses artificial intelligence to create drawings and paintings, [phage] exhibits autonomy in its selection and display of media on the computer. In other words, it is a recorder and a creator as well through its re-creation of our experience on the computer with different rules. [phage] functions similar to video art or other critical media works that use the medium and format to call a critique on itself. It calls for a geographic critique of virtual space (see figure 22.6).

References to the corporeal body through the virus metaphor are intentionally significant in this project. The virus is a way to manifest an Irigarayian critique and counteract traditionally masculine paradigms of the technological age. In effect, the work can be thought of as an extension of Luce Irigaray's work as she asserts that masculinist

| Figure 22.6 |
A screen grab from [phage], a computer program by Mary Flanagan (©1999–2000 Mary Flanagan).

hierarchies regulate language and material relationships, especially in regard to the body. Computers, like the body, are permeable, and this permeability is dangerous as it allows contagion as well as content to enter; the contagion, like physical or computer viruses, might consume our histories and our knowledges. Irigaray notes that the human body, with its essential need for penetration, is not easily regulated in conventional masculinist power paradigms; this "feminine" permeability must be controlled through the objectification of woman, or, extending this critique to the computer, the objectification of the machine. Permeation without consent (hackers and viruses representing this danger) threatens the historic use of the computer in a command I control relationship inherited from military use. This relationship is reinforced through the fear of the uncontrolled—viruses and hackers in fact work to validate and fortify power metaphors in computer culture. But for another type of structure to "be," for women in cyberculture to have authorship and subjectivity, power paradigms must be altered, questioned, and reworked.

Through its inherent critical approach to a user's relationship with the computer, the creation and organization of [phage] can counteract traditionally masculine paradigms of the technological age. Cornelia Brunner notes that while men tend to see technology as a means to an end, women often view technology as a way to communicate or experience the world around them differently; and Sandra Harding points out, "All scientific knowledge is always in every respect, socially situated."[44] The knowledge from which virtual space is created is based on modernist epistemology; a masculinist valued rationality upon which Western assumptions of hierarchy from Enlightenment to the present are based. Through its nonhierarchical organization and its divorce of creative control from the user to the machine, [phage] is an attempt to alter this epistemology by creating *a feminist map of the machine.* By allowing our communications and artifacts to be both the means and the ends of the work, [phage] allows users to become aware of their relationship with the computer, enter into the machine's design, and examine its writing of files, of order, and of space. Most software and art projects tell stories or provide experiences, but few are about the viewer or user. With [phage], the story is about you, the user, but told to you in a meaningful play of subjectivities.

When using [phage], our environment contains our own artifacts mixed with those of the computer and the Web. [phage] allows the user to experience his or her computer memory as a palimpsest of life experiences rather than as simply a tool for daily use. By mapping a user's unique encounters—through images, downloads, Web sites visited, e-mails—it creates spatial memory maps that reflect not only the user's interactions but, to a larger degree, the user's definition of self in technoculture.

The zone between the physical manifestation of the body and the virtual has perhaps permanently altered the way we gather, process, and understand knowledge. Could it be that the third space offered in between virtual worlds and the physical, articulated through performance of space, will become the foundation for a feminist use of the Internet, infiltration into computer culture, and, specifically, the adaptation and redefinition of virtual space? Irigaray notes that "any theory of the subject has always been appropriated by the "masculine."[45] So too have most cyberartifacts as well as theories about the authors and subjects in technoculture. Yet perhaps online worlds can center around multiplicity rather than control of the experience. I am calling for an end to what I call "the nonconsensual fantasy engine" to alter both the negative representation of women in electronic media and the limited kinds of narratives, interactions, and games offered by pop culture.[46] Further, I am calling for the integration of underrepresented groups in online worlds. We can thus halt the appropriation of computer culture for certain privileged groups by understanding its apparatus. For users, especially female users, the shattering or opening up of the position of receiver—of the subject

position—offers a situation in which alternative ways of seeing, hearing, listening, and understanding can develop through awareness and redesign.

Notes

1. Donna Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 244–245.
2. Linda Martin Alcoff and Elizabeth Potter, "Introduction: When Feminisms Intersect Epistemology," in *Feminist Epistemologies* (New York: Routledge, 1993), 3.
3. Allucquère Rosanne Stone, *The War of Desire and Technology at the Close of Mechanical Age* (Cambridge: MIT Press, 1995), 92.
4. Mark Pesce, "Magic Mirror: The Novel as a Software Development Platform." Paper presented at the Media in Transition Conference at MIT, Cambridge, MA, October 8, 1999. Online. Available at < http://media-in-transition.mit.edu/articles/index_pesce.html>.
5. Lucy Suchman, "Working Relations of Technology Production and Use," *Computer Supported Cooperative Work* 2 (1994): 21–39.
6. Evelyn Fox Keller, and Christine Grontkowski, "The Mind's Eye," in *Feminism and Science*, ed. Evelyn Fox Keller and Helen E. Longino (New York: Oxford University Press, 1996), 190.
7. Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Priviledge of Partial Perspective," in *Space, Gender, Knowledge: Feminist Readings*, ed. Linda McDowell and Joanne P. Sharp (London: Arnold, 1997), 61.
8. Haraway, "Situated Knowledges," 63.
9. Evelyn Fox Keller, *Reflections and Gender and Science* (New Haven: Yale University Press, 1995), 71.
10. Sandra Harding, "Rethinking Standpoint Epistemology," in *Feminism and Science*, ed. Evelyn Fox Keller and Helen E. Longino (New York: Oxford University Press, 1996), 243.
11. Harding, "Rethinking Standpoint Epistemology," 240.
12. Alkeline van Lenning, "Utopian Bodies and Their Shadows," in *Feminist Utopias in a Postmodern Era*, ed. Alkeline van Lenning, Marrie Bekker, and Ine Vanwesenbeeck (Tilburg, The Netherlands: Tilburg University Press, 1997), 139.
13. One such study on "razor girls" is Lauraine Leblanc's look at "Stepping Razor" Molly in *Neuromancer*. See Lauraine Leblanc, "Razor Girls: Genre and Gender in Cyberpunk Fiction," *Women and Language* 20, no. 1: 71 (Spring 1997).
14. Snider 1997.
15. For this chapter I interviewed fifteen players of 3-D action games in Buffalo, New York, in 1999.
16. Gilles Deleuze, *The Logic of Sense* (New York: Columbia University Press, 1990), 216.

17. Uma Narayan, "The Project of Feminist Epistemology: Perspective from a Nonwestern Feminist," in *Gender/ Body/ Knowledge: Feminist Reconstructions of Being and Knowing*, ed. Alison M. Jaggar and Susan R. Bordo (New Brunswick, NJ: Rutgers University Press, 1989), 264.
18. Here I refer to the familiar tense (for example, the "tu" form in Spanish), which linguistically positions the subject.
19. Heather Hicks, "'Whatever It Is that She's since Become': Writing Bodies of Text and Bodies of Women in James Tiptree, Jr.'s 'The Girl Who Was Plugged In' and William Gibson's 'The Winter Market,'" *Contemporary Literature* 37, no. 1: 62 (Spring 1996).
20. Haraway, *Simians, Cyborgs, and Women*, 176.
21. Laura J. Mixon, *Proxies* (New York: Tor Books, 1998), 1.
22. Mixon, *Proxies*, 10.
23. Mixon, *Proxies*, 168.
24. This multiperspective consciousness shows itself in other women's cyberpunk novels such as Amy Thompson's *Virtual Girl*, in which the AI can, with difficulty, use a camera to "see" while her body is shut down.
25. Mixon, *Proxies*, 11.
26. Mixon, *Proxies*, 408.
27. Mixon, *Proxies*, 410.
28. Gregory Kallenberg, "J. C. Herz: What's in a Game." Interview with J. C. Herz. *Austin American Statesman: Austin 360.com*. Online. Available at <http://www.austin360.com/tech/ browswer/071097.htm >. July 10, 1997.
29. Uma Narayan, "A Nonwestern Feminist on Epistemology," in *Gender/ Body/ Knowledge: Feminist Reconstructions of Being and Knowing*, ed. Alison M. Jaggar, and Susan R. Bordo (New Brusnwick, NJ: Rutgers University Press, 1989), 264.
30. Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity* (New York: Routledge, 1990), 142.
31. See Stone, *The War of Desire and Technology*.
32. Stone, *The War of Desire and Technology*, 92.
33. Notions of what this "space" truly is can be stretched and experimented with; note that the links in hypertext have been seen as spatial and liberatory as well by writers such as Carolyn Guertin.
34. Judith Butler, *Gender Trouble*, 146.
35. Bill Readings, *Introducing Lyotard: Art and Politics* (London: Routledge, 1991), 69.
36. Lorraine Code, "Taking Subjectivity into Account," in *Feminist Epistemologies*, ed. Linda Martin Alcoff and Elizabeth Potter (New York: Routledge, 1993), 39.
37. Here I not only refer to cyberpunk novels of Gibson, Stephenson, or Rucker, but also the cyberpunk aesthetic offered in Hollywood's reflection of the culture (in films such as *Robocop, Terminator, Lawnmower Man*), the gaming industry's products (Duke Nuke 'Em, Unreal), and even print (*Mondo 2000, Wired*).

38. Vigdor, Linda, *Paraspace*. 1999. Online. Available at <http://www.paraspace.com/pages/Spaces_of_form_still.htm>.

39. Davies, Char, *Char Davies Biography*. 1998. Online. Available at <http://www.immersence.com/immersence_home.htm>.

40. Davies notes that over 5,000 people have been immersed in *Osmose*, and many participants report strong emotional responses, including weeping, from the work.

41. Davies's work featured at the *Soft Image Web Site*. 2001. Online. Available at <http://www.softimage.com/default.asp?url=/Stories/Projects/Ephemere/CharDavies.htm>.

42. *Soft Image Web Site*. 2001. Online. Available at <http://www.softimage.com/default.asp?url=/Stories/Projects/Ephemere/CharDavies.htm>.

43. Phillip Fites, Peter Johnston, and Martin Kratz, *The Computer Virus Crisis* (New York: Van Nostrand Reinhold, 1991), 7.

44. Cornelia Brunner, "Opening Technology to Girls: The Approach, Computer-Using Teachers Take May Make the Difference," *Electronic Learning* 16, no. 4: 55; Sandra Harding, *Whose Science? Whose Knowledge?* (Ithaca, NY: Cornell University Press, 1991), 11.

45. Luce Irigaray, *The Speculum of the Other Woman*, trans. Gillian C. Gill (Ithaca, New York: Cornell University Press, 1985), 133.

46. Here I make a play for the computer-driven artwork by Paul Vanouse and Peter Weyhrauch (1995); in their engine, the audience collectively chooses narrative direction in interactive cinema; for women in technoculture, however, the narratives available for navigation are few. The technofantasy engine of cyberpunk and the gaming industry has not taken women into account in their narratives.

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