The Construction of "Nature" in the Virtual World Second Life

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THE CONSTRUCTION OF “NATURE” IN THE VIRTUAL WORLD SECOND LIFE

By

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The Graduate School has verified and approved the above-named committee members, and certifies that the dissertation has been approved in accordance with university requirements.
To my mother and father, Deborah Fennell Clark and Joseph Stanley Clark, Sr., who taught me to respect the natural world and to question my assumptions.
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The natural systems that humans value and upon which we depend are under pressure. Yet too often humans appear trapped in denial, continuing to engage in harmful and unsustainable practices. Capitalism’s necessary components of commodification and continual growth are primary drivers of both environmental degradation and our ability to blind ourselves to it or depict it as an inevitable “price of progress.” This opens our economic system and the ideologies of consumption and commodification that underlie it to critical challenge.

The mechanism by which this system reproduces itself is an obvious focus of critics, who have pointed out that capitalism uses our informational and entertainment media as a “culture industry” (Jhally, 1989) to reproduce itself, thereby shaping our thinking and constraining our choices. Yet, as Jenkins and others have shown, this is not a one-way, hypodermic model of influence.

The multiuser virtual world *Second Life* represents the emergence of a somewhat new medium that is groundbreaking in its presentation of an immersively convincing world that visitors can inhabit and even co-create. *SL* tends to reproduce the ideologies of its builders and users, and its convincing nature creates a powerful presumption of reality and truth; it tends to be experienced as something as natural and inevitable as the real world. Because it is largely user-created, however, it is a place where ideologically-founded depictions of the natural world can be deconstructed regularly and habitually in the act of consuming them. It also offers a relatively democratized public sphere in which competing visions of reality can be experienced.

I begin with a review of critical theory about the role of media in the formation and reproduction of ideologies about the natural world. Following an explanation of Remediation Theory—which provides insight into the way something as clearly artificial as a virtual world
can be enthusiastically engaged as real—I also discuss the rhetorical power of images, followed
by a discussion of “virtual nature” as it has been presented in various forms up to and including
Second Life. I conclude a detailed study that entails both close readings of SL “builds” as well as
interviews with its users and an examination of the way descriptions of these virtual
constructions circulate out in other media.
CHAPTER ONE
INTRODUCTION

Tokyo, Amsterdam, and the entire Mediterranean island of Ibiza were inundated with floodwaters today due to rising sea levels brought on by global warming.

So reads the lead sentence in an April 2007 National Geographic News article (Roach, 2007), which also describes confused residents climbing onto rooftops to escape a “rolling flood.” This is not a scene from a Hollywood disaster movie. It actually happened.

It just happened in another reality. It was, in fact, a staged event in the multiuser virtual world Second Life (SL), and it was designed to “illustrate the potential environmental and financial impacts of climate change,” in particular to “dramatically demonstrate the potential effects of climate change on sea level.”

Organizers of the event saw it as a “fresh way to raise awareness” and so coordinated the virtual immersion with a number of private landowners in the largely user-built 3D. The avatars of SL users, called residents, responded with surprise and even engaged in realistic behaviors (like climbing onto rooftops, even though no one can drown in SL)—and, as the National Geographic article reports, the topic of their online conversation turned to the effects of climate change. "The inhabitants of one bar," [an event organizer] wrote, "replaced the tables & stools with boats and carried on drinking—albeit discussing the dangers of global warming" (Roach, 2007).

Back in what we think of as Real Life, the natural systems upon which we depend—and which have their own right to exist free of undue human influence, apart from their usefulness to
humanity—are under pressure from pollution, habitat loss, climate change, and other anthropogenic causes. Yet too often humans appear trapped in denial, continuing to engage in harmful and unsustainable practices. This denial emerges from the structural conditions that privilege existing practices and institutions, difficulty in visualizing abstract and long-term impacts, and a lack of convincing visions of alternatives.

Many have pointed to the role played by capitalism’s necessary components of commodification and continual growth as primary drivers of both environmental degradation and our ability to blind ourselves to it or depict it as an inevitable “price of progress.” This opens our economic system and the ideologies of consumption and commodification that underlie it to critical challenge, in an effort to improve the lot of the natural systems that sustain us—whether our motivations are ecocentric or humanitarian.

The mechanism by which this system reproduces itself is an obvious focus of critics, who have pointed out that capitalism uses our informational and entertainment media as a “culture industry” (Jhally, 1989) to reproduce itself, thereby shaping our thinking and constraining our choices. Yet, as Jenkins and others have shown, this is not a one-way, hypodermic model of influence. Jenkins shows how fan cultures, for example, repurpose and remix media components for uses and meanings that have little to do with their original purpose, and can even have a kind of culture-jamming effect, resisting the culture industry’s impetus towards commodification of everyday life.

Yet the inertia of the culture industry is strong, and its ability to co-opt and commodify even the counterculture of resistance creates a continual process of rearticulation (Gramsci, 2009) and remediation (Bolter & Grusin, 2000) whereby media become sites of struggle between competing visions about the future of humanity. In one glaring example that takes place in
traditional media, Greenpeace’s dramatic encounters with Japanese whaling boats (DeLuca, 1999) evolve into *Whale Wars*, a reality-TV series that foregrounds human personalities in order to captivate viewers and sell advertisements. Even the creators of resistant remixes use tools that are products of a technophilic, anthropocentric perspective that cognitively limits us by privileging the visual over other senses, and which has material, human costs—from energy resources to the environmental and human impacts of production (e.g. everything from waste disposal to the plight of workers engaged in producing iPads).

Visually realistic computer games and simulations have become more commonplace in recent years as technology permits photorealistic effects and complex gameplay available at an affordable cost to large numbers of people, in both stand-alone and networked forms. The multiuser virtual world *Second Life* represents the emergence of a somewhat new medium, though as Bolter and Grusin argue (described in detail later), all new media in some ways “remediate” or recapitulate older forms. Thus while *SL* is groundbreaking in its presentation of an immersively convincing world that visitors can inhabit and even co-create, we can see in *SL* traces of older mediated presentations of the natural world, such as parks, gardens, and museums. And just as in these earlier forms, the medium of *SL* tends to reproduce the ideologies of its builders and users. Its convincing nature creates a powerful presumption of reality and truth; despite the artificiality that is always apparent, it effaces itself, naturalizes itself, erases its rhetorical and ideological nature by seeming to be a world, virtually—that is, phenomenally. It tends to be experienced as something as natural and inevitable as the real world.

But the very constructedness of this world foregrounds the act of choosing and selecting that goes into its construction, for there is no “pristine form” of the virtual world. Every component—sunlight, water, mountains, trees, the built environment—represents choices about
what is important, about what constitutes our experience of the natural world and our place in it. Because of this foregrounding of the act of constructing and mediating (what Bolter and Grusin call remediation), a place like Second Life can and does offer opportunities for resistive readings of its ubiquitous tropical islands and neat parklands. For example, designing realistic animals to populate a natural setting requires one to think about both human and animal perspectives. Going into a virtual store to buy a coral reef or a school of fish foregrounds the act of commodification to the point of ludicrousness, even when one is engaged in an attempt to efface both ideology and remediation by creating a “naturalistic setting.”

Thus Second Life’s status as a world openly constructed by its users places it, perhaps uniquely, as a medium in which ideologically-founded depictions of the natural world can be deconstructed regularly and habitually in the act of consuming them. And because so much of its content is user-created, it offers a relatively democratized public sphere in which competing visions of reality can be experienced—often on adjacent virtual islands.

My goal here is to come to an understanding of the ways in which Second Life constructs nature and how that process is interpreted by its users to assign meanings to comparable elements of the real world. Toward that end I also wish to explore the usefulness of current theory in this regard, focusing primarily but not solely on the work of Henry Jenkins regarding remix and convergence culture, as well as the perspective known as Remediation Theory advanced by Bolter and Grusin.

The path undertaken here twists through a number of technological and epistemological/ontological perspectives, resulting in a constant tension among concepts like reality, environment, virtual, and nature. I begin with a review of critical theory about the role of media in the formation and reproduction of ideologies about the natural world. Following an
explanation of Remediation Theory—which provides insight into the way something as clearly artificial as a virtual world can be enthusiastically engaged as real—I also discuss the rhetorical power of images, followed by a discussion of “virtual nature” as it has been presented in various forms up to and including *Second Life*. I conclude a detailed study that entails both close readings of *SL* “builds” as well as interviews with its users and an examination of the way descriptions of these virtual constructions circulate out in other media.
CHAPTER TWO

LITERATURE REVIEW

Why Media and Mediation Matter

Capitalism Shapes the Media that Shape Us

In the western world, the mass media are used for informational and entertainment purposes. But they also have been shown to influence both political agendas and personal attitudes. They do this in part by creating and structuring individuals' sense of reality, and by “setting the agenda” for the general public and public policy (Schulte, 1983).

On the one hand, this agenda-setting function can work in an "anti-environmental" fashion through the influence of commercial interests, whose purchases of media time influence programming. The influence of commercial support becomes more pronounced as costs of production and distribution increase, especially in countries where the media are not funded or subsidized by the government (Herman & Chomsky, 1988).

Powerful firms operate within a culture that valorizes and naturalizes business and private property (see, for example, Jhally, 1989; Bagdikian, 2004; McChesney, 2008). The scope of this naturalization means that alternatives become that much more difficult to envision, even when problems arise.

Another way this economic reductionism gets perpetuated is in the nature of stories presented in the media. Bettig and Hall (2003) describe the way media mergers in the 1980s and 1990s were almost always described as business stories: the merger would yield new markets, or new efficiencies, or generate excitement among investors, and so on. Only rarely were the potential impacts of these mergers on the culture or on American society examined.
Environmental messages, especially those espousing conservation, tend to promote the purchase of fewer goods (Winett, Leckliter, Chinn, Stahl & Love 1985). When environmental concerns run counter to a consumption-oriented commercial atmosphere, advertisers have been known to pull funding on programs that do not support their own agendas. And continued representation of the long-term nature of the environmental crisis can also reduce energy consumption.

However, particularly in the United States, media tend to focus on failures (personal and political) because of their newsworthiness in a success-oriented culture (Schoenbach, 1983). Environmental damage and crises fit the definition of "failures" and thus become objects of media agenda setting. And there is a direct correlation between the messages produced and distributed by the media, and the consumer’s knowledge of environmental issues (Mcleod, Glynn & Griffin, 1987).

The Consciousness Industry

Schnaiberg's (1993) analysis of the role of consciousness and economic systems related to environmental problems is also relevant. He notes that the owners and managers of capital attempt to maximize resource extraction (in this case, the development of land) by altering the consciousness of the public. This is done in two ways: by portraying development as compatible with the use-value (as opposed to the exchange-value) of the land, and, if this approach fails, by making exchange-value appear paramount over use-value. As he puts it, “To this end, the social control of environmental impact assessment, as well as other forms of unconsciousness-making are relied upon, to tilt state action towards permitting expanded extraction from ecosystems” (Schnaiberg, 1993, p. 25).
This "unconsciousness-making" can take many forms: "advertising, public relations, intergovernmental relations, or public service communications. These outlets all reinforce the perception of the treadmill [pre-eminence of the exchange-value] as a social and an individual good. They do this routinely, powerfully, and often quite creatively" (Schnaiberg, 1993, p. 56). This creates an "enduring systemic bias towards the economic synthesis, and against the ecological synthesis" (p. 35).

Jhally (1989) explains the impact of such a shift in consciousness in his critique of the political economy of culture. Noting that democratic freedoms can be curtailed by both government and commercial activity, he argues that culture is impacted by the economic systems that surround it, and that culture therefore can serve to reproduce existing economic power relations that benefit certain groups. Control of the “consciousness industry” becomes a tool for maintaining hegemony—the “consent of the dominated” (p. 67)—controlling and defining debate. Furthermore, Jhally asserts, culture itself becomes an industry and a commodity, its purpose to sell itself through an appeal that is nothing more than escape and illusion (p. 71).

For Jhally (1989), it is important to realize that cultural industries reproduce what Schnaiberg (1993) calls an “economic synthesis” not simply because they are controlled by capitalist forces, but because culture itself has become a business. Culture does not simply valorize the economic, it becomes an economic commodity. One can buy one's way into the culture, as a WaterMark or SouthWood homebuyer purchases the notions of leisure, Southern charm, sweet tea, and gingerbread porches. Furthermore, these cultural commodities are designed, Jhally warns, by “some of the best artistic talent in our society” (p. 77) —which immediately calls to mind St. Joe's incorporation of Disney-quality packaging and aesthetics. The environmental synthesis is replaced by an attractive, appealing bit of visual mimicry.
The results cut deeply into modern life. In addition to specific environmental harm that may arise from particular instances of exchange-value dominance, Schnaiberg (1993) notes that "It is this dominant institutional and cultural commitment to expanding the production of commodities that many contemporary social and ecological theorists see as the root of alienation of humans from natural ecological systems" (p. 6). For Jhally, the harm is largely a resulting inattention to social ills, while for Schnaiberg it is inattention to and alienation from something even more biologically fundamental.

Capitalism and The Environment

In his economic analysis of sprawl, Brueckner (2000) shows how common factors such as growing population, rising incomes, and falling commuting costs push development out to the fringes, where the land becomes more valuable as potential development than as agricultural or greenbelt space. This is normal market operation directing resources to their highest and best use (p. 162). If the agricultural value of land is high, cities tend to remain more compact. If this value falls and commuting costs are low, urban expansion takes place. In such cases, the market is functioning normally.

On the other hand, Brueckner (2000) notes:

Three market failures may lead to excessive spatial growth of cities. The first arises from a failure to take into account the social value of open space when land is converted to urban use. The second arises from a failure on the part of individual commuters to recognize the social costs of congestion created by their use of the road network, which leads to excessive commuting and cities that are too large. The third market failure arises from the failure of real estate developers
to take into account all of the public infrastructure costs generated by their projects. (p. 163)

Specifically, in the latter case, infrastructure costs are amortized across all taxpayers in the region, artificially deflating the cost of growth for new homeowners. This leads to a what Brueckner refers to as a "vicious cycle" of unfettered growth that is not market controlled (p. 165).

Furthermore, classic market systems also fail to take into account the value of open spaces and other environmental features. "The classic example of a market failure is air and water pollution, where a factory has little incentive to take account of the environmental damage it causes and, thus, ends up polluting too much" (Brueckner, 2000, p. 163). Similarly, if an uninformed market sees wetlands and forests as aesthetic features rather than complex ecosystems, much can be lost before its effects—including degraded water supplies, collapse of wildlife populations, algal blooms and red tide—become apparent.

**Resisting the Culture Industry: Futile?**

Henry Jenkins (2004) provides a compelling explanation of the way the power of the hegemonic culture industry can be resisted, through what he refers to as a process of “textual poaching” (borrowed from the work of Michel de Certeau) whereby audiences and consumers of media appropriate them for their own uses.

Jenkins is interested in the way new technologies have “enabled consumers to archive, annotate, appropriate and recirculate media” (p. 33). Not satisfied with a purely political-economic approach, he argues that we need to look at both sides of the equation: a world without gatekeepers and one where gatekeepers (culture industry) have great power (p. 3). Furthermore, he urges scholars to "shed some of our own intellectual and ideological blinders, to avoid knee-
jerk or monolithic formulations and to imagine new possible relations with corporate and governmental interests" (p. 42).

His argument for a multiple perspective comes from the notion that media convergence “alters the relationship between existing technologies, industries, markets, genres and audiences” (p. 34). Convergence partly arises from the economic forces resulting from changes in media ownership and concentration. In fact, he says, these political, economic, and legal shifts are preceding technological changes, which stands in sharp contrast to some of the more technologically deterministic views about new-media affordances that often underlie some of the more utopian views of cyberculture.

Jenkins bases his argument in part on the work of Pierre Levy, who conceived of four interdependent power sources in human life: nomadic mobility, control over territory, ownership over commodities, and mastery over knowledge. Each affects the other: territoriality and nationality constrain commodification just as the latter constrains knowledge cultures, but the reverse is also true: emergent knowledge cultures will impact both commodification and nationalism (p. 35). Thus Jenkins sees convergence as enabling audience agency. Rather than simply an expanded branding opportunity for media conglomerates, media convergence also yields a “collective intelligence” (p. 35), a new knowledge culture that is emerging just as older social ties and communities are breaking down.

Jenkins believes this interplay is the rationale for his urging of a “détente” between accounts of media production and consumption (political economy and audience analysis, respectively). He asserts that we must lose the assumption that participation in the commodity culture as a one-way street of co-optation. Furthermore, he asserts that resistance can come not just in the form of resistant meaning-making but “through the assertion of new kinds of
economic and legal relations.” Jenkins calls for a move, metaphorically, from culture-jamming to blogging: not tossing in our sabots from outside but working inside, “actively shaping the flow of media” (p. 36).

Halvorson (2011) continues this line of argument in her analysis of online fan communities. She sees these as “a productive technology-based, multi-modal activity that allows participants to master the design grammar by which messages are effectively communicated across these various media, many of which are non-text based” (p. 1). This activity involves participation beyond simply comprehending and composing text, but of producing new literacy, a “participatory cultural experience.” Similarly, Knobel and Lankshear (2008) observed that remixes of content are an attractive means of inserting oneself into the cultural production process. Following Laurence Lessig, they argue:

At the broadest level, then, re-mix is the general condition of cultures: no remix, no culture. At this general and mundane level, we remix language every time we draw on it and remix meanings whenever we take an idea, artifact, or a particular stretch of language and integrate it into what we are saying and doing at the time (p. 23).

Knobel and Lankshear see new-media remix production at all levels as a kind of cultural literacy activity, creating texts that can be understood as discourses specific to a community, and which entail technical, discursive, and evaluative proficiencies (p. 29). This cultural literacy merges with Jenkins' and Levy’s notion of “collective intelligence” in Steinkuhler’s (2006) discussion of cognition as a kind of distributed activity: mind, body, activity, and setting (p. 2) that she sees taking place in MMORPGs, which are:
sites for (a) socially and materially distributed cognition; (b) individual and collaborative problem solving across multiple multimedia; (c) multimodal “attentional spaces”. . .; (d) significant identity work. . .; (e) empirical model building; (f) joint negotiation of meaning and values; and (g) the coordination of people, (virtual) tools and artifacts, and multiple forms of text—all within persistent online worlds with emergent cultural characteristics of their own (p. 4).

Several scholars see online games and virtual worlds as a kind of new ground for contestation, partly because of user-generated content but also because of the activities of fan communities. As Jenkins has noted, instead of shutting down fan communities, game companies have learned to develop them as a path to building long-term consumer relationships (Jenkins, 2004, p. 40).

The notion of empowered users remixing and creating culture is not without its detractors. One of the strongest arguments comes from Mark Andrejevic (2005), who says that even when fans are not directly involved in the consumption of commoditized intertextual corporate-media flows, it is possible for their activities to be commoditized: the participation of fans in online discussion forums and fan fiction are simply free labor that helps sell the product. Thus he asserts that the democratic promise of the Internet, which was envisioned by some to promise greater access and more agency on the part of media consumers, but has been co-opted by the culture industry as a kind of mass-customization marketing.

He notes that the Internet affords both interactivity and surveillance; a false promise of participation creates instead a giant focus group. How does interactivity become surveillance? Andrejevic notes that so-called cybertecture misses the original meaning of the word "cybernetic" wherein feedback (i.e., interactivity) is solely for the purposes of the source, rather
than a true sharing of power implied by "interaction." A full interactive relationship between media conglomerates is, he argues, "beyond the comfort zone" of media companies. Instead, fan sites are "deputized" by media companies—despite the fact that fans feel their work is primarily for each other. Similar arguments have been made about the labor of user-builders in Second Life: their flights of self-expressive creativity are openly used by Linden Lab to sell the product to more users.

Grimes (2006) sees the continuing power of corporate media companies to exert influence in order to remain “the primary gatekeepers of cyberspace” through expansion of copyright laws and a corporate structure that involves multiple and distributed authorship, which alienates creators from their products (p. 3-5). Even when content is created by users, it tends to re-inscribe Western capitalism by focusing on the marketing and sale of that content to other players. There is no “truly oppositional perspective” to “the continued expansion of intellectual property laws across cultural forms and forums”: “It thus seems that there is only limited space within capitalist discourse to seriously consider extra-economic, non-commodified use-value as an important and valid aspect of daily social life” (p. 20-21).

Thus, user-generated content can be problematic, both from without—through the continual expansion of intellectual property laws that limit a user-centric counterbalance to commodified intertextual flows—and from within, via the tendency to simply reproduce the system of commodification that so threatens free cultural exchange and activity.

Yet, as Andrejevic (2007) admits, some fan agency is present when fans use the Internet to make an old one (e.g. television programming) more interesting to them. This is similar to Jenkins' early observation that:
Fans respond to [the] situation of an increasingly privatized culture by applying the traditional practices of a folk culture to mass culture, treating film or television as if it offered them raw materials for telling their own stories and resources for forging their own communities.” (Jenkins, 1992, p. 6)

Grimes offers a similar view:
As long as the digital cultural landscape continues to escape the commodifying reach of the transnational corporate giants, the emergent world information society will retain its potential to include the voices of innumerable cultures, independent filmmakers, amateur animators, local musicians, artists and grassroots organizations (p. 3).

Grimes and others see this potential as in part a result of digitization’s ability to create near-infinite replication and distribution, much in the way Walter Benjamin described the impact of mechanical reproduction on images: it is a cultural shift in the value of “originals” (Grimes, 2006, p. 5).

One potential consequence of this democratization of the cultural landscape, of course, is contestation over what the culture will be. Lastowka (2011) seems to echo Matthew Arnold’s 19th Century, class-based concepts of “high culture” when he says that, despite its ability to offer an improvement over previously dominant hierarchical models of information production and distribution, there is concern among some that this “amateur content” is of lower quality (p. 8).

He offers a practical example of the difficulty faced by both producers and consumers of three-dimensional virtual spaces, wherein geography and proximity (if only metaphorically) play a part. In worlds like Second Life, where a great majority of the content is user-produced, how do users find the best content? From the company’s perspective, there is a desire to please its
customers by steering them to the best content, but this becomes difficult when every user owns a significant chunk of land. Content clashes with neighboring content because of the lack of “zoning” and a continual problem of sprawl. User-produced content can be not only visually unappealing but offensive and even illegal (p. 19-20). In Second Life some of this problem of access and sorting has been addressed through Google-like search tools as well as third-party websites, blogs, and e-zines that direct users to the more interesting and innovative content. In fact, those tools are an important part of the current study’s method, since they facilitate the identification of Nature-related constructions.

At the same time, user control also allows for the ebb and flow of more coordinated and systematic acts of resistance, which calls to mind DeLuca’s (1999) argument that social movements exist not as organization structures but collections of rhetorical acts. He differentiates between strategic operators, including traditional mainstream environmental organizations like the Sierra Club, and looser, ad hoc, cellular groups like Earth First!, which operate largely at the tactical level, through the employment of specific strategies like the image event. In a later work, he and Delicath (2003) describe image events as a kind of argumentative practice for “subaltern publics” that must operate in the “enemy territory” of corporate-dominated, hegemonic Western mass media. They argue that image events can block enthymemic, presumed formulations that encrypt ideographic clusters, and serve as “invention resources” for those who would resist hegemonic practice. As will be shown, a medium like Second Life is substantially a visual one, ripe ground for the staging of resistive image events as well as more individualized remixes and reformulations of cultural signifiers.
The Cycle of Mediation

This near obsession with—and certainly enjoyment of—the ability to create ever richer and more realistic mediated portrayals, through what is ironically an ever more complex and artificial system of mediation, is explored in great depth by Bolter and Grusin (2000), whose concepts of mediation, remediation, and hypermediation can tell us much about the drive to produce virtual nature. Their *Remediation: Understanding New Media* explicates the way that an increasingly mediated experience of reality can be interpreted by audiences to satisfy a need for direct experience, and at the same time naturalize the layers of mediation that have become almost inescapable in the present day. The authors describe two conflicting human desires, existing in dynamic tension. The first is a desire for direct connection, for a lack of intermediaries; what the authors call the "transparent presentation of the real." At the same time, they argue, we have developed a capacity for "enjoyment of the opacity of media themselves" whereby we not only recognize the layers of mediation but, ironically, celebrate their ability to produce a kind of immersive, second-order immediacy (p. 19).

**Immediacy.** The first drive Bolter and Grusin describe as "the logic of transparent immediacy" and they cite examples, such as virtual reality and 3-D computer desktop software, as evidence of our desire to create a naturalistic experience in which the medium disappears (p. 22). This is not unlike Walter Benjamin’s characterization of the way the technical complexity of filmmaking was employed to make itself disappear into the background, thus presenting the film itself as a kind of unmediated window into reality (Benjamin, 1969, p. 233).

The logic of immediacy is nothing new, the authors assert, and virtual reality is simply the latest manifestation of the desire to gain direct access to experience. One might even relate this urge for immediacy to the 19th Century Romantic concept of the sublime, which painters
and poets sought to invoke in their works: that "beautiful and terrible" sense of the natural world that represented something powerful, necessary, and beyond the control of Man. However, it's also clear that realistic photography—another 19th Century development—also fetishizes the (experience of the) Real in its effort to remove the mediation of the artist and give direct access to (only the visual, perspectival components of) reality. Thus all technologies are in part valued for their ability to "disappear."

Bolter and Grusin trace the desire for immediacy even further back, to the techniques of linear perspective, which were seen as giving access to the "true world." However, because such work tended to foreground the artistic skill required to render such views, and thereby made the artist's mediation more visible, there arose a parallel need to attend to the mediation and efface it—for example, by making brush strokes less obvious or by softening lines of perspective (p. 24).

The advent of cameras and, later, film and computer graphics technologies, have provided new ways to efface mediation through automaticity (p. 25), which reduces the perceived level of human intervention and thus mediation. We believe that the camera and the computer cannot lie, cannot be fooled, cannot bring their own agendas and perceptions into the relationship between ourselves and the Real, because their operation is segregated from the hand, unlike painting or drawing.

Yet this very effacement runs the risk of being too perfect, in the case of computer-generated graphics. Graphics created for movies or computer games replicate Cartesian perspectivalism with absolute accuracy (vividly apparent in the wireframe view that underlies most graphics programs), but we feel compelled to efface this perfection by introducing randomness and disorder, lest the lines be too perfect, or the streets be uncannily clean (p. 26).
Martin Jay's (1999) typology of scopic regimes might place this as an example of Baconian empiricism resisting Cartesian perspectivalism: the perceived, empirically observed nature of the "messy" world trumping a belief in the pure truth of underlying forms. A powerful example of this need to efface is seen in efforts to create convincing computer-generated human faces and humanoid robots. Our skill in creating these is approaching Cartesian perfection, yet as theorized by a Japanese roboticist almost forty years ago, there comes a point at which we are actually repulsed by these creations because they are "too real" yet not real enough to suspend disbelief (Mori, 1970). Mori called this point the "uncanny valley." I suggest that this repulsion arises on several grounds: first, that these creations display the limits of the Cartesian paradigm that we frequently tend to take as the underlying, unmediated truth about reality, and second, because they raise questions about our assumptions about the ontological reality of the supposedly real human beings with whom we interact on a daily basis.

Bolter and Grusin assert that the desire for immediacy is not an intentional forgetting about the fact of mediation, or a naive wish to be fooled completely. Rather, we simply seek a point of contact, somewhere in the mediated object, that we can believe directly connects with what it purports to represent. That point of contact might be a certain color or quality of light, or a feeling that the underlying mathematics of perspective are correct, or that the robot has an internal subjectivity like our own (p. 30). The roots of this longstanding historical desire for immediacy are beyond the scope of the present inquiry, but could arise from a feeling of dislocation from nature brought on first by agrarian and then by industrial practices, or a feeling that our rational consciousness and use of symbols has disconnected us from the real, or even from what Kenneth Burke has described as the innate drive towards consubstantiality.
**Hypermediacy.** Bolter and Grusin argue that standing alongside and in tension with the drive for immediacy is a parallel "logic of hypermediacy" that addresses and even celebrates the inevitability of mediation. Hypermediacy "renders the media visible and multiple" (p. 33). Hypermediacy sees and admires the frame for its contribution to the experience.

Again returning to computer technologies, they describe the proliferation of so-called "intuitive" interfaces that are claimed to naturalize and immediatize the experience of technology, such as metaphors of the page, desktop, palette, etc. Echoing McLuhan, however, they argue that there is nothing new under the sun; that these supposedly intuitive and naturalistic creations merely represent older and more familiar forms of mediation. We simply don't see the earlier forms as mediations (Bolter & Grusin, p. 32), a forgetfulness reminiscent of the often-quoted line from Alan Kay (credited with inventing the idea of the computer mouse):

"Technology is the stuff invented since you were born" (McFarlane, 1997, p. 118).

Ironically, hypermediacy is valued in part because the various media can recreate the rich and varied experience of the human senses (Bolter & Grusin, p. 34), and advances in media technology generally broaden and deepen the sensory experience. That is, technologies such as virtual reality are celebrated for their very ability to make experiences (such as visiting a virtual forest) feel more sensually real. In fact, while we often think of the word "virtual" as implying a lack of reality, a not-quite-realness, it is actually a reference to that point of contact that connotes immediacy: virtual reality contains the virtues, the essence, of reality—or so we believe.

The appeal of hypermediation, then, is an ironic one, because it "reminds us of our desire for immediacy" (p. 34). Yet while Bolter and Grusin argue that a desire for immediacy has a long history, hypermediation has only recently become equally prominent. In the past, awareness of media was a secondary and often playful presence, but with the rise of modernism (and its
corresponding fetishization of technology), hypermedia consciousness arises (p. 38). The fact of mediation becomes a component of ontological reality, just as much as that which is mediated, as technology is naturalized and therefore becomes an integral part of our experience (p. 42).

**Remediation.** Today, Bolter and Grusin assert that immediacy and hypermediacy coexist in an oscillation or tension between a "looking at" and a "looking through" (p. 41). But since "looking at" is more desire than actuality in a highly mediated culture, what results is more often a continual process of re-mediation, "in which one medium is itself incorporated or represented in another medium" (p. 45). Remediation acknowledges McLuhan's assertion that all media simply contain other media, as a filmed version of a *Harry Potter* story contains the book it is based on. Remediation is also an old process, exemplified by everything from *ekphrasis* (textual description or captioning of images) to paintings of biblical stories. The borrowings take place in a number of forms. While the mediation may be equally distributed across a number of media for any given experience, more often one is privileged or foregrounded over the other.

Remediation can take a number of forms. One example is the CD-ROM-based photo gallery, in which the tool is made as transparent as possible in order to allow more direct access to the older media (the photos or paintings) by eventually displaying them full-screen on the monitor. In other cases, such as the online encyclopedia *Encarta* or medieval curio cabinets, the new medium is "translucent" in that it never quite vanishes from perception, even though its purpose is to display other mediated forms (Bolter & Grusin, p. 46).

Bolter and Grusin also describe more "aggressive" forms of remediation in which "the work becomes a mosaic in which we are simultaneously aware of the individual pieces and their new, inappropriate setting" (p. 47). Such remediation makes us simultaneously aware of mediation at several levels by problematizing the media from "before we were born" while
keeping the remediation in plain view as well. They suggest that windowed computer desktops operate in this aggressively mediated way, as do more conscious acts of remediation found in certain art and music CDs (Matt Frewer's 1980s *Max Headroom* character is also a perfect example of aggressive remediation).

A fourth kind of remediation seeks to erase the original medium altogether, though it can never do so completely because, for example, an "interactive film" event such as *Myst* or *Doom* reminds us of the medium of film, even as it seeks to transcend it. And the older medium may resist erasure if there is a political-economic force at stake, as is seen with the competition between the Web and television to remediate each other, with webcams online and computer displays on the evening news (Bolter & Grusin, p. 48). When traditional news outlets disparage "the blogosphere" or web sources like Wikipedia, a battle for remediation is underway.

The fifth and least contentious form of remediation is exemplified by the play within a play, or the homage to an earlier film that recreates (or even parodies) a famous chase scene. Each remediates without challenging or commenting on the validity of the now-remediated form itself. Yet Bolter and Grusin argue that even in this "special case of remediation" there is still a mixture of homage and rivalry between the remediation and that which is remediated; they adopt Harold Bloom's characterization of this relationship as "the anxiety of influence" (p. 49).

Whether the tactic of remediation is transparent, translucent, aggressive, erasing, or homage, remediation itself is a fact of existence, not a temporary phase. New-media evangelists may assert that early films were more obviously derivative of stage plays but eventually developed a vernacular of their own, but Bolter and Grusin argue that this is merely a new strategy for remediation (p. 50), not a new and independent medium, and the same is true of things like virtual reality:
What is new about digital media lies in their particular strategies for remediating television, film, photography, and painting. Repurposing as remediation is both what is "unique to digital worlds" and what denies the possibility of that uniqueness (Bolter & Grusin, 200, p. 50).

Vision and Rhetoric

Semiotics of the Visual Medium

Although the term “multimedia” is a commonplace in the new-media vocabulary, the visual medium is clearly a major component. Thus it is natural to seek an understanding of the role played by visual rhetorics in the reproduction and remediation of culture. To do so, it is instructive to step back a bit to the work of semioticians a hundred years ago. Charles Sanders Pierce, one of the earliest writers in what would become known as semiotics, first established the tripartite system of signification that consists of symbol, referent, and interpreter. He understood that this triad could not be subdivided further—that is, a symbol’s meaning (referent) did not exist apart from a system of interpretation (such as English) that emerges from human activity. Post-structural linguists like Ferdinand de Saussure further complicated the system of signification by introducing the concept of negotiated meanings; that is, the connection between symbol and referent is always contingent, always evolving, always situational and contextualized. “Progress,” for example, takes on a number of meanings depending on context, and its ramifications are always contested and negotiated (Selden, 1985).

Roland Barthes (1977) provides one means of bridging semiotics and visual rhetorics. To explain how photographic images create meaning, he grounds his discussion in the concept of the “press photograph,” which presents itself as a literal recording of reality (as do many museums and virtual realities) rather than as a work of art or artifice. Barthes calls this “a
message without a code”—it is a kind of unmediated drawing made by light that is a direct analogue of its subject matter rather than signifying it as words do theirs. (We should also note the underlying assumption that the visual is Truth: what is seen is objectively real.)

Barthes refers to the operation of this press photograph as a continuous and uncoded kind of representation, in contrast to the discrete and coded nature of language. There is still a cultural code at work in images (such as a national flag waving in the wind or a mother nursing a child), but with the press photograph that cultural coding is subsequent to and separate from the continuous, uncoded direct analogy. The virtual-world analogue of the press photograph is the collection of virtual spaces and objects that one sees and moves among.

The level of cultural coding, which is secondary to the presumption of direct analogue, Barthes refers to as connotation, but he sees the primary depiction as generally so powerful that it can and does overwhelm the connotation: “Of all the structures of information, the photograph appears as the only one that is exclusively constituted and occupied by a 'denoted' message, a message that totally exhausts its mode of existence” (Barthes, 1977, p. 18). One can still read the photograph beyond the denotative level. Because it is “an object that has been worked on, chosen, constructed, treated according to professional, aesthetic or ideological norms which are so many factors of connotation” its potential for further meaning is available to its audience, read against the culture's “traditional stock of signs.”

Barthes refers to the two (analogic/denotative and cultural/connotative) as the basis of a “photographic paradox”: two messages are presented, and the connotation does not emerge against the background of coded language but against a kind of realistic imperative in the photograph's uncoded presentation of reality. This can make the secondary, connotative/cultural meaning seem equally grounded in ontological reality.
Much like Walter Benjamin (1969), Barthes also provides another layer of meaning: the linguistically-coded captions that accompany many images (a three-dimensional analog might be the guidebooks available for landscape gardens or the labels accompanying museum exhibits). In the virtual world, such captioning often takes the form of descriptions in search results, signs and welcome notices, land titles in metadata (such as profiles), and even “hovertext” – text captions that temporarily appear over objects when the user's cursor hovers over them. This *ekphrasis* is almost unavoidable in our experience of the image, even though it is not directly a part of it. It becomes an element in the meaning of the image. For Barthes, the text anchors the image and reduces ambiguity by “pre-loading” it with meaning.

Thus Barthes provides three kinds or levels of meaning that one might encounter in a virtual world: first, its photorealistic, continuous, uncoded meaning; second, its the culturally coded, connotative meanings (e.g. as a whale might signify the open ocean); and third, the text caption or *ekphrasis*. One may then unpack the meaning of a particular virtual site by reading these levels of meaning, and the first level provides an approach to the corresponding “direct and uncoded” immersion in the virtual world.

**Evolution of Visual Rhetorics**

Other theorists have explored the way image rhetorics have evolved. Martin Jay’s (1999) work on “Scopic Regimes of Modernity” explores the way imagery changed during the Renaissance to reflect Cartesian understandings of the world, with emphasis on pure underlying geometrical forms and perspectivalism to the exclusion of the emotional and personal point of view. Walter Benjamin’s 1935 essay, “The Work of Art in the Age of Mechanical Reproduction” (Benjamin, 1969) argues that the latter removes an essential component of imagery: its aura, or its sense of direct connection with a particular and fleeting moment in which artist, subject, and
artwork coincided in time and space, connecting the viewer with powerful associations of both
death and transcendence: what was then is gone, yet remains. Mechanical reproduction,
Benjamin says, destroys this aura, though he also sees a democratizing promise in the circulation
of imagery that formerly helped constitute relations of power through displays like The
Hermitage in St. Petersburg, where only the wealthy could sponsor and curate images.

Barthes is less pessimistic about the loss of connection between referent and image; he
introduces the concept of *punctum*, which is that “point” or component of the image that evokes
the reality of its subject, thus allowing something like a photograph, infinitely reproducible, to
still carry traces of an essential connection with subject. Taken to extremes, we end up with a
myth of photographic realism, which sees the photograph as capturing what was actually there,
independent of a need for interpretation—a notion used to support rhetorics of scientific
objectivity. Finnegan and Kang (2004)—among others—have disputed this myth, for example by
showing how photographs of Abraham Lincoln were read by viewers in the context of
historicized “image vernaculars” rather than as objective records of truth.

Some of the work on the role of imagery during the Civil Rights events of the early 1960s
illustrates the way perceived image realism works to disrupt hegemonic relations of power.
Gallagher and Zagacki’s (2007) work on photographs of the Selma marchers, as well as Davi
Johnson’s (2007) essay on televised images of firehoses and police dogs being used on protesters
in Birmingham, show how images personalize the victims of oppression and foreground
embodiment and physical suffering. Grindstaff and DeLuca (2004) perform a similar analysis of
the video of Daniel Pearl’s imprisonment and execution. Harold and DeLuca (2005) discuss the
use of images of the mutilated corpse of Emmett Till to constitute Black identity and, like the
firehoses and police dogs in Selma and Birmingham, articulate white society with violence and
injustice. One might argue that the “Toxic Tours” described by Phaedra Pezzullo (2007) provide a bridge between image rhetorics of race, class, and environment in the form of the “ecojustice” movement. These tours bring visitors into the spaces in which oppressed communities exist, vivifying them, or take tourists to corporate headquarters, grounding the abstraction of incorporation within place and space.

In a related fashion, Harriman and Lucaites’ (2007) concept of the “iconic image” serves as a bridge between verbal and visual ideographs. They describe the way a particularly powerful image, such as oil-covered seabirds or a naked child running from a burning village, can grow to encapsulate a set of ideological formulations, serving as a powerful shorthand—pictures truly worth a thousand words.

**DeLuca's Image Politics**

Patin (1999) further explores the connection of the visual with political history, noting that “technologies of vision...serve to constitute and to reproduce the social arrangements of power” in a "politics of nature" that includes

the ways in which natural phenomena are also the products of the processes of categorization—of language and cultural practices. Names for natural phenomena, such as "wilderness" and "natural disaster" reference nature, but at the same time these terms return us to society, discursive categories, and narrative genres (Patin, 199, p. 57).

This kind of “taming of the wilderness” into linguistic and visual rhetorical constructions is, for Patin, “a fruitful place for the beginning of an environmental politics” (p. 58).

Another means of connecting the visual with the (environmentally) political is DeLuca’s *Image Politics*, which appeared in 1999 and established a theoretical basis for understanding the
activities of radical environmental groups—disruptive, often sensational actions that were far removed from the deliberative and policy-oriented rhetorical strategies that characterized mainstream environmentalism. In this book and elsewhere, DeLuca established the concept of the “image event” as a kind of disruptive “mind bomb” that challenges hegemonic articulations of sociocultural constructs such as progress and growth. He does so against a background of theory in visual rhetoric, argumentation, politics, and the public sphere (modifying Habermas’ original formulation of a deliberative arena). His thesis illustrates the rise of a televiusal culture in which image trumps word, a “public screen” rather than a public sphere. Although the screen risks descent into spectacle, DeLuca (and others) attempt to revalorize “mere images” and show how they operate rhetorically.

McGee’s (1980) notion of the ideograph, upon which foundation DeLuca’s work rests, almost completely disassociates signifier from signified, at least in a structural sense; he says ideographs like “Freedom” or “America” by themselves are almost free-floating empty signifiers until they are operationalized by associating them with other concepts in a relationship informed by ideology. A good current example of this might be the word “Muslim,” which takes on quite different meanings that connect with worldviews about the role of religion in society and methods of establishing peace and justice. Only within these ideological frames and linkages can the meaning of the ideograph be understood.

As DeLuca describes it, while McGee understood these ideographic formulations would change across society and over time, he did not posit a method for this synchronic and diachronic transformation to take place. Here DeLuca turns to the concept of hegemony introduced by the post-Marxist Antonio Gramsci (2009) and elaborated by Ernesto Laclau and Chantal Mouffe (2001). As originally formulated, Marxism sees a materialistic and essential connection between
relations of power and the cultural, rhetorical forms that comprise the superstructure. Gramsci, Laclau, and Mouffe (as well as Stuart Hall, 1980) introduced a more fluid and nuanced relationship of contestation and negotiation, whereby social groups resist ideographic formulations, reformulating rather than rejecting, reassembling them in new ways through a process they refer to as articulation. It is through this work of rearticulating ideographic clusters that the rhetorical work is performed that can effect societal change.

A fairly recent example of rearticulation at work is a 2006 protest against the environmental practices of the lingerie company Victoria’s Secret (Farinelli, 2006). It requires little imagination to visualize the ideographic clusters of beauty, sensuality, femininity, and individuality that a lingerie company relies on to promote its products. In the process of manufacturing and selling its products, though, Victoria’s Secret was engaging in practices that damaged the environment. How to get this point across? Protesters staged an event in which they dressed in lingerie but carried chainsaws, and the jarring contrast between the two, with their associated meanings, rearticulated lingerie with the violence of clear-cutting.

DeLuca describes a number of similar tactics used by such groups as Greenpeace and Earth First! For example, the use of small zodiac boats to prevent whalers from taking whales contests hegemonic articulations of technological progress, disrupting the heroic and hegemonic ideograph of the whaler (picture the hazardous operations in Moby Dick, for example) by putting the small Greenpeace boats in harm’s way, allowing the viewer to see them as stand-ins for whales that were actually quite small in relation to the large mechanized whaling ships of modern operations. The placement of Greenpeace activists in harm’s way also re-emphasizes the embodied organism of a living, breathing whale, moving the articulation of “harpoon” from “tool” to “deadly weapon.”
Images: Boundaries and Evolutions

For much of history, images were considered to be either a kind of second-class citizen to the primacy of verbal rhetoric, a mere illustration that always required ekphrasis in the form of caption or narrative, or worse, an irrational and potentially dangerous disrupter of orderly public debate. Finnegan and Kang’s (2004) work on what they refer to as a tradition of iconoclasm (and its associate, iconophobia), characterizes this demonization of image rhetorics that is traceable back to Aristotle, who felt that while images might occasionally serve the ends of logos, they were more likely employed in the extra-logical domains of ethos and pathos.

Many have argued for a higher place for images in the rhetorical process. Davi Johnson (2007) argued that the image rhetorics of Martin Luther King’s marches in Birmingham, with the violence of firehoses and police dogs, resisted the attempts by television newscasters to frame them as “disobedient citizens resisting authority.” The images simply overpowered their ekphrasis, something that King intended, though he could not foresee or script the actual events. In fact their unpredictability added to a sense of authenticity; they were not staged performances like lunch counter sit-ins. Johnson reminds us that some television stations in the South refused to air the video segments because of their power to disrupt hegemonic articulations of the just power of the state. DeLuca’s (1999) careful reading of newscasts covering Earth First! and other protests comes to the same conclusion about the primacy of the image; he says we are in a televisual culture now.

Not that image rhetorics are problem-free. Jeffrey Juris’ (2008) analysis of anti-corporate globalization protests (like those in Seattle, Toronto, or some aspects of the Occupy movement) argues quite the opposite. While he says that such activities can help constitute the identities of protestors and serve as a unifying event, they are often misperceived by onlookers who cannot
(or will not) discover their purpose, either through ignorance, media reframing, or lack of clarity in the image event itself. A telling example of the possibilities for hijacking image events for counter-progressive purposes can be seen in the images of burning police cars in Toronto: some reports on Indymedia and elsewhere suggested that the cars were deliberately abandoned by police with the knowledge that more anarchic participants ("black ops") would destroy them, making for powerful images articulating the protesters with violence and destruction of property, a tactic familiar from Seattle years earlier.

Schriver and Nudd (2002) report similar mixed results from an attempt to insert a parade float lampooning the patriarchy and its articulations with conquest and genocide into the “Springtime Tallahassee” parade in Florida’s capital. In essence, the float was a dud, generating neither strong negative or positive reactions, in part because its message was not constructed in a way that was clear to the audience. The authors realized, too, that they were expecting an audience attuned to the forms of cabaret and satire.

In addition to questions of focus or ekphrasis, the bounds of the term “image” itself are fluid. Diane Hope (2007), in her review of Prelli’s “Rhetorics of Display,” asks that we consider what is meant by image, by display; she argues that some “displays” (such as the life of a prominent citizen) are not visual rhetorics at all. More pragmatically, in the case of something like the Selma photographs, we can ask: Which is the image event? Is it the original event, or its circulated image? What is the “flow of experience”—as Raymond Williams (1974) might describe it—that constitutes the message? Is it the videotape circulated by an activist group (or published on YouTube), or its subsequent framing within a newscast? Is a march an image event? Clearly there are fluid boundaries to what might be considered an instance of image rhetoric as
the various grounded, real-world events circulate in all manner of media forms and are remixed and reframed in any number of ways, especially with contemporary media technologies.

It’s also clear that image events and their impact, however defined, will evolve with changing media. Torres’ (2003) analysis of the role of television in the Civil Rights struggle maintains that, just as activists like King needed television to promote their cause, the television industry needed something like the events in Birmingham to legitimize it and show its strengths. DeLuca’s (1999) initial discussion of image events is also focused on ones that circulated via television.

Circulation is different with new media. On the one hand, channels like YouTube enable activists to bypass media gatekeepers and gain wider circulation. On the other hand, proliferation of media channels and the rise of echo-chamber information ghettos can limit circulation. And it’s clear that existing power structures have adapted to pre-empt some kinds of image rhetorics. “Free speech zones” and crowd-management tactics channel protest into arenas that are less visible to the news media; “no-fly zones” like the ones established during the 2010 Gulf of Mexico oil discharge disaster, as well as reports that BP has been surreptitiously collecting and disposing animal carcasses, imply a state apparatus that is well aware of the power of image rhetorics to disrupt articulations of technological progress, economic security, and “clean energy.” One of the most tragic examples of this is BP’s massive use of the solvent Corexit, ostensibly to reduce the impact of the circulating oil but clearly an example of the role of the visual. The primary focus has been on visible impacts: oiled beaches and seabirds. Corexit reduces the visibility of the oil’s impacts, but it’s not simply a matter of making them less apparent. Scientists fear that the dispersal actually aggravates the environmental impact on ecosystems in the Gulf (Spinner, 2011).
And what sort of visual mind bomb can explode the hidden effects of toxic chemicals deployed across such a huge expanse? What practices would it change? Even so, images of oiled wildlife, tarballs on beaches, and burning oil platforms will surely continue to circulate, challenging arguments for continued offshore drilling. Whether the images will serve to break the articulation of drilling with national security is unclear at this point.

Another way in which technology is changing the role of image rhetorics is in the use of satellite photography. The organization SkyTruth (its name evoking the myth of objectivity in the form of satellite photography) has become well-known for its publicized images of oil slicks in the Gulf. As DeNicola argues in a 2008 conference paper, satellite images perform a number of rhetorical tasks. They allow counter-surveillance by marginalized populations and break down the human/nature dualism that has allowed environmental damage to be hidden and encrypted, by obviating political and civil boundaries. DeNicola warns that indiscriminate use of these images by non-experts can dilute their utility and damage their credibility, but points out that—perhaps because this godlike point of view is fairly new to our culture—the images disrupt the myth of photographic realism by requiring a certain degree of interpretation, which invites participation by both experts and local citizens. Clearly, the rhetoric of satellite imagery derives in part from rhetorics of geography and mapmaking, but it adds new elements that may afford different kinds of image effects. Mitchell’s (n.d.) article on Google Earth and Bahranian development (on the website viz.) and a seminar paper by Nathan Keuter (2009) regarding satellite images in wartime are two interesting efforts in this direction.

Perhaps image events—especially when mediated—being to lose their power as those media become naturalized or new media emerge, or the media culture (such as three-network national news in the 1960s and 70s) changes. What would be the impact of Earth First!’s tree-
sitting anti-logging protests in today’s news environment, when they would have to compete with video clips of dogs dancing in Mexico or remixed, auto-tuned videos of Carl Sagan? It’s probably too early to say. The “new media” form of image events perhaps awaits our discovery, in places like Google Earth, Second Life, or an iPhone-based re-skinning of London. Augmented reality might disrupt hegemonic articulations by, for example, “projecting” a different light show on the side of Stone Mountain, Georgia, or revealing the unsustainable infrastructure behind our cities. The possibilities seem endless.

Second Life’s immersivity, while primarily visual, may signal a different way for images to operate. In virtual worlds, the graphical capabilities of computers are stretched into the depiction of a place that is believable and ontologically real. But these worlds exist in a liminal state that exists between observed-from-outside and inhabited-from within. They are in one sense like film and photographs – seen on screen by seated viewers – and yet simultaneously they seek to evoke the physical experience of moving through exhibits, trails, or even the wilderness itself.

In most image events, we are outside the image, and much theorizing about image rhetorics serves to explain how we are, at least metaphorically, pulled back into them, whether that’s the Barthesian punctum or our identification with bodies in pain. But emerging technologies like multiuser virtual environments and augmented reality complicate this, because they are designed to be experienced from within: their purpose is to create an immersive feeling of embodied presence within an artificial environment that is, of course, fraught with ideographic iconography. While these are still “constructions of light” as Jones (2006) puts it—still primarily visual and Cartesian—the experience of them (certainly with augmented reality and, as haptic feedback becomes more sophisticated, virtual reality) is one of a body in space and place.
In the next section, we will turn to theorists like Stewart and Nicholls (2002), with their analysis of English gardens, or Patin’s (1999) explication of the rhetoric of national parks, or even the explorations of Civil Rights memorials by Blair and Michel (2000) or Victoria Gallagher (1999). These scholars connect the visual with the embodied experience of moving through space; Gallagher shows us how movement becomes narrative, for example. Patin describes the way nationalism is re-inscribed and articulated with concepts of naturalism. These are jumping-off points for a visual rhetoric of image action in virtual reality.

**Virtual Natures**

**Anthropocentric Visuality in Virtual Reality**

For Jones (2006), virtual worlds are “virtual worlds of light” (Jones, 2006, p. 11) because they are primarily experienced through screen technologies. Virtual reality technology, at least as practiced over the last decade, is overwhelmingly a visual experience. This experience grows out of an epistemological tradition specific to Western culture and, more precisely, emerging from the work of Rene Descartes and perspectival painting during the Renaissance, according to both Jones (2006) and Book (2003). The visual component is dynamic and always-changing, but unlike the linear flow of film, the viewing experience is “random access”—the user has almost complete control over point of view and the flow of experience. Even so, the indexing of three-dimensional spaces does not minimize the central role played by vision, and experience is often organized into a series of views, with virtual objects arranged for visual perception.

This has led to an enduring critique of virtually-derived realities: that they valorize vision at the expense of other sensory modalities. Both Stewart and Nicholls (2002) and Jones (2006) connect this to a history of ideas about seeming and being, between the observable and the transcendent (a concern which predates even the Sophists and Plato, who devoted no little
attention to the issue). According to Jones, Western culture originally looked beyond the observable to the Divine, whereas modernism changed that focus to the empirical world, a pursuit aided by optical technologies. This experiment furthered understandings of the way vision worked and how to create visual experiences—plays of sound and light, magic lanterns and stereoscopes, and later photography and film—that mediated the actual world and/or created realistic virtual images. In the contemporary moment, Western thought is informed by a history of seeking the transcendent, finding truth in the seen and the increasingly developed technological ability to create more visually (and aurally, and, eventually, more fully sensually) rich constructions of artifice and simulacra. It is into this context that the discourse of virtual reality and virtual worlds developed in its contemporary sense. (Jones, 2006, p. 7)

Thus virtual reality is primarily visual in part simply because it reflects modernism. Visual ideologies meet postmodern theory in Urry’s (2002) idea of the mediating “tourist gaze”, employed by Book (2003) in her analysis of virtual tourism and photography. The concept of the gaze articulates visuality with power, which places the virtual world inhabitant in a godlike role of omniscient visual access. But like Jones, Book sees the visual focus as a technological artifact that will become less salient as virtual worlds begin to “fully engage the other senses” (p. 3). It remains to be seen if a Cartesian perspectivalism will continue to dominate as haptic and kinesthetic technologies (such as the Wii and Kinect systems) become more widely employable.

Book (2003) makes a parallel between the increased realism of virtual worlds and what she sees as the increasing “hyperreality” (in Baudrillard’s (1981) sense of simulacra) of real-world tourist sites—an argument that certainly dovetails with the fascination with mediation
described by Bolter and Grusin earlier. Her brilliantly descriptive example describes a chain of remediation: a mini-golf castle in *Second Life*, designed to imitate Disney’s Cinderella Castle, itself modeled on Ludwig of Bavaria’s Neuschwanstein castle—which is yet again another pastiche of historical and imagined antecedents (p. 5), all recreated with the visual presentation paramount.

Against this background—wherein reality and virtuality coexist in a shifting, liminal state, one that tends toward a valorization of only that which is seen—has led some to warn about the danger of virtual productions influencing the ontologically real world. For example, Levi and Kocher’s (1999) research with perceptions about the use of virtual nature predicts that experiences with virtual reality will increase the perceived value of spectacular scenery over local and mundane real-world environments (ironically, a charge also leveled by Environmental Justice advocates against the traditional Environmental movement). Bell (2001), Daniel (2001), Lange (2001) and others warn urban and rural landscape planners not to base decisions on computer-generated visual representations alone—not just because they omit non-visual issues, but because of their susority power. Laypersons, especially, may lack the knowledge to critique a visual display for its omissions. Turnhout et al (2004) and Hovardas and Stamou (2006) both found that even local citizens tended to be more influenced by touristic, visual aspects of their own local ecosystems.

Perhaps because of the central role of vision, gaze, and thus the presence of a conscious subjectivity—viewing and gazing—human interests remain at the core of the use of virtual reality in landscape planning. Oh's (2001) study of urban planning around the potential obstruction of desirable views perhaps demonstrates this most explicitly, though he is mainly concerned with promoting more informed public participation in decisions that potentially
impact other things valued by local populations. Daniel (2001) revisits the tension between the biophysical qualities of an environment and the perceptions of viewers, and argues that the focus of planning will tend to shift towards a more pragmatic and broader ecosystem management, which will pose challenges to representation (which tends to be simply "visualization"). Yet, as Bell (2001) argues, the visual component will always be critical to public participation in decision making, because the general public are not biologists.

The tension between realism and visuality remains problematic for these authors. Orland, Budthimedhee, and Uusitalo (2001) state that while virtual reality has greatly extended our ability to model landscapes in more ecologically valid (and not just scenic) ways, but we don't yet know what the side effects might be. They fear that the utilization of virtual reality tools in land-management planning may result in the loss of healthy critiques of implausible projects (because the simulation looks and feels so authentic, even when—as with the biophysics of Second Life—it is impossible). Conversely, they warn, the awareness that a land-use project is virtual may cause unwarranted skepticism. In either case, the authors stress the need to "avoid situations where accidentally or deliberately misleading virtual environments are used to make significant environmental planning decisions" (Orland, et al., 2001). More concretely, Lange (2001) found that people considered a variety of depictions of the landscape to be quite “real” (that is, seemingly unmediated) especially with views at middle and higher distances, even though the depictions are static. This kind of “postcard viewing” of nature is not a problem limited to virtual worlds, as we will see elsewhere.

Thus Danahy (2001), following Marshall McLuhan, problematizes the impact of cinematic and photographic perspectives that may unconsciously affect our perception of the landscape through our portrayals of it. Although virtual reality can obviate problems of linearity
in presentation, it clearly remains a medium, not a direct apperception of phenomena, and thus may be “massaging” the message in ways we do not yet understand fully. This point in particular is taken up and expanded upon by critical scholars.

Sheppard (2001), recognizing the potential for abuse, argues for an “ethic of virtual representation” in this regard. He argues that those who create professional landscape visualizations have a responsibility to promote full understanding and avoid bias, and posits the following general principles:

- **Accuracy:** realistic visualizations should simulate the actual or expected appearance of the landscape as closely as possible (at least for those aspects of the landscape being considered)
- **Representativeness:** visualizations should represent the typical or important range of views, conditions, and time-frames in the landscape which would be experienced with the actual project, and provide viewers with choice of viewing conditions
- **Visual clarity:** the details, components, and overall content of the visualization should be clearly communicated
- **Interest:** the visualization should engage and hold the interest of the audience, without seeking to entertain or “dazzle” the audience
- **Legitimacy:** the visualization should be defensible through making the simulation process and assumptions transparent to the viewer, and by clearly describing the expected level of accuracy and uncertainty
- **Access:** to visual information: visualizations which are consistent with the above principles should be made readily accessible to the public via a variety of formats and communication channels (Sheppard, 2001, p. 196).

“Dazzling” an audience is, of course, one of the primary purposes of entertainment-oriented virtual reality, especially in the case of games. But in a world like *Second Life*, where fantasy builds exist adjacent to scientific simulations, a user’s assumptions about the ethics at play in any given construction are in a constant flux of suspension of disbelief, consciously or unconsciously accepting or challenging a presumption of accuracy that is not always consistent with the builder’s intent.
Is the Virtual Real?

The making of cultural symbolic materials, whether they be fanfic, televised image events, or virtual worlds, involves signification, wherein what is present stands for something beyond itself. In some ways, signification is a kind of virtualization of reality: the creation of a mediated, symbolic representation of the world as it is or ought to be. Yet the bounds between symbol and referent, virtual and real, are contested and variable, perhaps nowhere as starkly apparent as in the case of virtual reality. As will be seen in the following discussion, virtual worlds also foreground the cycle of mediation described earlier, in an almost playful tension between ontology and phenomenology.

No matter how phenomenologically real virtual worlds may be, most scholars agree that the virtual is not ontologically equal to reality (though of course it requires material labor and resources to produce). Book (2003, p. 20) states that virtual worlds are “liminal spaces, existing somewhere between work and play, conscious and subconscious, real and unreal.” No matter how realistic they may seem, their “otherworldly qualities” are continuous visual cues that remind the user that he or she is in a virtual space.

Yet, as Stewart and Nicholls (2002, p. 85) assert, this unreality need not be cause for dismissing them as false and misleading (a “shabby facsimile of reality”). Much as Sherry Turkle (1995) has asserted with regard to online identities, they argue that a virtual experience can “facilitate an improvement in the way one actually experiences the world” (p. 85) and potentially “transform the ‘reality’ in which we presently live for the better” (p. 96).

The experience of virtual reality may not even be clearly distinct for the user. While there is a tendency toward disassociation and disembodiment that arises from a camera-like, third person view, Stewart and Nicholls argue that the virtual body and an engaging virtual narrative
can result in “one phenomenal body” that melds the virtual and the real identities. This further implies a virtualizing of the physical body when it starts to perform real actions “within the actuality of its transformed social space” (p. 87). In short, virtual experiences are ontologically real, and external, ontological reality can extend into virtual spaces.

Asserting that, at least in principle, virtual experiences can “facilitate an enhanced and more authentic relationship with actuality” (p. 84), Stewart and Nicholls point to the phenomenon of “virtual vacations” and compare this with real travel and tourism, which has also “traditionally required normative justification” (p. 84) – like virtual reality, it has often had to explain its real-world value. Their insightful connection of the European Grand Tour, landscape painting, English gardens, and virtual reality is discussed in detail in a later section.

Thus virtual realities problematize our ontological notions of the real (including continents, rain forests, and endangered animals). According to Jones (2006, p. 4), “virtual reality is the contemporary and future articulation of the philosophical and psychological question of how we define (and create) reality.” He distinguishes between those virtual experiences that are artificial “essential copies” that merely fool the senses, and those that can provide a genuine physical transcendence from physical and physiological limitations. A productive virtual experience is neither a false representation nor necessarily the unalloyed good championed by enthusiastic futurists, but a balance he calls “virtual realism” (p. 8). In fact, he asserts that we constantly experience the virtual:

Virtual reality is not entirely good or bad, but one of many virtualities in our lives.... Virtual worlds rest within a discursive space that has been constructed upon the struggle between the strengthening and blurring of boundaries of corporeality and transcendence, the real and the virtual, where and nowhere, and
the unitive and multiplicitious self. It is this tension that makes virtual reality and virtual worlds so compelling to the contemporary imagination. (p. 10)

Virtual worlds are thus pragmatically real, existing between “the extremes of transcendence and nihilism” (p. 27). Their ability to create “real enough” environments makes the character of those environments worth attending to, because their reality may articulate with and even alter perceptions of traditional real-world spaces that have undeniable impacts on the health and well-being of humans and non-humans. Thus advances in technology will only require increased critical vigilance of the discourses interconnecting the real and the virtual. Jones concludes that “a true understanding will ensure that instead of being distracted by godhood and monstrosity, we can ever seek the human in whatever form it takes” (p. 28).

Or Is The Real Virtual? There is also plenty of evidence that the tourist's ideal, the culturally-derived virtual nature of the mind, can override even the immediate experience of one's own environment. Hovardas and Stamou (2006) examined the perceptions of a Greek forest preserve among local inhabitants and found them to share a tourist's perspective, regarding the preserve as a “hedonistic experience.” Importantly, they argue that this shared perspective emerges because the very notion of a “preserve” separates humans from an environment that they can now only experience visually (lest it become spoiled, p. 1765-1766). These authors found it particularly worrisome that involvement by locals in ecotourism industries and environmental education programs might not actually enhance quality of life because of this virtualization inherent in “preserving.”

This idealization or abstraction of even “real Nature” can influence ecological restoration projects. Turnhout, Hisschemueller, and Eijsackers (2004) examined competing versions for the restoration of drift sands in a Dutch national park, and found that idealized conceptions of nature
abounded. One form was the “pastoral idyll” that urged active management and species protection, while a competing “wilderness” vision sought an ideal pristine nature through natural processes and nonintervention (p. 192). As the authors remind us, neither of these perspectives is inevitably the way the real world exists (p. 190). Both are instead virtual realities that exist in the discursive constructions (speeches, illustrations, photos, and even virtual-reality planning models) of stakeholders in the park.

These works interrogate the ways we define and describe Nature more broadly, with implications for epistemology, politics, and scientific inquiry itself. Taken most broadly, virtuality merges with the notions of mediation and constructedness present in many of our experiences of “Nature,” from popular ideas about what is natural to our many attempts to model and emulate it.

What is Nature?

Raymond Williams (1974) has famously claimed that “nature” is one of the most loaded words in the English language. Environmental scholars like William Cronon (1995) and Roderick Nash (2001) have unpacked the complex history of “nature” to include things like:

- a raw, dangerous, uncivilized place;
- an unspoiled realm of the Sublime, untainted by human contact;
- a support system and resource upon which human civilization is built;
- a place of spiritual restoration and scenic beauty; and
- a place apart from and, ultimately, unknowable from within human culture.

Any of these shifting and overlapping views of Nature may be tied to particular threads in ideology, history, and culture, and any specific conception of the natural world will run up against ontological limits that make it more or less ecocentric or sustainable in a finite system. If
Nature is seen as a resource, a commercial culture may move these resources into fewer and fewer hands as their exchange value trumps their use value. If Nature is praised and protected for its sublime beauty, the mundane and less photogenic process that actually keep ecosystems alive may be ignored.

In this study, words like Nature, “nature,” “the natural world” and “natural systems will be used somewhat interchangeably. I deliberately set them apart and foreground their contested meanings by putting them in quotation marks or capitalizing them – as a reminder of their shifting meanings. At the same time, I will be using the terms in a general way in order to cast as wide a net as possible to depict the range of manicured gardens, tropical beaches, science museums, and other displays in the virtual world that are, for the most part, consistent with the ways we view the real world. Thus for present purposes, and with Cronon's caveat about “naive realism” in conceptualizing Nature, I am “assuming that we can pretty easily recognize nature when we see it” (Cronon, 1995, p. 25) and can clearly distinguish representations of “natural things” from “constructed things” within the context of Second Life.¹ We will be attending to depictions of presumably non-human-constructed components of the material world that one typically encounters at a macroscopic level: plants, bodies of water, weather, animals, and landforms like hills and valleys.

**Virtualizing the Natural, Naturalizing the Virtual**

**English Gardens.** Immersive virtual worlds are one of many ways in which the natural world has been represented in a way that is intended to be apprehended as unmediated.

According to Stewart and Nicholls (2002), English gardens of the 19th Century can be considered

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¹ Of course, in the broadest sense of the term, there is nothing “natural” at all in Second Life. It's a computer simulation. And yet clearly a great deal of effort is expended to mimic things that, in the real world, we commonly think of as existing without and in some cases apart from human activity and intervention.
an early kind of “virtual reality.” Unlike rigidly formal, geometric Italian and French gardens, the English garden tries to simulate wild Nature – though always “improved” for the human viewer and organized into pathways, viewpoints, and scenes. The English Garden attempted to evoke the Romantic concept of the Sublime (a nearly overwhelming sense of awe bordering on terror) and an appreciation for wild beauty that reflected a rejection of rationalism. In addition, the authors argue, a notion of “Englishness” (both national and cultural) was embedded in the design. The resulting gardens were “a complex mingling of the virtual and the real—neither simulacrum nor reality” (Stewart & Nicholls, 2002, p. 84).

The authors trace the emergence of the English garden to the tradition of the “Grand Tour,” a journey that began as a form of self-improvement and intellectual discovery but evolved towards simpler goals of “maximizing subjective pleasure” (p. 89) through encounters with the Sublime. This kind of travel was seen by Thoreau and others as a way to establish connection with “the Wild,” a concept as much philosophical as material:

[The Wild] does not refer to any specific place—some eco-tourist destination—because a person can be in the Wild, Thoreau says, in the midst of a crowded city. The Wild, let us say, is a virtual world. And given its intimate connection with actual travel in Thoreau’s context, it makes no sense to completely dissociate this world from “reality” ...[thus] any form of travel can be examined in terms of the virtual world with which it is bound, and assessed according to the reality made available by that virtual world (p. 90).

Seen this way, “the Wild” becomes a kind of portable, mental virtual world that is accessible even in urban environments. Travelers on the Grand Tour attempted to have experiences with the Wild and the Sublime and then, upon their return home, used landscape
paintings and gardens as ways to re-experience these purportedly “natural” encounters. The very real dangers and hardships one might encounter during a Grand Tour were both depicted and relived in landscape art, which provided the model for the English garden (p. 91). Gardeners such as Capability Brown (who designed the still-extant gardens at Blenheim Palace near Oxford) were hired by the wealthy to recapture both the literal experience of wild landscapes and evoke experiences of the Sublime (p. 92).

The gardens were informed by a desire to recreate the real experiences (themselves mediated by preconceptions) of the Grand Tour, but were themselves unreal expressions. They modified nature under the “ubiquitous eighteenth century term ‘improvement’” (p. 93), in part because of the practice of organizing the garden experiences as a series of carefully ordered views or perspectives, which ordered the wilderness of nature into the safe, ordered garden (p. 94). Thus, “The English garden is appropriately conceived as the "phenomenal body" that results from the melding of the existing physical environment and the virtual worlds experienced in foreign travel” (p. 95).

The convergence of travel, landscape art, and gardens thus forms an early model of the virtualization of nature.

**Museums and Parks.** This artificiality amid reality is not confined to the gardens of wealthy aristocracy, however. Even civic, non-corporate entities like public or nonprofit zoos, wildlife parks, and museums tend to present an ideologically bound conception of nature.

Ott, Dickinson, and Blair (2010), in the introduction to their collection of essays on *Places of Public Memory* note the various significations embedded in particular places like the Watergate building or Pearl Harbor, and observe that the deployment of space within these places is an important component of their rhetoric. They argue that these places cannot be read as
straightforward narratives, because they are not always experienced in a linear fashion; they are not like photographs, because more than seeing is involved. Rather, they serve to organize memory—and are in fact highly trusted by the public, particularly in the United States (p. 25), even more than eyewitnesses, movies, and television programs.

Such "memory places" as museums signify in and of themselves: they are known destinations, in part because of what they contain, and as such evoke performances that resonate with the cultural history of travel and tourism. They themselves may have long and complex histories within a culture. The authors also argue that the memory place creates an expectation of authenticity in presentation that, for the visitor, serves to efface their mediated and partial representation.

This authenticity is enhanced as the memory place constructs its viewers, implying or even explicitly providing a perspective that articulates the visitor with the traditions or ideological constructs the place is designed to reinforce. Visitors' sense of a community with tradition is further amplified by the social reification that happens because of the presence of others. The authors argue that this social dimension is one of the unique characteristics of memory places (p. 27).

The authors further describe the signification of space arrangements within the memory place; their materiality (bodily immersion) and multi modality (sensory immersion); the way they prescribe paths (and thus narratives) via maps and directional features—and how these may or may not be contested by visitors.

In their analysis of the National Civil Rights Memorial (NCRM), Blair and Michel (2000) argued for a focus on what the memorial does—not simply its verbal and symbolic messages, but what actions the memorial and its visitors perform, and the context in which it is situated. In the
case of the NCRM, they found that material and spatial components of the memorial actually reproduced Civil Rights movement tactics. Their method is what they call a “tour” of the civil rights memorial site, which they approach by moving through space-time in the fashion of an observant visitor (p. 40), noting the performative dimensions of the memorial’s construction for the embodied visitor.

The importance of context in interpretation is reiterated by Gallagher (1999), who draws from the theoretical work of Birdsell and Groarke (1996) on visual argumentation. Gallagher employs three insights gleaned from the earlier work in her interpretation of the Birmingham Civil Rights Institute, foregrounding the importance of image sequence, verbal captioning, and cultural conventions regarding visuality. She also conducts her reading of the text by taking an embodied visitor’s spatial and temporal tour, and finds that a multimediates and interactive experience can still be a constrictive one, arguing in the case of the BCRI “there is no space for visitors to contest the story, or in this case, the journey presented” (p. 317).

This interpretive constraint within a seemingly nonlinear, spatial text is also reported by Aoki, Dickinson, and Ott (2010) in their extensive critique of the Draper Museum of Natural History. Writing in the third person about their state of mind and behavior as they approach the museum through the "hypnotic intrigue of nature" (without recognition, it seems that this "spectacular nature" concept problematizes our own perceptions of "real nature"), they describe this approach to the museum as moving "from the awe of nature in the great outdoors to the awe of nature (re)created in the great indoors" (p. 238). They continue to use the "tour" perspective as a methodological approach, including their own expectations, thoughts, and vocalized comments as they follow and describe the path created for visitors. They refer to the museum as "an epistemological and ontological machine" that directs visitor movements through simulated
settings that "emphasize space over time, producing the master naturalist [a rationalist and anthropocentric perspective] as an ahistorical subject position and, in so doing, derailing critical engagement with the museum." (p. 239)

They refer to constrained movement in spaces like this as "materialized narratives" (p. 241) that in the case of the Draper, constructs nature as "other"—mysterious, awe-inspiring—that both facilitates anthropocentric control and obscures its negative effects. Nature is depicted as outside time, frozen in dioramas and viewable as maps, as if from a godlike vantage point. The museum itself "blurs boundaries" between real and unreal (p. 244) by framing external views of the environment outside within the context of the museum. It also employs touristic "scenic views" of the museum itself, further blurring the boundaries between gazing at nature and gazing at a simulation (p. 247). Taxidermied animals, while clearly not "real" in the sense of breathing creatures roaming at will, have a kind of Barthesian analogical persuasiveness to them (p. 253).

To the extent that all of the museum experiences are embodied and entail sensory immersion, the authors argue that referring to these as unreal is mistaken: they are real experiences for the visitors (p. 251), yet at the same time, a sense of remove is created because the nature encountered here is frozen, staged, and without unpredictability or danger: "What we have, then, are people and 'natural environments' arranged in space where neither the animals nor the people are agents of change or subjects of history." (p. 254)

Similarly, Mitman (1996) observed in his analysis of parks and museum exhibits that they exemplify “the late twentieth century's preoccupation with the re-creation of nature” in which humans are deliberately made invisible, despite their role in creating and managing the parks (p. 143), thereby mystifying the human-nature relationship. Continuing the visual emphasis noted earlier, Mitman asserts that this “creative invisibility” became essential to visitors’ belief that the
exhibits are natural because of the role of the camera in the profession of natural history after World War II; unlike landscape painting and tourist photography, the camera (and associated biotelemetry and satellite images) came to promote the human relationship to nature as panoramic and transcendent: “an omnipresent and omniscient Being: invisible, yet ever watchful, ready at any moment to intervene and impose divine justice. They [humans] had become the divine arbiter, ensuring the police of nature” (p. 143).

Ottesen (2008) similarly describes the way scenic trails in public parks are now "deliberate, calculated, and use-less" except as homages to past working trails (pioneers and pilgrims, for example):

Overwhelmingly, these trails appeal to our sense of aesthetics. Dramatic geographic features typify both the route and the destination: mountaintops, waterfalls, rivers, lakes, canyons—our trails invariably tend towards these sorts of locales" rather than toward useful resources the trails might once have led to. (p. 232)

She asserts that rather than bring humans closer to nature, trails typically separate us from it by driving away animals and by masking the impacts of trail-building from users. A complex tension that exists between giving people access to nature while minimizing the impact of this access tends to preserve distance and separation (p. 234).

Patin (1999) says much the same about the design of visitor areas and tour routes in the United States' National Park System. Interestingly, he says they are “essentially museological institutions, not because they preserve and conserve, but because they employ many of the techniques of display, exhibition, and presentation that have been used by museums to organize and regulate the vision of visitors” (p. 41). The experiences are structured and designed, Patin
says, to connect natural wonders to America's cultural heritage, in much the same way that Stewart and Nicholls (2002) argue that English gardens were in part an assertion of “Englishness”: both serve ideological functions while purporting to represent nature. Thus on top of an already complex interaction among the real and the virtual, and an anthropocentric photo-centrism, we continue to find ideology and cultural practice embedded even in (what we are presented with as) real nature.

**Landscape Photography.** DeLuca (1998) finds the same political agenda in supposedly non-ideological landscape photography—often a component of virtual reality, as we have seen in the work of Stewart and Nicholls (2002) described earlier. With regard to images of Yosemite National Park, DeLuca argues that the images do not so much represent nature but create it within a discursive political framework connecting tourism, nationalism, romanticism, and other ideologies.

**Theme Parks.** Davis (1997) writes about Sea World and other nature-oriented theme parks, offering a strong critique of their message. She argues that these artificial environments are “not so much a substitution for nature as an opinion about it” (p. 241) and that they construct an inaccurate, corporate-dominated picture of the relationships between humans and marine ecosystems (p. 10). Fantasy hides the reality of exploitation and pollution of the natural environment, takes attention away from real environmental action by providing a veneer of concern for visitors (p. 238), and “the possibility of alternatives collapses into the consumption of images” (p. 239).

Furthermore, she notes that marine ecosystems are presented in purely anthropocentric ways: “Dolphins, krill, fingerling bass, the oceans’ ecosystems are not allowed to be useless or
just exist beyond human fathoming: the whole natural world is there for something” (Davis, 1997, p. 241).

For Davis, theme parks and even virtual, computerized ecosystems are simply the latest installment of nature simulations that have been an enduring component of Western culture (p. 238), though in future they may be called upon to stand in for state and national parks as these are sold or closed. Indeed, she points out that already, entertainment companies are hired to run places like Yosemite, further blurring the line between “real nature” and touristic, entertainment-oriented depictions and constructions thereof (p. 236-237).

**Computer Games and MUVEs.** A concern about the impact of virtual nature can be seen in Opel and Smith's (2004) critique of the computer game *ZooTycoon*, in which players take the role of zookeepers and make decisions affecting the overall success of their virtual zoo. Noting that video games are spaces where cultural norms and values, as well as notions of reality, can be constructed and affirmed by the “culture producing industry” (p. 10), they further observe that *ZooTycoon* in particular offers a route for examining environmental messages outside traditional news and other venues in popular culture, suggesting an emerging role of virtual worlds.

Opel and Smith's findings were not promising, suggesting a tendency toward more problematic representations. They found that animals were depicted out of context with either their ecosystems or with the processes of capture or maintenance in captivity (p. 112), creating a “significant barrier to environmental education” (p. 114). Instead, they found that by reducing the player to a manager and entrepreneur, the game essentially redirects players into a commodity culture wherein notions of public and private are inverted and avarice is valorized (p. 117). Furthermore, they say “The de-emphasis on size of the animals, depersonalization, and dull
portrayal seems to indicate that animals are on equal footing with the vending machines, there merely to attract paying customers” (p. 117).

Stumpo (2008) found similar economic reductionism in the multiplayer online game *EverQuest*, wherein players must kill “monsters” (animals, only some of which are fantasy creatures) to obtain objects needed to advance in gameplay (p. 35). Sustainable relationships with nature, such as farming or husbandry, are not present, and even the process of obtaining “loot” from killed monsters is sanitized. Creatures always “re-spawn” at intervals, meaning there is no such thing as extinction. The ecology of *EverQuest*, then, is “broken” (p. 32) and this broken ecology is reproduced in players’ minds because the game "both reflects and reinforces a view of the world that treats nature as simply one more object to be conquered, killed, or commercialized" (p. 31):

Here is the real intellectual danger of Norrath—it presents a nature that can be known only for its commercial or superficially aesthetic value. Being a series of signs without realities, a world that refers only superficially to this one, it educates the player that nature is utterly separate from the self, from culture, and to react to nature in a particularly limited fashion—destroy it (p. 36).

**Computer-based Virtual Tours.** Turning to frankly artificial and explicitly virtual experiences, several writers have addressed the pragmatic realism of experiences such as virtual tours, as well as the problematic messages conveyed about the natural world via the artifice of theme parks. Unreality and an over-reliance on the visual are common themes in Tourism Studies, and Krug (2006) echoes the environmental educators when he notes that virtual-reality tours of simulated real-world environments can provide a dual benefit of allowing many more people to (indirectly) experience and appreciate them while preserving sensitive ecosystems
from being “loved to death”—a common problem in popular natural areas. Such tours also
democratize experiences of Nature in a culture that has long seen its most prominent naturalists
emerge from disproportionately white, able-bodied, and economically advantaged backgrounds
(p. 3). But Krug is no technophilic utopian; he encourages constant ecocritical vigilance,
continually interrogating the relationship between virtual nature and what it purports to
represent, and—echoing Levi and Kocher's (1999) early work, asks how digital constructions
may influence the consumption of actual environments (p. 4). Similarly, Stumpo (2008)
reiterates the potential of virtual worlds as an ecologically friendly alternative, “cleaner even
than books,” but says this can be so only if we develop alternative means of powering the servers
these worlds run on (p. 39).

Utterson (2003) examines the proliferation of webcams and web-based virtual tours, and
asserts that contrary to the expectation that these experiences might be passive and distancing,
they are in fact interactive, as the tourist (whom he compares to the strolling Parisian flâneur)
navigates endless virtual environments:

Like the space of the cinema before it, the Internet becomes the connective site
for a multitude of subjective gazes. Abstracted, related to the rhetoric of moving
image representation, the virtual travelogue prompts the spectator/user to take
immediate possession of a series of recontextualized environments (p. 200).

Book (2003) continues the notion of the engaged flâneur in her discussion of tourist-like
behavior in 3-D virtual worlds. Promoting escape from the “humdrum reality of everyday life
and workplace responsibilities” (p. 3-4), these worlds also encourage users to move about,
explore, and engage with what they find there. The virtual world becomes a real space, an
“interactive canvas” in which the audience participates in creation and development. This creates a sense of attachment comparable to that associated with real places:

Despite the fact that virtual views and landmarks are completely fabricated entities, regular visitors can become quite attached to them and even come to think of them as "natural resources" that need protection from overzealous real estate projects and "litter" like unsightly large signs and billboards (p. 8).

Nature in Virtual Reality

Virtual Reality and Urban/Regional Planning. Virtual tours and immersively real three-dimensional computer games share an origin in scientific simulations designed for more serious roles, such as visualization and policymaking. Even the most sterile near-wireframe 3-D mockup of a proposed office park usually contains depictions of plants and trees.

An especially thorough exploration of the role of landscape in virtual-worlds construction can be found in a dedicated combined issue of the journal Landscape and Urban Planning in 2001. Responding to the challenges posed by development to what might be termed the "scenic assets" of a community and its overall visual aesthetic, planners have for over a decade been turning to computer-aided design to help visualize proposed changes more comprehensively in advance. This can help "sell" an idea, generate greater public awareness and participation, and anticipate and avoid potential problems.

The perspective here is not specifically persistent virtual worlds such as Second Life, but rather the use of computers to generate realistic 3-D depictions of space to assist in visualizing and planning real-world developments. Although these settings lack the persistence and social interaction of true virtual worlds, they are designed to appear convincingly real and to allow a wide range of points of view (such as in a "fly-through" tour of the virtual space) to convey the
sense of a real space. In addition, these virtual landscapes are constructed using similar building blocks, such as polygons, primitives (“prims” - basic 3D shapes such as cubes and spheres), and textures, that combine to create the depicted space. Thus they can shed light on the prospects and challenges faced by virtual-world nature builders.

The papers in that 2001 journal issue originated in a 1999 “Our Visual Landscape” conference on visual resource management, notably held in a scenic environment near Lake Maggiore in the Swiss Alps (Lange & Bishop, 2001). All contributors agreed that despite the overwhelming emphasis these tools place on what is seen, "the landscape is both inherently visual and also much more than simply visual" (Lange & Bishop, 2001). Although technologies receive much of the attention in the Landscape and Urban Planning studies, all implicitly or explicitly acknowledge the importance of people and their needs and perceptions, and are largely focused on the role played by these technologies in public policymaking. Common concepts or issues addressed the use of visual appearance versus biological or geographical models as the basis for virtual constructions; the level of detail and the geographic scope covered in models; the presence and depiction of plants, groundcover, and topography; and the extent to which source data incorporated such things as biological models, GIS, photographs, and videos.

**Modeling Worlds.** Inorganic environmental components tend to receive less attention, perhaps due to their relative simplicity. Barton (2008) examines the role of weather in games from the standpoint of gameplay and ecorealism, arguing that instead of being used as mere decoration (though one might argue that this “decoration” serves to enhance immersivity), virtual weather could serve a more environmentally-aware role in MMORPGs and MUVEs and posits this as a challenge to future developers.
It's worth noting here that a MUVE like *Second Life* employs a number of techniques to make the virtual landscape appear more dynamic, such as animated skies, wind effects on plants and trees, and environmental sounds like birdcalls. Yet these are “looping phenomena,” rather than ongoing dynamic changes such as one might find in artificial life ecosystem constructions. While the latter have been built in *Second Life*, they are demonstration areas rather than integral components of the virtual world (Rymaszewski, et al., 2006).

Relatedly, virtual-reality models have been critiqued for their static nature; that is, they tend to represent not only a visually oriented reality but a slice of time that ignores dynamic changes (Ervin, 2001, Gimblett, 2001).

**Modeling Plants.** Thus, for example, Muhar (2001) states that while most planners would prefer botanically accurate models, these come at a high rendering cost and can often be replaced with what he calls "symbolic objects" that depict salient features only, and therefore render much more quickly. The latter allow the model builder to acknowledge the importance of vegetation in models designed to visualize landscapes. (Other studies have addressed problematics in the modeling of plant life, as discussed below.)

Perrin, Beauvais, and Puppo (2001) also look at plant modeling, arguing for the use of models that can depict plants at various growth stages. Relatedly, Erven (2001) points out a shortcoming of most landscape visualizations: they only show a moment in time, a frozen instant of some potential future state, whereas the real landscape is dynamic and, at some levels, different from one moment to the next.

Tradeoffs between accurate visual depictions and rendering speed have been a constant theme. Over a decade ago, Deussen et al. (1997), noted the challenges of building terrain models with thousands of accurate plants and developed a system that allowed both hand-made “virtual
gardens” and programmatic ecosystem simulations. Their system uses “approximate instancing” to reduce rendering cost by replacing similar plants with representative substitutions, not unlike Muhar’s (2001) symbolic objects. Similarly, Marshall, Watt, and Welsh (2001) developed a system for automatically generating forested environments that uses comparable “imposters” to reduce rendering cost. Johansson and Kvernes (2003) also assert the high rendering cost of the large number of graphical primitives (basic 3D shapes) in plants, grass, and trees and their system uses “dynamically generated imposters” that they argue only slightly reduces visual quality. And Wells’ (2005) study of terrain modeling in military simulations describes a tool called GENETICS (Generating Enhanced Natural Environments and Terrain for Interactive Combat Simulations) that can reduce rendering costs for large-scale terrain models in virtual reality environments. (It's worth noting that all these “plant studies” are conference papers or Internet white papers, suggesting that they are aimed at practitioners rather than the wider academic community—especially not addressed to scholars in social sciences or humanities.)

**Modeling Animals.** It has been observed that virtual-reality depictions typically omit the depiction of animals in the environment except in the most anthropocentric of contexts (Barton, 2008; Heleno & Prospero dos Santos, 1998). One exception is Hehl-Lange (2001), who describes an approach that models the structural components of a landscape (such as watercourses and forests) in terms of their use as animal habitat, not simply in terms of their visual appeal to humans. Even so, the end-use is primarily anthropocentric, because she is offering her model as a way for land owners to maximize receipt of government incentives to encourage biological diversity.

Heleno and Prospero de Santos (1998) developed a virtual-reality system architecture to support visualizations at the ecosystem level, employing artificial mullets, dolphins, and
jellyfishes in a model of the real-life Sado estuary in Portugal. The virtual animals interacted autonomously with each other and a dynamically changing virtual environment, though the possibility of having remotely located users influence the animals' behavior over a networked environment—which sounds much like a contemporary MUVE—is also explored. (The anthropomorphic drive of humans to “act as animals” in play, culture, and myth remains a common theme in present-day MUVEs.)

In 2004, Krisp adapted spatial visualization models to incorporate data about ecological barriers (sources of habitat fragmentation that can stress threatened animal populations) for the city of Vantaa, Finland, and argues for their effectiveness in encouraging public participation whenever relevant planning decisions must be made. Demonstrating the role of virtual-reality spaces in even the most basic scientific inquiry, Ch'ng and Stone (2006) describe the application of artificial life systems to archaeological research in order to resolve questions about ancient submerged landscapes in the North Sea. They recreated three scenarios to observe the ways that the vegetative landscape surrounding early humans might have developed. The prospect of “virtual time travel” to explore inaccessible points in the past or future has interesting implications for the rhetorics of history and science and their corresponding arguments of ontology and epistemology.

A critical stance is not unwarranted when thinking about the way humans speak for those who cannot participate in our deliberations. As O'Neill (2001) observes, both future generations and nonhuman beings are problematic when we think of being inclusive in environmental policymaking. He argues that their absence from deliberations unsettles the legitimacy of our decisions, no matter how inaccessible those other voices may seem to be. It also complicates any attempts to “speak for” the voiceless: who is a legitimate spokesperson? Who will, if not present
humans? Thus O'Neill urges caution and an attempt to represent nonhuman nature as openly and completely as possible—which the foregoing shows is by no means simplified by competing demands for scientific accuracy, visual realism, and rendering costs.

**Modeling Human-Environment Interactions.** Several *Landscape and Urban Planning* contributors address the role of human-environment interaction in simulations. Bishop, Ye, and Karadaglis (2001) observe that one can watch people interacting with landscapes on a virtual scale more cheaply than observing them in real settings. The control permitted by the virtual setting lets the researcher observe actual behavior rather than relying on self-reports, which calls to mind the limitations of the Levi and Kocher (1999) study mentioned elsewhere. Gimblett, Daniel, Cherry, and Meitner (2001) also address the importance of visualizing not just the environment but of human interactions with it, and they develop systems for predicting these interactions dynamically, with input from real-world interactions as feedback. Their system creates a more interactive landscape that responds to "what if" variations in human responses, and their interest is in deriving rules of human-environment interaction in specific settings. Their research is grounded in an application related to human use of the Colorado River in the Grand Canyon.

**Contexts of Circulation**

**Accuracy and Public Interaction.** The role of virtual nature in educating citizens and engaging public participation is well established. For Grimson (2002), “solutions [are] becoming less and less technical and more and more societal, regulatory and human,” and 3-D constructions help bridge the technical and the lay audience, enhancing public engagement with solutions. Simpson (2001) asserts that “making complex alternative scenarios accessible improves the planning process by increasing the potential citizen participation.” Ball (2007)
argues that the planning process is one of mutual education between stakeholders and planners that can be augmented by “the phenomenological experience of the Virtual Reality (VR) environment” as a component of what he calls Public Participation GIS (PPGIS). Thus when a virtual construction effaces itself, as it is intended to do in a planning context, it can be an effective means of persuasion.

**Models and Simulations for Education.** There is a long history of model use in science as a tool for depicting complex systems and isolating their essential components (Archer, 2007, p. 19). Some models are highly abstract or visual graphics and narratives, while others are physical, such as wave tanks and astronomical orreries.

With the growing processing power and graphics capabilities of personal computers, scientists and educators have created more and more realistic and interactive models and simulations for students. These simulations can even “allow students to observe phenomena and do activities, albeit vicariously, that they could hitherto only do in the real world” (Winn, et al, 2006, p. 26) and can thus reduce or eliminate the need for costly (and potentially environmentally hazardous) field trips or physical models (Tuthill & Klemm, 2002)—while replacing direct experience with the natural world. Looking towards the future of instructional technologies, Taylor and Disinger (1997) noted that VR “offers environmental educators a unique tool to expose students to many environments that are inaccessible in the real world” (p. 5) via a more intuitive control interface, and predicted that computers would permit students to:

- explore existing places and things to which students would not otherwise have access. (For example, take virtual reality field trips to remote natural environments, such as rainforests or ocean reefs.) [and] explore real objects that without alterations of scale in size and/or time could not otherwise be effectively
examined. (For example, in a virtual learning environment, speed up geological processes and watch mountain ranges form and erode again, or enter and explore the cells of a leaf.) (p. 3-4).

They further asserted that the implementation of VR in education “will force educators to reevaluate traditional teaching and learning methods in light of the new technology” (Taylor & Disinger, 1997, p. 5).

As Ruben (1994) observed, “There are really very few activities you can do with kids that you can get them to really understand the devastation of the rainforest, say. With computers you can break into another level of learning.” Morgil, et al (2001) add that “With the Internet, in contrast to some fixed tools such as course textbooks, multimedia contents can reach larger audiences” (p. 99). VR environments can provide “complete interactive model-based environments, comprising both static and dynamic phenomena” (Winn, et al, 2006, p. 26) and “provide students with the opportunity to ‘live’ in the learning events rather than simply attend them” (McLaughlan & Kirkpatrick, 2004, p. 481).

Virtual environments can use modeling concepts rather than attempt precise replication of the real-world objects and systems they present:

Although a simulation may not provide an authentic field experience, it may still provide an authentic model-based experience as scientific visualizations typically do, in which patterns can be observed because of the simplification of data, compression of time and space, and making visible what cannot be seen even during an authentic field experience. . . . A good simulation may therefore teach abstract concepts better than direct experience. This is particularly true when the
simulation successfully uses metaphors to show phenomena that have no perceptible presence in the real world (Winn, et al, 2006, p. 39).

Cognitive Learning. In addition to allowing for immersive models and social interaction, the use of virtual reality can stimulate critical thinking by requiring students to reflect and discuss as a “debriefing” (McLaughlan & Kirkpatrick, 2004, p. 481) to round out experiential learning. For example, Winn et al's (2006) Virtual Puget Sound employed a combination of field experience and desktop computer simulations, and the authors found no significant difference between the two modes in overall student learning—although the simulation users had a better grasp of the “big picture” (p. 38).

In another project, McLaughlin and Kirkpatrick (2004) created a mostly text-based simulation called the Mekong E-Sim to promote collaboration designed to help students “develop mastery of fundamental discipline-based knowledge, while developing transferable skills such as negotiation, decision-making and an understanding of the range of perspectives that could be taken with regard to complex situations” (p. 479) The authors concluded that the simulation was successful in developing students’ understanding of complex issues and multiple perspectives and resulted in higher order learning outcomes. These results indicate that well-structured learning activities using online roleplay-simulations can produce high levels of interaction and peer learning in distributed student groups (McLaughlan & Kirkpatrick, 2004, p. 488).

As pointed out earlier, the authors felt the simulation's effectiveness was limited by electronic messaging. A similar mixed success occurred in Smith and Bell's (1992) games-based commons scenario; they recommended more realism—greater emotional and sensory bandwidth, in particular—in depictions of commons dilemmas as a way to enhance external validity (p. 467).
Social Learning. Connecting the social dimension with the technical side of computer-based instruction, Rickinson (2001) recommends more research into the ways students experience “environmental education using ICT [information and communication technologies] and virtual learning environments” and into “learners’ interactions and influences among their peers, as well as with their teachers/educators, and parents/family” (p. 307). The social dimension becomes both an object of instruction and a method. Furthermore, such approaches can help enhance public engagement with solutions.

One way of teaching this aspect of environmental issues is through role-playing, which can help model social dynamics:

Role play situated in a simulation or gaming framework provides an opportunity for participants to adopt roles that encompass sets of interests, values and knowledge bases. These necessarily represent the diversity of positions and opinions present in any complex system, creating a learning environment that is authentic and situated (McLaughlan & Kirkpatrick, 2004, p. 478).

Relatedly, “Problem-based learning is also potentially useful as it places the student at the heart of the educational process, and also offers the possibility of addressing real-life complex engineering problems” (Grimson, 2002, p. 33). While earlier efforts at computer-mediated role-plays have in the past tended toward reliance on text messaging systems, McLaughlin and Kirkpatrick (2004) argue that this approach “is less suited for communicating agreement and disagreement and for social-emotional tasks involving conflict and negotiation” (p. 484).

Instructional approaches that use virtual reality may help go beyond the limits of previous approaches by “putting students inside the model” by merging realistic depictions of natural systems with social interactions that take place within these depictions. Although “virtual
reality” usually refers to computer-based, immersive, three-dimensional simulations, Simpson (2001, p. 361) notes that the term also includes drawings, schematics, illustrations, and models. Furthermore, the powerful computers and complex helmets of early VR are no longer required to bring the experience of virtual reality to a growing number of learners.

**Blended Reality.** One of the most interesting and promising learning activities that blurs the virtual and the real is described by Okada, et al (2001). They began with a simulation that modeled a real location that students and scientists were simultaneously studying onsite. Students could visit the virtual model and interact with each other there, but the people at the physical site were also co-present in the simulation as avatars whose positions were aligned via GPS tracking. These mixed-reality mashups should be more likely in the future with the growing use of Augmented Reality (discussed elsewhere). For example, geographic information from Google Earth might be used to create islands in *Second Life*, perhaps bringing in real-time weather and traffic conditions (Roush, 2007). Combinations of this sort will likely continue to complicate our understanding of how humans inhabit environments.

**Embedded Narratives.** Finally, Henry Jenkins explains how virtual constructions can employed as a “narrative architecture” to present users with a controlled message in the same manner as might be used by the creator of a film or book, though using a vocabulary and methodology of narration that is not limited by previous forms. By studying the techniques of “environmental storytelling” used by the designers of amusement parks, designers of graphical computer games can exert control over the narrative by distributing information across the game space (Jenkins, 2007, p. 5-10).

This is done in part by limiting information to its salient components; Jenkins uses the analogy of a dollhouse, which does not literally reproduce all the “clutter of an actual domestic
space” (p. 13) but presents a stripped down inventory of features and artifacts with specific narrative roles. Jenkins refers to this kind of storytelling as “embedded narrative” (p. 10) wherein “the game space becomes a memory palace whose contents must be deciphered as the player tries to reconstruct the plot” (p. 13)—in this case, plot being the implied backstory that explains the presence and condition of artifacts. These artifacts can be such things as a virtual forest, a polluted harbor, or a manicured garden. Thus the design of a specific location in a world like Second Life creates an implied story that is rich with embedded cultural assumptions and serves as the “message” for users.

Second Life: A New Remediation Under the Sun?

The Multiuser Virtual Environment Second Life

While its longterm viability remains a continual matter of disagreement, Second Life was the target of often breathless hype in 2005-2007, when it experienced significant growth—for example, 35% per month in user accounts and 15% per month in economic activity in 2006 (Jana & McCannon, 2006, October 31). One source described the Second Life growth curve in late 2005 as “closer to that of the adoption of a communication technology rather than that of a game” (Jones, 2006, p. 27). Data on actual usage trends is highly controversial, but Second Life is undeniably the most popular nongame, user-built virtual environment as of this writing, and as such offers a preview of what such platforms might offer in the near future.

Second Life is a visually rich 3-D virtual space containing imitations of real-life artifacts and activities, as well as utopian (and dystopian) fantasies and alternative realities. It has a relatively impressive pedigree. According to Jones (2006), it grew out of a “Metaverse” concept described in Neal Stephenson’s novel Snow Crash: “Stephenson was the first to describe an
online environment [The Metaverse] that was a real place to its users, one where they interacted using the real world as a metaphor” (Jones, 2006, p. 2):

Second Life not only grew out of a particular cultural discourse but also out of an ancestry of publicly available virtual worlds, marrying the user creativity and sociability of text-based Multi-User Dungeons/Domains (MUDs) with the graphic richness of Massively Multi-Player Role Playing Games (MMORPGs). MUDs and MMORPGs contributed greatly to what Second Life is today, and sets Second Life apart from other currently available virtual worlds (Jones, 2006, p. 16).

Although its depictions are at times cartoonish and fanciful, participants often describe it as being immersive enough to feel “real” to its participants, and it can replicate real-world spaces (such as Paris in 1900, or a forest of conifers) with enough fidelity to allow users to suspend disbelief.

It may also represent a new manner of web-based interaction: according to Fortune, "what it really may represent is an alternative vision for how to interact with information and communicate over the Internet" (Kirkpatrick, 2006, November 10). In fact, Second Life founder Philip Rosedale "sees Second Life as a platform, in the same sense as MySpace. In the future, Rosedale sees Second Life as a possible 3D Web browser " (Jana & McConnon 2006, October 31). As such it becomes both a place for and a medium of interaction; not simply an alternate, created world but a means of communication for humans in the real one—with corresponding potential to frame and influence perceptions.

Second Life consists of a number of internetworked, three-dimensional “islands” or “sims”, each of which is actually a web server (and thus the spaces are comparable to 2-D websites). Basic user accounts are free; access requires downloading the free browser tool,
connecting to the Internet, and logging on with a sufficiently powerful computer. Users who visit this space are represented by (and see others as) more or less cartoon-like “avatars” that move, walk, fly, gesture, and communicate via text chat, or more recently, through an audio channel that indicates both direction and distance through stereo spatialization. Avatar appearance is completely under user control and can be anything from realistic humans to characters from fantasy and science fiction, and they have demigod-like powers that allow them to fly over terrain and “teleport” instantaneously across large distances. Avatars never need food or drink, and cannot be injured or “killed” as in many role-playing games such as *World of Warcraft*.

A space such as *Second Life* generates new forms of social behavior, or twists on old ones: “griefing” (pranks and harassment), cultural collisions between humanoid avatars and “furries” (animal-like avatars), and gender-bending are just some of the more well known. According to *Second Life: the Official Guide*, as many as 15% of the male users of *Second Life* are represented by female avatars (Rymaszewski, et al, 2006, p. 76)—perhaps because they find social advantages in doing so.

One particular form of social behavior that has received plentiful attention is economics: not only can users buy and sell items within *Second Life* using “Linden dollars” (Linden Labs is the software company behind the virtual world), but this currency exchanges for real-world money and thus creates substantial real-world incomes for a select few. The most spectacular example is that of Anshe Chung, who is estimated to have earned $150,000 annually from her virtual real-estate empire in *Second Life* (Rymaszewski, et al, 2006, p. 253). Furthermore, real-world companies like Reuters, Mercedes-Benz, and Starwood Hotels have used the virtual world to test and market products (Brady & McConnon, 2006, September 11).
Settings for exploration, interaction, and other activities include nightclubs, flying castles, classrooms, libraries, shopping malls, residences, railroads, yacht clubs, airports, and used car lots—all created by users:

It took a radical approach to design from the beginning. It offered itself as a mere platform for the creations of its occupants. Essentially everything seen inside the software today was created by its users. All that the company that operates Second Life, Linden Lab, sells is server time and network capacity (Kirkpatrick, 2006, November 10).

According to Jones (2006),

It is by giving its users tools for creativity that Second Life gives the users’ experience particular meaning and makes the world more interactive and realistic. Second Life creates a new type of producer-consumer (prosumer), similar to the thousands of people who are mixing their own music, making their own movies or publishing their own art or texts on the Internet. (Jones, 2006, p. 19)

In a number of ways, MUVEs like Second Life recreate the myth of photorealism described by both Barthes (1977) and Sturken and Cartwright (2009). A photo is considered to be evidence that its referent had ontological existence, captured at the moment when the camera and its subject occupied the same time and space (Barthes uses the word punctum to describe the poignant, fleeting mortality of the subject that gives the image its power). The same kind of photorealistic connection seems to drive Second Life as the software continues to improve and users create realistic virtual objects. While a bit primitive compared to some gaming systems, SL’s graphics do strive towards photorealism. Ironically, some of the things that are “real” in SL are actually simulacra because their real-world referents are generic (e.g. housing developments
and shopping malls) – though the real versions also often have a kind of mechanistic blandness to them as well.

Virtual animals seem likely to evoke the punctum of a photograph and its immediate, uncoded presentation of reality. The most engaging and poignant virtual animals in SL include scripted behaviors that make the animal appear alive and with its own agency, as when the animal reacts to the presence of user avatars or (through randomization of programming variables) displays a “non-robotic” range of behaviors.

*Second Life* is not simply a visual text; it is spatial, experienced as a “real” three-dimensional space—shopping center, alien planet, wild forest, mystical kingdom, etc. The felt sense of spatiality and the ability to move about largely at will create the sense of immersive realism. Because this virtual space inhabits a transitory space between unreal and real—it feels material and inhabited, yet it is artificial and constructed—it becomes particularly interesting to examine the way ecosystems are presented here.

**Political Economy**

Applying a political-economic analysis to the economy within *Second Life*, we can see Linden Lab (LL), the company that develops and runs *Second Life*, as something like a totalitarian government or monopoly, creating the conditions in which residents in turn create virtual objects and services. But as several critics have observed, LL has control over in-world materiality in a way that is more akin to the way we think of godhood, and populations can disappear with the flip of a switch, so the comparison is inexact. Once we move beyond the discursive world created in this MUVE to its material environment in real life, however, it becomes easier to identify the web of structural and cultural affordances that enable it to exist.
This matters because *Second Life* is not only a product of political-economic conditions but participates in their continual reinscription. Although *Second Life*'s creator Linden Lab is relatively small (under 200 employees), we can still examine its place within the larger culture industry by looking at the material conditions upon which it relies. It also presents a way to look at the operation of the culture industry outside traditional venues of popular culture like television and film, as Opel and Smith (2004) argue in their analysis of computer games.

As Jhally (1989) and others have pointed out, the economic side of culture-producing industries exerts pressure on form and content of media. And as William Kunz (2007) says, ownership matters. We care who owns media like *Second Life* because owner agendas are reflected there, whether overtly political or through reinscription of the capitalist values of a for-profit business. Anthropologist Tom Boellstorff (2010) describes the company's internal workings as an instance of the “Californian ideology,” a somewhat awkward marriage of 60s bohemianism with technophilia and neoliberal economics, in which capitalism becomes a liberatory force of cultural revolution and innovation.

It's less clear what the broader cultural reach of this medium might be. It's certainly tiny compared to something like News Corp. or Knight-Ridder. Curiously, there have been no rumors of buyouts by larger conglomerates like Sony or Disney, even during Linden's 2007-2008 heyday. This may be simply a matter of the newness of the medium, or uncertainty about the future of MUVEs in the media/entertainment industry. Related developments like *Blue Mars* and Sony's *Home* platform have not generated nearly as much attention, and Google pulled the plug on its much-ballyhooed *Lively* virtual world at the end of 2008. Yet there are still signs that virtual worlds generate interest. *Second Life* software has been open-sourced into the OpenSim project, whereby the software can be hosted on anyone's servers (though the worlds thus created
do not interconnect). Academic entities and industry players like Sun are promoting alternatives like Croquet and Wonderland. Other developers are working from the opposite direction, creating browsers that turn the web into a social, 3-D experience with tools like ExitReality. It seems only a matter of time before MUVEs—or something like them—become a much more common means through which culture is reproduced.

*SL* can be considered as a collection of cultural, material, and social practices centered on a service provided by a company founded in California in 1999 by Philip Rosedale, whose financial clout and prestige emerged from his time as chief technical officer at the pioneer video streaming company Real Networks. Joined by former executives from new-media entities like Electronic Arts, eBay, Disney, Adobe, and Apple, the company grew to 250 employees within ten years, located at its San Francisco headquarters and satellite offices.

Like many Silicon Valley startups following the dot-com boom, LL is known for an unorthodox, at least superficially democratic and meritocratic corporate culture, and Rosedale has noted that *Second Life*'s aesthetic and creative heritage comes in part from the avant-garde Burning Man festival in the Nevada Desert. Julian Dibbell (n.d.) has described his own experiences in the blurring of work and play that comes about in this new-media, creation-capitalism notion of the player as both laborer and consumer, as “prosumer.”

Yet Daniel Anderson (2010) notes that while *Second Life* users labor to construct items for their own benefit, they ultimate benefit Linden Lab by increasing the appeal of the virtual world in a kind of snowball effect. But he argues against applying a full political-economic critique, because the “workers” (users) are not born into this structural relationship and thus cannot truly be “oppressed.” They are able to get up from the computer to use the restroom or participate in jobs that earn them enough money to return for later play.
Anderson's critique misses the mark somewhat in his assertion that Second Life users are not creating “socially necessary goods”—as Edward Castronova (2003) argues, the goods and services produced there can entertain and enlighten us, resulting in a significant exchange value that will likely follow along and reproduce similar values in the larger culture. They are thus, he argues, “economically real.” Furthermore, Castronova fears that that the virtual world may become difficult to escape—not just because the media gain widespread use, but because this valuation of virtual assets means more human time and labor will take place according to the rules of virtual economies, which can in some cases simply flout real-world constraints like the law of scarcity by endlessly duplicating assets at minimal cost.

As Jones (2006) puts it, there is always a kind of tension between Second Life's liberatory and transformative rhetoric and its own reproduction of capitalism:

Second Life is not an idyllic world, unless one envisions a capitalist paradise. . . .

American consumerism (of a virtual sort) is everywhere. One cannot walk down the virtual street without being barraged by virtual vending machines selling virtual wares or seeing virtual advertisements for virtual casinos (p. 20).

As noted earlier, Opel and Smith (2004) found similar reproductions of commodity culture in the computer game ZooTycoon, which turns players into managers and entrepreneurs under the guise of animal husbandry. On the other hand, Boellstorff (2010, p. 100) has pointed out that the widespread use of barter and readily available “freebies” (Linden- and user-created) mean that SL has not been completely commodified.

In the past couple of years, significant steps toward vertical integration of Linden Labs’ value chain include the acquisition of Windmark, maker of an enhanced VR viewer; two successful virtual-goods marketplaces, XStreetSL and OnRez, and the "cross-world" social media
site Avatars United. Although the company experienced significant growth and a great deal of publicity in business, education, and entertainment media during 2006-2008, it has had difficulty establishing an effective business model for continued expansion. Rosedale stepped aside in 2008 as CEO in favor of a marketing-oriented leader who took several steps to increase Second Life's market share, in part by making the software easier to use and thus attractive to a wider audience. The changes were not without controversy among longtime users, however, and after an overall economic downturn led to a 30% employee layoff in 2010, Rosedale returned among hopes that he might bring new life—perhaps in much the same way that a returning Steve Jobs helped rekindle Apple's fortunes.

Sixty percent of Linden Lab's revenue comes from the sale of virtual land, which translates into the sale of space on the servers upon which the Second Life software runs: each 250m2 "island" in Second Life runs on its own server, and users can buy whole islands or portions thereof as places to put up their own elaborate, three-dimensional virtual properties and conduct activities. These properties can stretch across multiple islands or "sims" (simulations), allowing the creation of significant tracts of virtual real estate. The constructions therein range from pedestrian reconstructions of real-world malls and government buildings to the most fanciful products of fantasy and science fiction, since the "physics" of this virtual world has different limits than that of what users call RL ("Real Life").

Second Life has captured the attention of real-life economic players for a number of reasons. It is used as a tool for holding meetings and training events for widely dispersed corporate entities in a global market, resulting in cost savings. Its users also participate in a large in-world economy of virtual buying and selling that translates into a significant chunk of real-life cash for those who can create demand for their virtual products (e.g. clothes and accessories for
user avatars). And its user base is attractive as a test market for real-life products, like cars and hotels, that can be cheaply produced for avatars to explore. Figuring out the best way to monetize all this activity has generated a lot of conversation in the blogosphere among *Second Life* users and in the business community, but a significant side effect has been the aforementioned ascendency of a commodity narrative within the virtual world that touches nearly every aspect of it.

One direction in which a MUVE like *Second Life* might go in the future is to become an audience-delivery tool like television. Meehan (1993) has shown how the television audience becomes a commodity whose value depends on its purchasing power, and this becomes a significant factor in programming decisions. Since *Second Life*'s audience demographics skew towards an older and more affluent group, the “ratings” of virtual constructions can influence in-world activities such that only more highly rated “programming” occurs. One example of this might be the proliferation of islands designed along the lines of tropical resorts, representing affluent ideals of escape and relaxation. Similarly, rather than expressing liberatory ideas about apparel, *Second Life* can simply reinscribe that apparel industry by favoring the construction of virtual malls and shopping centers that sell decidedly mundane fashion accessories for avatars. (There is no lack of resistance to this capitalist colonization of the virtual world; bloggers frequently decry it and some activities have been the target of “griefing” and other protests, as when an in-world interview by virtual real estate mogul Anshe Chung was disrupted by an attack of animated flying penises.)

Meehan also helps us understand the ways audiences vary not only in socioeconomic characteristics but in viewing patterns, which helps understand their role as commodities as well as the potential impact of the medium on its users. Her characterization of deeply committed
“interpretive communities” (think Trekkies) has a clear parallel in that group of Second Life users who blog regularly and attend annual events like the Second Life Community Convention. For less engaged, less critical audiences, Meehan notes that television creates a kind of lived experiential background of commercialism, and it's possible that this might be at play if MUVEs and similar tools become the kind of ubiquitous computing environment predicted by the Gartner Group (2008) and others.

Another intriguing possibility is suggested by Proffitt, Tchoi, and McAllister (2007) in their analysis of “intertextual flows,” whereby story and character components from something like Star Wars or Lord of the Rings are commodified into a number of expressions across varying media (novelizations, video games, collectible toys, etc.). This is done to provide additional means of monetizing creative products by encouraging audience members to constitute themselves through a kind of completist drive to buy everything with the franchise worked into it —and making it less likely that products with reduced intertextual potential will be developed, and leading to a culture that valorizes the sequel and franchise. However, beyond its intentionally vague “Your World. Your Imagination” Californian theme, there is no overarching narrative in Second Life like there is with something like World of Warcraft. There are no main characters or even character types, no familiar stories, and so forth. And as Proffitt et al argue with the Matrix series, intertextual commodification can undercut any radical or transformative vision in the original story; as mentioned, critics are already attacking Linden's transition into “Burning Man, Inc.”

Unfortunately, the only Second Life narrative that has seemed to gain any traction is one of sensationalistic sex and violence, not unlike the usual moral panics over new media (everything from comic books to chatrooms). Thus the much-hyped Second Life-based episodes
of the TV show CSI focused on aberrant user behavior, strange-looking avatars, and crime—in part because this is the kind of story that delivers CSI's target audience to its sponsors. Perhaps the strongest deterrent to the establishment of a clear *Second Life* intertext is the divide between immersionists and augmentationists. The former treat *Second Life* as an inhabitable place, a real location in which to engage in creative play and enact identity, while the latter tend to treat it as a medium, a means of accomplishing real-life tasks like education and business communication (and, generally speaking, resistance to commodification has tended to be strongest among the former, while LL's marketing and expansion work has tended towards attracting the latter). We will have to await the emergence of particular and compelling programming in *Second Life* to see how it compares with current media intertexts. While the *Second Life*-based communities of "furries" and Gorean sex-slave enthusiasts do have thematic continuity, they have not yet spilled into other media (although the latter came to *Second Life* from a series of torrid science fiction books, it was brought in by roleplaying fans). Even attempts to bring the ubiquitous virtual sex toys of Stroker Serpentine (a once-successful merchant there) into the real world has had mixed results. But these examples suggest directions in which a *Second Life*-based intertextuality might provide ways to expand markets.

**Environmental and Ecojustice Impact**

The appeal and visual design of *Second Life* are closely related to video games and MMORPGs, though it should be considered as more of a 3D social network than a game. It exists in part due to factors described earlier—such as better computer graphics and cheaper processing—along with the availability of large numbers of affluent adolescents and young adults with plenty of leisure time. *Second Life* is thus only possible under conditions of surplus resources, and is a world accessible mainly to an affluent elite—further, to a portion of that elite
that is cognitively and attitudinally predisposed to "getting" new media and virtual reality. It also participates in a system that amplifies the waste disposal problems that occur when rapid changes in computer power encourage high turnover of consumer products.

The material costs underlying the operation of SL's servers and its users' thousands of computers are largely externalized and invisible in marketing and press coverage. This is not insignificant: Boellstorff (2010) estimates that the data on Second Life servers is fifty times that contained in the United States Library of Congress. The overall operation of this MUVE relies on the industrial extraction of minerals and petroleum products—frequently from overseas markets under unknown conditions—that are consumed by affluent societies through capitalist flows of wealth. While Linden Lab has never been directly implicated with third-world sweatshops or worker abuse, it does operate within a modern, high-tech global capitalism that provides cheap and ready computing through cheap labor. This fact isn't stamped on the software like the warnings that appear on packs of cigarettes. In addition, without the conditions that led to the creation of high-end graphical systems, such as military simulations, and the Cold War product known as the Internet, multiuser virtual environments would not exist. It is thus contingent upon the historical and cultural conditions that have created and sustained the military-industrial complex and global capitalism, as Nick Dyer-Witheford and Greig de Peuter (2009) point out in their critique, Games of Empire.

There are health and environmental effects that emerge from both production and consumption of computer hardware. Long-term use of computers can have physiological effects like carpal-tunnel syndrome or vision impairments, and it can lead to so-called Internet addiction and other psychological effects.
Electrical energy—often from non-renewable sources with large carbon footprints—is needed to run the SL servers. While there is no available detailed analysis of this footprint, a well-known “back of the napkin” calculation by blogger Nicholas Carr (2006) had the energy consumption of a Second Life avatar at about that used by a real-life citizen of Brazil. If true, this only highlights the kind inequalities that can be reproduced by SL.

Linden Lab showed their awareness of SL’s environmental impact by touting the platform as a way to reduce the need for physical locations and travel. A now-deleted page on their website called Green Learning referenced an Intel case study on the efficiency of their servers (Intel, 2009) versus the carbon footprint of travel for meetings and field trips. During its heyday, one could even purchase carbon offsets through a third party (Au, 2008). Environmental organizations have used the virtual world for meetings, community building, demonstrations, and social marketing—but it's clear from a contentious discussion in Clickable Culture, a game-design blog (Walsh, 2007) that many users don't feel these organizations have adequately addressed the carbon footprint of the tool they are using.

Second Nature

The physics of Second Life draw from the rich history of natural-environment modeling in virtual reality. Second Life is indeed an unreal place, without all the constraints of a physical and biological space—a “broken ecology” as Stumpo (2008) might describe it. As one resident put it, "you don't need a home and it never rains—in fact, you can set the sun to shine the way you like it most" (Rymaszewski, et al, 2006, p. 197). While not completely accurate (it can rain, but nothing gets wet), the statement conveys the overall paradisiacal nature of the virtual world.

The biophysical environment of Second Life is different from real life in several key ways that impact residents and their constructions. Thus while it has built-in physics emulation that
causes avatars and other objects to fall, bounce, and collide in realistic ways, the physics can be overridden to make objects float in the air. “Solid” objects can be made “phantom” to allow avatars to move right through walls, for example (Rymaszewski, et al, 2006, p. 187). A simulated sun and moon "rise" and "set" at regular times, but these are not natural circadian cycles, and can be overridden so that, for example, your avatar sees a scene under full moon or sunset conditions if you so prefer it.

Atmospheric conditions include clouds, fog, and simulated precipitation (which has no effect), as well as wind, which can be heard and which “blows” certain objects if they are so designed, contributing to a pleasant immersive feeling. On the other hand, there is apparently no similar “current” effect in most underwater areas—even when, for example, the towering simulated tidal wave crashes over your avatar in the NOAA’s simulated tsunami experience on Meteroa island. Astronomic and atmospheric conditions are set by the owner of a given region or "sim."

The owner also sets land elevations and sea levels, where Second Life's "ocean" abuts the land (Second Life, 2007b, item 054), via a process called "terraforming" (Second Life, 2007b, items 235 and 275). To attain these titan-like powers, residents purchase land in units (the 3-D analogue to web-server storage space) from as little as 512 square meters to entire regions—also called "islands"—of 6.5 hectares (Rymaszewski, et al, 2006, p. 37). Many landowners begin simply, by flattening areas to be built upon and applying a green grass texture to the undeveloped areas, though professional "real estate developers" may create "elaborate themed sims complete with custom-made, exotic vegetation; professionally scripted, sparkling waterfalls; and sandy beaches" (Rymaszewski, et al, 2006, p. 240)—the touristic areas described below.
As in real life, waterfront land is often at a premium—if only because it means nothing will be built next to your property. Property owners can control access to their land by other avatars and even set "telehubs" that restrict property entry to a specific location (Rymaszewski, et al, 2006, p. 110) for a controlled experience, not unlike the constructed views of real-life garden viewpoints, narrative pathways through museums, or scenic overlooks.

Once the land is shaped to the owner's desires, textures such as wood, sand, and mulch (Rymaszewski, et al, 2006, p. 116) can be added, as well as a fairly wide variety of default plants and trees, freely supplied in every avatar's inventory of clothes, boats, scripts, and other Second Life essentials. Certain basic plants, trees, and grasses are a special type of object; they are essentially made less "expensive" to property owners to encourage their wide use (Rymaszewski, et al, 2006, p. 11, 135). In their groundbreaking simulation described earlier, Okada, et al (2001, p. 21) used this same method of intersecting planes to realistically depict flexible plants with a minimum of computing power, attributing it to Honjo, Lim and Meruta (1999).

This suggests that the designers of Second Life recognized the importance of natural objects in the enhancement of immersivity; the Official Guide to Second Life makes this explicit: "You'll really appreciate the contents of this folder [inventory] when you acquire your starter land and are in a hurry to make it look good" (Rymaszewski, et al, 2006, p. 110); "These more complex models have been added to fill out the sorts of builds that Second Life residents enjoy. Without them, the world would be a far blockier and less organic place" (Rymaszewski, et al, 2006, p. 116). Custom plants can also be built, though this requires the "highly specialized" skills employed by "landscapers": "A realistic looking plant involves not only delicate prim manipulation, but also scripting (so that it moves in the wind, and so on) and frequently the creation of a new custom texture or two" (Rymaszewski, et al, 2006, p. 239).
One measure of this world's anthropocentrism is that despite all the default store of materials and developed skills related to "landscaping", relatively little attention has been devoted to underwater aquascaping. While waterfront areas abound (beaches, harbors, and so on) and, as mentioned, are in high demand, most underwater vistas are, in the words of one marine-science blogger, "stark abyssal plains" (Robertshaw, 2006) devoid of aquatic life, as shown in Figure 1. The default store of plants includes no aquatic varieties, and until at least mid-2007 the Second Life Knowledge base (Second Life, 2007b) comes up empty when searched for any of the following terms: ocean, lake, river, aquatic, marine, or wave.

Figure 1: Barren Underwater Terrain
Yet there are many aquascapes and aquatic environments represented in Second Life, and several residents have created marine plants and both static and dynamic representations of vertebrate and invertebrate life forms. The movements of dynamic, scripted animals can be exceptionally lifelike within the context of the virtual space. All can be easily purchased through in-world vendors whose stores resemble virtual aquariums, nurseries, and pet stores.

**Using SL for Education**

Harrell and Abramson (2010) describe their use of Second Life to engage at-risk students by increasing their sense of agency in math and science education through the immersive and socially rich activities that technology affords. Warburton (2009) reviews the use of Second Life in instruction across a multitude of disciplines and finds it to be an effective medium in terms already described here: reducing costs of real-world field experiences and complex, one-off simulation tools while affording a more rich sense of social interaction. He also describes technical and cultural barriers to adoption that are in line with Fulk et al (1990) – that is, they are as much about the perceptions of Second Life as its inherent technical affordances.

Fulk et al (1990) offer their Social Influence model to explain that media selection is not always worked out rationally in advance, but is often an ex post facto rationalization of choices that were made based on more socially influenced factors, such as the prior experience of others and the perceptions of a given technology. In other words, the impact of a given medium depends more on socially constructed realities than on any given essential, objective characteristic of a medium. This goes a long way toward explaining students’ reactions to online learning technologies reported in the literature and in informal outlets like listservs. Technologies that are “rationally appropriate” to the task may be perceived as too complicated, strange and unfamiliar,
too game-like, or too limiting—and thus their effectiveness in instruction becomes constrained by social perception.

Fulk et al’s model suggests that the conditions for strategically deploying Second Life as a tool of instruction (one form of cultural reproduction) can be a challenge, which perhaps explains some of the resistance to its use among many educators. This may change as MUVEs become more commonplace.

**SL and Resistance**

Turning to more informal means of cultural reinscription, renegotiation, and remediation, in contrast to the corporate dominance found in Sea World and ZooTycoon, one might expect that a user-created space like Second Life could present themes that are more diverse, even if not entirely pro-environmental. However, perhaps less insidious but still potentially problematic is the overabundance of romantic, touristic tropical islands that Book (2003) found in the virtual world There. Again echoing Levi and Kocher's (1999) concerns, Book finds this hyperabundance perfectly consistent with the way users employ these virtual settings as escapist tools. As a result, however, a spectacular kind of nature becomes more firmly established as an ideal form for the natural world. And Jones’ (2006) review of avatar behavior in more urban spaces in Second Life is pessimistic:

*Second Life* is not an idyllic world, unless one envisions a capitalist paradise.

From observation of *Second Life*, it is clear that, as in the real world, American consumerism (of a virtual sort) is everywhere. One cannot walk down the virtual street without being barraged by virtual vending machines selling virtual wares or seeing virtual advertisements for virtual casinos. As in American culture, it is this
commerce that allows the system to be viable, but it also means that money can become the root of both good and evil (p. 20).

However, since Jones was not looking at natural-world representations *per se*, empirical questions remain, to be explored in the proposed study. It may be that, despite the user-generated nature of most items in *Second Life*, the labor and expense of creating realistic simulations makes it likely that off-the-shelf constructions (complete packages or store-bought components) may often serve as at least a starting point, and thus demand close scrutiny.
CHAPTER THREE

METHOD

Research Questions

This study is guided by the following questions:

1. Do the representations of natural environments and non-human nature in Second Life reproduce a kind of hegemonic industrial/consumerist orientation?

2. Do these representations suggest resistances, alternatives, and possibilities for environmental awareness and social change?

3. To what extent do these embedded meanings reflect the conscious intents of their builders (including Linden Lab, designers of the underlying “natural systems,” and Second Life users who sponsor and create simulations of the natural world)?

4. How do these meanings circulate among users and secondary audiences outside Second Life?

To investigate, three methods are employed: close reading, interviews, and circulation analysis. These are described below.

Close Readings

Why Second Life?

Multiuser virtual environments are not the press darlings they were five years ago, but they persist in various forms, tying together communities of educators, trainers, artists, role-players, historians, and other groups, in various mixes. Of all these, Second Life still seems to be the place where augmentationists and immersionists mix most thoroughly, the latter stretching the limits of the medium while the former articulate it with the larger RL culture. It is also a place with a history that further reifies it (and effaces its mediation). For its users, it is both space
and place, with all the cultural associations of the latter: familiarity, pattern, memory, practice. The persistent community and user-built environment there is correspondingly the result of a wide range of “voices” that speak to an audience that goes beyond the immediate community of SL users and helps one understand how the medium will operate as it becomes more familiar, commonplace, and effaced—in other words, like television, film, books, and websites.

**What to Sample?**

In order to navigate this enormous rhetorical space and find meaningful samples for close analysis, Boellstorff (2010) employs the methods of a SL user: he wanders around, flies about, teleports from one location to another, even drifts over the countryside in his hot-air balloon. He stops and talks with the people he meets along the way, learning of new places to investigate; drops in on events and interesting places; checks online event lists or guides (p. 70). He takes the perspective of a participant observer, an "ethical yet critical engagement between researcher and researched" (p. 71-72) that permits one to be a part of that which is being observed. This allows for the discovering of meanings as they emerge among participants and finding holistic interconnections across multiple domains of meaning.

For the current study, the sampling is as follows—beginning with what is excluded: I am interested in how virtual reality interacts with cultural conceptions of the natural environment in which our bodies reside—the planet Earth—because this is where messages and media ultimately matter. For this study I adopt the standard scientific view of that natural environment: The Earth’s environment exists within a universe constrained by physical laws. So I examine only “realistic” virtual nature that seeks to efface itself as it depicts settings one might encounter in the real world: parks, landscaped areas, wildernesses, rivers, icebergs, forests, and so on; all the various forms of both pristine and manicured Earth that make up the planet we inhabit. This
focus on “realism” has the added benefit of more closely articulating with prior literature on parks, museums, CAD landscape planning, and environmental science education described earlier, all of which ground the rhetorical firmly in the natural world.

(Despite the various means Second Life employs the physics of real life, it does not replicate all these laws. One can envision, build, and visit many alternative universes with different laws, in which things like gravity, momentum, and carbon cycles are different. These alternatives can do useful cultural work, just as science fiction and fantasy worlds in literature and film often do, by informing social critique and suggesting alternative possibilities in this world. Such utopian and dystopian “alternative Natures” deserve their own inquiry.)

**Sampling Structure**

Even within the scope of realistic constructions, this study does not attempt to reach generalizations about the representation of Nature across the entirety of Second Life, but rather uses Second Life as an environment for the exploration of case studies that can help us understand what virtual worlds bring to our discourse about Nature. Rather than random sampling, in other words, I am following earlier practice (e.g., on museums, video games, and theme parks) by selecting salient exemplars and reading them in detail. The prior literature as well as the present study’s theoretical basis suggest the following themes or types of locations as the most fruitful texts:

- The “pastoral idyll” or “wilderness” (Turnhout, 2004).
- Touristic tropical island getaways and nature-themed amusement areas (Book, 2003).
- Natural science exhibits (corresponding to simulations and museums).
- Plant and animal vendors.
• Sites explicitly protesting or resisting environmental real-world practices.

(The last two categories reflect this study’s critical focus on the problematic commodification of Nature as well as Jenkins’ ideas about new media and resistance. Some locations combine more than one type or theme.)

Exploratory study identified several candidates to select from in all of these categories. As described below in Chapter Four, this list was then refreshed through the Second Life search tool (e.g. place names containing keywords like park, wilderness, museum, wildlife, and so on); Linden Labs’ own “Destination Guide” and (as described in the circulation section below) information outlets on the Web outside SL.

The Destination Guide is a marketing tool intended to quickly connect users with locations based on topic or interest, obviating some of the “zoning issues” and random distribution of content described earlier in the section on resisting the culture industry. As stated on the website:

The Second Life Destination Guide highlights some of the best in-world locations and Resident creations. For new and existing Residents alike, it is the place to go to explore and discover what's most exciting in Second Life. Linden Lab keeps the Destination Guide fresh with regular updates, so check back frequently! (Linden Lab website; text styling in original)

Locations featured in the guide are based on staff picks and recommendations from users who have built and/or own the locations, using a submissions form (there is no paid placement). Linden staff apply such criteria as broad appeal, originality, and the presence of an active user community. The level of detail in the criteria and submission process is impressive and at times

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legalistic, doubtless in part because of the high traffic and commercial appeal during the virtual world’s peak activity periods.

Using these search tools, an initial survey of results identified a final sample for close scrutiny in each of the five categories listed above.

**Method for Reading Locations**

I engaged each selected location as a visual and spacial rhetorical text, much in the manner that museums are read the works described earlier. Taking an ethnographic approach modeled on Boellstorff (2008), I read these from the perspective of a user's avatar immersed in the virtual world. That is, I take them at face value, as “real” buildings, forests, and so forth. Despite their virtuality, SL constructions entail the expenditure of time and energy, and they are experienced as ontologically real artifacts within the context of the virtual world. They have substance and occupy space; as Boellstorff puts it, the places in SL are "virtual but authentic" (p. 101).

These material objects are also rhetorical, because, as Boellstorff observes, one of the "fundamental assumptions of Second Life" is that all land, all spaces and their contents, are owned (p. 94). Thus even "wilderness" here implies a human designer, a maker, a subjectivity—thereby imbuing all landscapes with rhetorical meaning in an a priori way that a "natural" area in the real world need not signify. And it is widely understood that multiple voices are generating the three-dimensional texts in this virtual public sphere.

Following Jenkins’ idea of computer game space as containing “embedded narratives” (2007, p. 13) and using a process similar to the way Aoki, Dickinson, and Ott (2010) analyze the Draper Museum’s “ontological and epistemological machine” (p. 239), I read each location as follows:
1. How is the location approached from outside? The initial framing of the location sets up expectations and provides cues for subsequent interpretation by visitors. Each location has a context that may include descriptions by the owner, Linden Guide editors, information in search results, and map details. How is it named and described for the user prior to seeing the construction?

2. How does the visitor arrive and what is the “introduction” to the text? Is there a gateway area? A set of paths, doorways, signposts that announce both the framing of the experience and structure the visitor’s movement through it?

3. What is the overall structure of the text? What are the major areas, exhibits, components, and how are they arranged?

4. What are the highlights? What are the most salient or significant aspects of the experience? What is given prominence, space, distinctive design, or other resources that imbue it with importance? (This section will include screenshots to help convey the visual and spatial rhetorics at work.)

5. What are the themes that emerge from the sequence of experience as the visitor moves about in the site? Specifically, how are elements representing the natural world presented and framed for the visitor? To what extent are notions of commodification, visual fetishization, and anthropomorphism reinscribed or resisted?

6. Relatedly, what does the text ignore or otherwise seek to efface?

7. What counter-readings are possible? Whether or not the location is designed with a specific “environmental message” is important only to the extent that it implies a preferred reading by the author of the text. Rhetoric is not limited to conscious
choice of message, but also operates through sublimated textual components that reinscribe certain cultural practices. And meaning arises from the visitor’s interaction from the text; it is contested and negotiated because users are active agents. How might the visitor’s reading articulate with the preferred reading?

Observations from the readings are then combined and examined for overall themes and trends to be discussed in the Results section.

**Interviews**

The second methodological component (again modeled on Boellstorff) is also ethnographic in nature, entailing structured and unstructured interviews with individuals conducted via in-world chat, email, and/or voice communication. The purpose of these interviews was to serve as a perception check on close readings, validate prior research, and identify additional ways people use the medium of *Second Life* to reproduce ideas about Nature.

**Who (or What) Is Being Interviewed?**

The inherent anonymity and fluidity of identity in a world of avatars raises questions about who one is interviewing. I follow Boellstorff, who takes virtual worlds "in their own terms" (p. 61) and makes no attempt to connect avatars in *SL* with the identities of their real-world users. He sees virtual worlds as real contexts of behavior in which most participants assume they will never meet offline. This is interpersonally sufficient to most users, he says, because the very immersivity of virtual worlds that makes them attractive also gives them a discrete existence as a "particular social, economic, and political context" (p. 62). Even when ideas and events from the real world are referenced, that signification takes place within the "world-making" visual semiotics and behavioral conventions of *SL*. For the purposes of this study, then, I take avatars at face value and do not attempt to analyze results in terms of user
demographics such as gender, education, and so forth. The demographics of SL users are relatively homogeneous in the sense that, like many high-end leading-edge technologies, they are more likely adopted by those with the most free time and money: SL users are typically more white, older, and more privileged than the general population.

Who to Interview?

As suggested earlier in the discussion of Bolter and Grusin’s Remediation Theory, the hypermediated nature of new channels like MUVEs is less aggressive and more effaced as it becomes naturalized and commonplace—as it becomes a part of real experience. To understand how rhetorics of Nature operate in a medium like this, it follows that one would examine practices among users for whom the world/interface/concept is a familiar one. Thus, from an ethnographic perspective, I am looking for something like “everyday cultural practices”—not so much expert users, or “typical” users, as regular ones. The experiences of neophytes are important, but these exist more at the boundaries of SL culture and relate more to understanding the circulation of SL messages outside the virtual world—where SL is itself remediated in more traditional media like websites and blogs (discussed in the next section).

From my own experience since 2007 as a regular SL user and amateur builder of a few “natural Florida” constructions, networking at virtual-worlds conferences, and participation in external listservs and forums, I’ve developed a web of informants who are builders, environmentalists, educators, role-players, artists, former Linden staff, and general SL enthusiasts. Some (for example, many educators) lean more towards the augmentationist perspective, while others (such as role-players) are more immersionist, but there is no clean divide.
Beginning with this web of informants and spreading out through referrals (snowball sampling) and direct encounters with users during the course of reading the locations (Firat and Yurdakul, 2011) a pool of potential interview subjects was identified. While this is not a statistically representative sample, the current inquiry does not attempt to generalize to all virtual worlds work or even all “typical builders” or “typical users” would experience things (though in the case of Lindens and builders, this is a relatively small universe).

**Interview Sample Characteristics**

For the current study, I broadly distinguish between producers (those who actively engage in message construction in this medium: its architects and sculptors, media moguls and culture jammers) and consumers, who visit, talk about, and go about their daily second lives against a backdrop of constructed Nature. Producers also include those who laid the groundwork of the medium—its constraints, its intentionally designed grammar and vocabulary, if you will—specifically with regard to its representation of natural processes. Linden Lab’s employees designed the grammar; “builders” (and those who employ them) create the messages, and “residents” consume them. Of course, this is a modern-media “prosumer” environment in which many voices and roles are negotiated, so I make this distinction primarily to ensure that the sample includes voices from across the spectrum. To that end, I sought to locate the author(s) of a given construction as well as visitors.

In his groundbreaking ethnography of *Second Life*, Boellstorff conducted “about” thirty structured and thirty unstructured interviews (2009, p. 76). Neither there nor in his subsequent guide to virtual worlds ethnography (Boellstorff, et al, 2012) is guidance provided in determining the number of persons to interview for a given purpose, but in his case the goal was to obtain an ethnographically-derived understanding of *Second Life* across the cultural spectrum. Given the
smaller scope of the present study, a much smaller sample is sufficient, distributed roughly as follows (original targets in parentheses):

- Owners/builders of a specific location (1-2 per location; 5-10 total)
- Visitors encountered at specific locations (1-2 per location; 5-10 total)
- Current/former Linden employees involved in world design (2-3 total)
- “General” SL users with experience or interest in the kinds of locations selected for this study (5 total)

Where possible, each interviewee could respond in-world or via email, using the semi-structured questions below to seed the interview, and following additional leads and topics as they emerged.

For owner/builders

- What are some of the “natural” components you deploy?
- Where do you find them?
- Why do they matter?
- What would be the impact on Second Life if they weren’t available?
- What are you trying to say (if anything) about the role or importance of natural systems?
- How do you balance realism with aesthetics, hardware requirements, etc.?

For visitors

- How did you find this location and why are you here?
- Is it important to you that the natural world is represented in this location?
- How realistic do you feel the build is, in terms of Nature?
- What does this location tell you about your real-life environment?

For Linden designers
- Why did you add natural components to *Second Life*?
- What decisions were made about what to include?
- What would you do differently?
- What surprises you about what builders/users do with Nature in *Second Life*?

For general users

- How do you find “ecological” builds?
- What’s important about having plants and (non-pet) animals in *Second Life*? How about water? Sun?
- How realistic do you feel the builds are in terms of Nature?
- Can *Second Life* help us better understand the natural environment?

All interview responses were examined for emergent themes, which are then summarized and correlated in Chapter Five with results of the close readings described in Chapter Four.

**Informed Consent**

Because all user “behavior” in *SL* is recorded on Linden Lab servers, and most conversations are routinely recorded in the chat logs of anyone within earshot (and thus stored on personal computers all over the world), there is little expectation of privacy in the common areas of *Second Life* (which accounts in part for the importance of anonymity in *SL* culture described above). Nevertheless, the study protects subjects’ identities—even their virtual ones—by using fictitious screen names and otherwise omitting or changing details that might identify the avatars (much less their users). Because in most cases I was inserting myself into the lives of *SL* users to perform the interviews, interviewees were informed of the nature of the study and their permission solicited to permit recording of all interview responses. Information about the study was presented in the form of a “notecard,” a small plain-text file that can be copied into a user’s
inventory and read (usually by “handing someone a notecard” or clicking on an object that sends the notecard automatically). The notecard also directed subjects to further details about the study available at an in-world location (a “landmark”) as well as a website. Following Boellstorff, interviewees “signed” by typing “I agree to participate in your study” in open chat (2010, p. 76). The notecard text is reproduced in Appendix B.

Circulation

The purpose of this section was not to come to conclusions about the universe of publications referring to Second Life, but to describe in detail the ways that meanings emerging from site readings and interviews may also become manifest in rhetorical domains (specifically, environmental discourse) outside the virtual world. This is significant both as a critical perspective on the social impact of MUVEs, and also to illuminate existing theory on remediation and virtuality, showing how the “unreality” of Second Life articulates with existing media and the physical world, and how existing media remediate SL.

What Kinds of Media?

Users connect with Second Life via the Internet. They use other Internet tools for SL-related communications (help, collaboration, coding, etc.) and post on forums and blogs. Posts about activities and features of SL are also shared in this way, and word ripples out through hobby bloggers, technology news services, cultural commentators, and even traditional media outlets like National Geographic—thus increasing the circulation to a wider audience. These sites select, frame, and reproduce narratives about the meaning of virtual constructions for SL users and a wider audience.
Search Terms

The public Web is thus a rich source of ongoing conversation and circulation of ideas in this regard, and is easily searchable via Google, which was used here because of its current widespread popularity for general search (so popular that the trade name has become a verb: to google). Search parameters were complicated by the fact that the words environment and nature are not reliable indicators of the presence of relevant information, given the number of times phrases like "the nature of the Second Life environment" are discussed in contexts unrelated to the present study. However, the following keyword combinations were piloted with positive results:

• “Second Life” “climate change”
• “Second Life” gardens
• “Second Life” wildlife
• “Second Life” museum
• “Second Life” pollution

Additional keywords emergent from the close readings, interviews, and ongoing circulation analysis were used and reported in the results in Chapter Six.

Sample Parameters

In keeping with the scope of the rest of this inquiry, ten to twenty samples were obtained and a thematic analysis performed. The following types of outlets initially identified for sampling (not necessarily in equal proportions):

• Blogs and websites specifically aimed at existing SL users.
• General news outlet websites: major newspapers, newsmagazines
• Specialized (but not for virtual worlds) news outlet websites: National Geographic, Outside

Reading Method

Specific questions that guided the thematic analysis of these materials include:

• What kinds of SL Nature are most prominent? (Scientific, escapist, aesthetic)
• What natural features are described? (Landscapes, plants, animals)
• What purposes or activities are associated with these builds? (Entertainment, education, activism)
• What is the tone or style of the remediation? (Serious, dismissive, technophobic, etc.)

In Chapter Six, results are summarized and interpreted in conjunction with the close readings and interviews.
CHAPTER FOUR

READING SECOND LIFE

The islands and sites in Second Life contain representations of landforms, vegetation, watercourses, animal life, and other bits of the natural world. The reader should note that in this chapter, as elsewhere in this work, I am deliberately applying the terms “nature” and “the natural world” in ways that environmental historian William Cronon would call a kind of “naive realism.” Whereas Cronon seeks to unpack the ways that human history and culture have shaped the meanings of what is considered “natural” or “wild”—and that these in turn obscure embedded assumptions about nationalism, economics, and relations of power—here I am using the terms in a general way in order to cast as wide a net as possible to depict the range of manicured gardens, tropical beaches, science museums, and other displays in the virtual world that are, for the most part, consistent with the ways we view the real world. Thus for present purposes, and with Cronon's caveat in mind, I am “assuming that we can pretty easily recognize nature when we see it” (Cronon, 1995, p. 25) and can clearly distinguish representations of “natural things” from “constructed things” within the context of Second Life.¹

Under that broad rubric, however, as described in the previous chapter I have identified five “kinds of Nature” that express something of the range of meanings Cronon and others have elaborated upon, and selected six sites using the method previously described: a combination of serendipity, methodical search in the SL Destination Guide, and suggestions from other users. An initial list of two dozen possible sites was narrowed down to six that were frequently mentioned and/or best fit the five categories:

¹ Of course, in the broadest sense of the term, there is nothing “natural” at all in Second Life. It's a computer simulation. And yet clearly a great deal of effort is expended to mimic things that, in the real world, we commonly think of as existing without and in some cases apart from human activity and intervention.
• Calas Galadhon, a “pastoral idyll”

• Las Arenas Rosadas, a touristic tropical island getaway

• The Center for Water Studies, a natural science exhibit

• The Animania store, an animal vendor

• Etopia Island and Calleta, two “resistant” sites.

I read the “embedded narrative” (Jenkins, 2007, p. 13) in each of these “ontological and epistemological machines” (Aoki, Dickinson, and Ott, 2010, p. 239) by examining the context and frame of the site, its approach/entryway, overall layout and structure, and prominent features.

The readings focus on the presentation of Nature and the presence (and absence) of narratives of commodification, visual fetishization, and anthropomorphism. These narratives matter because they reinscribe environmentally unsound relations with the natural systems that support us, becoming a part of the culture industry (Jhally, 1989) that, as Schnaiberg (1993) has argued, creates a systemic bias towards the economic and away from the ecological. In closely reading these sites, I show how even a seemingly blank new-media slate with endless possibilities tends toward simply restating what has been said before about Nature.

Thus Second Life’s sites can tend to reproduce a rationalist and anthropocentric perspective, as Aoki, Dickinson, and Ott (2010) found with the Draper Museum. These sites demonstrate the visualist bias that both Jones (2006) and Stewart and Nicholls (2002) observed in virtual worlds; in so doing they also confirm Patin’s observation that “technologies of vision...serve to constitute and to reproduce the social arrangements of power” (Patin, 1999, p. 57). As Davis (1997) found with the real-world Sea World, they present everything from an anthropocentric perspective; this extends to the depiction of animals, consistent with what Barton

However, as will be seen, a few sites are more amenable to negotiated or resistant readings (Hall, 1973) that challenge commodity culture. These cases demonstrate the possibilities of a medium that is as much lived in as gazed upon. The strange role of animals in Second Life, also discussed in this chapter, plays a part in this virtual embodiment and helps explain the way a virtual rhetoric of Nature operates.

These sites also provide more insight into the processes of mediation and remediation described by Bolter and Grusin (2000). As explained in Chapter Two, a highly mediated experience of reality like Second Life can be interpreted by audiences to satisfy a need for direct experience, and, at the same time, serve to make the highly artificial mediation of computer simulation seem somehow natural. Thus, as will be seen below and in the next chapter, these sites present themselves—and are seen by users—as both “virtually real” and products of human skill and technology. They are “hypermedia” in the sense that they render the media “visible and multiple” in an ironic reminder of “our desire for immediacy” (Bolter & Grusin, 2000, p. 33-34). Some of the sites present themselves as more or less scientific simulations, striving to fully efface themselves as “transparent” remediations—though they tend to be more like the curio cabinets that Bolter and Grusin call “translucent” media: ones that never really disappear. In fact, an island like the Center for Water Studies might be considered an “aggressive” remediation because, as described below, it is a mosaic of ecosystems jammed together in improbable proximity (Bolter & Grusin, 2000, p. 46-47).

Our tour begins in a romantic countryside and ends in a toxic waste dump:
Nature as Pastoral Idyll and Wilderness: *Calas Galadhon*

When this study was described to potential interviewees (Chapter Five) and I asked them to recommend places in *Second Life* to visit, *Calas Galadhon* was recommended more than any other single location. *Calas* is—at least in the minds of many users—“virtual nature” par excellence, which speaks to the popularity of the English-garden-like conception of idyllic, wild-but-tamed Nature that has persisted since at least the 18th Century.

![Figure 2: Calas in the Destination Guide](image)

One finds *Calas Galadhon* in the *SL Destination Guide* (Figure 2) under the “Parks and Nature” category. The guide listing includes a screenshot that shows a field of flowers surrounded by open woods, with low buildings visible off in the distance. The tagline reads, “Escape to the vast estate and nature park of Calas Galadhon, a peaceful, romantic place to enjoy
the beauty of the natural world brought into Second Life. Explore by horse, buggy, boat or balloon.” The language and image evoke a pre-industrial countryside. In fact, the name itself is a takeoff on Caras Galadhon, the tree-city of the elves in Tolkien's Lord of the Rings, which borrowed many of its own settings and values from a bucolic memory of England. Thus the very name of the sim\(^1\) evokes a pre-modern, pre-industrial, almost mythically pastoral land, where humans and nature coexist in harmony.

When the user clicks the link on the Guide page, the Second Life viewer software “teleports” the avatar (and viewpoint) into the middle of a grassy clearing ringed by a semicircle of small billboards, with a forest of tall hardwood trees beyond. This is the arrival point, and such sign-filled entry spaces are common in Second Life, as is the notecard that is automatically presented to visitors on arrival. This welcome message further frames the setting by describing Calas Galadhon as a “park” and invites the visitor to “[c]ome immerse yourself in the early American coastal countryside of the early 20th Century. We strive to bring the beauty & peace of our natural areas into Second Life for all to enjoy as a refuge.”\(^2\) The card includes the address of a website for more information, as well as a detailed warning not to engage in harassment or lewd behavior – a sure sign that this is a popular location\(^3\).

The card also describes various transportation systems on the sim, such as balloons, boats, and bicycles\(^4\). It encourages couples to find and use poseballs and dance animations for

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1 The terms island, sim, and build are common terms used to refer to sites in Second Life. Large blocks of land, 256 meters on a side, are referred to as sims (simulators). These may be “islands,” separated from other sims by empty, open sea, or they may be contiguous with other sims – which may or may not share the same theme or owner. Many sims are further subdivided into parcels of land, each of which typically contains a separate build: a collection of related objects on a parcel, created or “built” by the user who owns or rents the parcel. Both parcels and full sims are usually identifiable, named places.

2 There is no precise way to cite the source of text quoted from notecards, signs, and other in-world materials.

3 Popular sites attract a wide range of users with varying skill levels, many of whom are more interested in virtual hanky-panky than, say, exploring a virtual landscape. Popular sites also attract pranksters who “grief” other users with disruptive behavior. Thus the warnings.

4 Although instantaneous point-to-point teleportation is easily done, and avatars can fly when a land owner has not disabled this feature, sims like Calas Galadhon and Etopia encourage users to walk or use other modes of
romantic liaisons (but no nudity, please!)\(^1\), and specifies the conditions under which screenshots and machinima\(^2\) may be taken. Of course, it's not clear how many visitors actually read all the rules, most of which are generic. However, the rules at Calas are more explicit than those at any of the other locations in this chapter, again indicating this is a high-traffic property.

![Figure 3: Calas Entry Area](image)

transportation often closely themed to the rest of the island.

1 Many lifelike and evocative still poses and animated movements can be adopted by avatars in SL. Some of these are simply “worn” by the avatar from inventory, while others are embedded in objects like chairs, rowboats, bicycles, etc. When there is no obvious object to “sit” on, a small spherical poseball is used as a locating device. These can be arranged in couples and groups so that avatars cuddle or dance, for example.

2 Machinima is a portmanteau of machine and cinema and refers to a movie made within a 3D gaming environment.
The largest of the billboards surrounding the arrival point is a clickable wall of posters (Figure 3) that serve as teleport links to other islands in the group (there are several, each of which has a theme similar to that of Calas). Another poster lists music concerts and other events, while another, still smaller, advertises the island's announcements group (a kind of listserv for news and updates). There is also a sign requesting donations.

These signs are all grouped together along the edge of a paved pathway that extends away from the arrival point in two directions, inviting the user to explore a network of brick paths that wind around through what is essentially a kind of English garden, with gazebos, ponds, and decorative bridges scattered about, all under a canopy of massive deciduous trees that suggest a primordial forest. Waterfront areas at the edge of the island include a scenic overlook above a coastal lighthouse, and a small wharf with quaint buildings that contain stores selling period- and theme-related virtual clothes and props. On high ground behind the wharf sits a large and intricately furnished mansion, apparently unoccupied and open for visitors to wander through. Most of the remainder of the island is heavily “planted” with the kind of vegetation one might encounter in a temperate forest. While strolling around, one sees many dance poseballs, picnic blankets, and cuddle poses deployed to entertain users and draw them further into a sense of being bodily present in the sim.

As you wander around the island or float over it in a hot-air balloon (Figure 4), a variety of audio loops can be heard, depending on the setting: surf at the coastline; loons, frogs, and crickets along the marsh; owls and songbirds in the woods. There are a few barnyard sounds.

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1 Many sims request donations from visitors to offset the cost of land. These requests often appear at the entry point or via “tip jars” set up during events. Users simply click the object and indicate the amount of the donation to be made.
(cows mooing, chickens clucking) around the stables. Beyond a few swans swimming in the lagoon near the entry, however, none of these animals are actually present on the island.

Figure 4: Calas Aerial View

The planted areas include parklike spaces as well as thickets and rocky “wild” areas that echo the English gardens’ attempt to evoke the sublime. Pathways sometimes end in these wild areas—which are not actually even virtual wilderness, because they contain poseballs for visiting couples who might want to spoon amid the sublime.

The preferred reading for the Calas visitor is clearly one that values the natural world for its scenic and romantic beauty, and suggests the importance of the unbuilt environment to human
happiness and satisfaction. This is consistent with the idea of Nature as a “place of spiritual
restoration and scenic beauty” described in Chapter Two. On Calas, Nature is presented as a
welcome complement to human activities, both restorative and ubiquitous. This is a kind of
virtual-world operationalization of Cronon's (1995) “nature as Eden” and “nature as self-
conscious artifice.” That is, it combines ideas of nature as “unspoiled” and “pristine” with the
English-garden notion of nature “improved” or “perfected” by human intervention.

However, as Cronon and others have pointed out, these ideas of nature are always partial
and limited. The parklike setting obscures the impact of human habitation in the real-world
analogue: there is no waste fouling the harbor, no croplands or pastures where food might be
grown, no tree stumps indicating where lumber was obtained to build the stores or mansion, no
sawmills, and so on. This is a kind of pre-industrial agrarian ideal of Nature, but without the
crops and only a few sounds of farm animals. Population density is low and life is well-
appointed, with comfortable furnishings and pleasant paths. The natural world is packaged and
commodified in way that “hold(s) out the seductive promise of total control” in an environment
that “offers no resistance to our fantasies” (Cronon, 1995, p. 45). The virtual may become the
real in the post-human world.

So this is also Nature as a space of recreation and retreat. In fact, it evokes a country
estate and the kind of wealth needed to maintain it, rather than any sort of wilderness or natural
ecosystem. Further, the stores along the wharf invite the user to complement his or her
experience by making purchases to complete the illusion, and perhaps engage in the fantasy of
being a country squire. Like real English gardens, Calas seems unlived in, especially by
everyday humans—the ornate but unoccupied mansion reinforces this. One almost expects the
Earl of Calas to return at any moment from his travels, and the island thus risks interpretation as simply a wealthy, white male vision of Nature that has been properly disciplined and ordered.

**Nature as Escape and Exotic Other: Las Arenas Rosadas**

*Figure 5: Water, Water*
In another corner of the virtual world, *Las Arenas Rosadas* is one of a group of sims landscaped like a rugged Caribbean archipelago. Like Calas, it is listed in the *Destination Guide* under the “Parks and Nature” category, where the description reads: “Residents have been flocking to this tropical island paradise for its beautiful views and innovative wave system for years. A great place to relax and listen to the tide crash on the shore.” A screenshot of a palm-shaded sandy beach complements the text. This is clearly being marketed as the classic tropical island escape; even the technophilic description of the wave system is overshadowed by language that sounds like something from a travel bureau.

Such island getaways are common in *Second Life*, but one of the most striking things about *Las Arenas* and two of the other sims in this five-island group is their relatively small land area (Figure 5). A great deal of space is given over to open water—one of the sims has no “dry land” at all, beyond a few surf-battered rocks. While there are other locations in *Second Life* that are predominantly water, they tend to be given over to simulated sailing, virtual windsurfing, scuba diving, and other aquatic sports (or fantasy-themed sims full of mer-folk). In the Las Islas group, though, water activities are an afterthought. Instead, the large expanse of water emphasizes the remote feel of the islands and goes a long way towards enhancing their realism.

Following the link from the *Destination Guide*, one arrives at the end of a long wooden dock extending out from the island, as if just deposited there by inter-island boat (Figure 6). The dock is drenched by realistic-looking seaspray from animated waves. As the visitor will discover, in one sense these islands are simply elaborate store-window displays for an extensive line of carefully designed “water enhancements” like moving waves, swirling currents, and seaspray. Whatever other motivations the builder of this space might have, it is a showcase for these scripted “shorescaping” products that users can purchase and deploy on their own parcels to
augment the basic water functions in *Second Life*, and thus more effectively evoke the seashore. But this commercial function is far more subtly presented than is the case with many other vendors, and appears as almost an afterthought.

![Las Arenas Rosadas Arrival Site](image)

*Figure 6: Las Arenas Rosadas Arrival Site*

Like Calas, this island has a small clearing with signs at the foot of the dock. One asks for donations to “help preserve places of beauty in *Second Life*”—immediately framing the experience as one of aesthetic pleasure and also inviting the user to participate in a kind of noncommercial ecological philanthropy. Another sign in the arrival area says “Welcome to Paradise” and describes the other main locations in the archipelago, with screenshots—much like the teleportation billboard at *Calas Galadhon*. There is also a bowl of fruit on a rock next to the
sign; if you click the bowl, a notecard is delivered, providing a portable set of teleport links as well as descriptions of the island group.

In sharp contrast to Calas, there are no admonitions against misbehavior, even though the placement of poseballs throughout the island makes it clear that a certain amount of chaste romantic activity is not unexpected. This may reflect lower visitor traffic, or simply a wider latitude of acceptance for avatar behavior—which would not be inconsistent with the “what happens here stays here” ethos of exotic locales.

The island itself consists of sandy soil and an understory of tropical plants beneath a canopy of coconut palms. There are few structures and no explicit paths. Animal life is much more visible here than at Calas Galadhon: leaping dolphins at the dock, a toucan perched on a palm trunk, a hummingbird flitting around the welcome area, jungle birds and seagulls circling here and there. The audio channel is analogous: dolphins chittering, birds twittering, gulls crying over an omnipresent background surf sound. This seems perfectly congruent with the way exotic, colorful, and charismatic wildlife have become integral to popular notions of real-life tropical tourism reinforced in marketing materials.

However, while much effort has gone into making the island look “alive” above the waterline, there is no activity of any kind under the water that surrounds it. This perfectly illustrates the “stark abyssal plains” that Robertshaw (2006) describes, and the sharp divide between the lush environment above the surface and the desert below is a visual manifestation of the kind of myopic anthropocentrism that denies the existence and importance of that which cannot be seen. I will return to a discussion of the significance of animal presence (and absence) in Second Life later in this chapter.
Walking across the island away from the ferry dock, one eventually reaches another wooden pier that leads out to a thatched structure built out over the water, in the manner of island resorts in the South Pacific. This structure (Figure 7) turns out to be a store filled with images of the various wave systems and animated water features that are for sale here (described, appropriately enough, as “hyperrealistic”). The lack of external signage on this store building means minimal intrusion into the immersive felt reality of the island and its actively animated water features\(^1\). One has to enter the building to learn its purpose.

\(^1\) The wave systems and other items sold here are textured objects that one purchases by clicking on the appropriate sign and agreeing to pay a certain amount of “Linden dollars” (in-world currency), which is deducted from the user’s account (the account can be manually augmented, or directly connected to a credit card or bank account). The item is then deposited in the user’s inventory, from which it can later be removed and placed on the user’s home parcel and arranged to suit.
Although this commercial presence is minimal, the island is itself even less of an inhabited space than Calas, though it balances this lack of human presence with a more active and dynamic natural component, especially in the animal kingdom. But the lack of people or their habitations presents the visitor with a kind of ideal of the endless island vacation, full of scenic beauty and without a single indigenous resident to interrupt one's nap in the rope hammock, nor any jumbo jets or cruise ships to mar the view or disturb the peace. Again, it is an unrealistic and unsustainable paradise that seems more like the private islands of billionaires than any real human habitation. The isolation and minimal signs of human presence speak more to an anthropocentric desire to get away from it all; ironically, this escape happens through the computer screen, and its only real-world result might be an increase in the problematic kind of tourist travel that consumes resources, damages local ecosystems, and treats the natural world as exotic Other.

At the same time, both Calas and Las Arenas Rosadas can also be read as answering a yearning for an encounter with Nature—a yearning the biologist E.O. Wilson calls *biophilia* (Wilson, 1984) —that is not overrun with tourists or fenced off in private domains of the wealthy. And while Calas presents a mostly tamed and disciplined Nature, the introduction of dynamic waves and more visible animals in Las Arenas opens up a less manicured and wilder kind of natural world that, at least to some extent, exists apart from its value to human commerce. The next stop on the tour takes this one step further.

**Natural Science: The Center for Water Studies**

While touristic escapes and bucolic idylls are common in *Second Life*, educators and environmental-awareness activists have also found it useful as a site for virtual museums, simulations, exhibits, and other representations of the natural world that reflect a scientific
perspective. These locations attempt to present the natural world from a more objective or ecocentric perspective that is not directly concerned with human desires, entertainment, or commerce.

One of these is the Center for Water Studies (CWS). Unlike Calas Galadhon and Las Arenas Rosadas, it's quite small—just a little island in one corner of “Better World Island,” a showcase and meeting ground for progressive activists (with the slogan “discover your own power to make good things happen”).

Also unlike the previous locations, CWS has no entry in the Destination Guide. I first learned of it around 2008, when it was listed among other environmental-science “landmarks” in a notecard at one of the in-world reference areas. The site's owner/builder is active in other environmental initiatives in SL and real life, and CWS is one of several places commonly mentioned in notices about SL environmental events.

Thus users are more likely to hear of CWS through word of mouth or by searching related keywords. Such a search might turn up the description provided in the SL profile for the “All About Water” user group, which says

All About Water encourages enjoyment, understanding, research and wise use of our precious water resources. The group manages the water micro-ecology builds at the Center for Water Studies on Better World Island. Currently the Center contains 6 different simulated natural water habitats: Ocean/Seashore, Mangrove Swamp, Pacific Northwest Rainforest, Pond, Waterfall/Stream, and Coral Barrier Reef to explore.

The arrival point is a small sandy beach. The main island is visible across a few dozen meters of open water. An arrival notecard invites the visitor to “enjoy, respect and contemplate the simulations of Real Life water habitats at the Center” and describes the location as “an educational and recreational build dedicated to increasing the appreciation and understanding of
water habitats.” By foregrounding attitudes of respect and understanding, CWS presents the visitor with quite a different sort of frame than that provided for the first two stops on the tour, which were promoted only as sites of scenic beauty and relaxation. This notecard describes the efforts made toward verisimilitude, including compromises and shortcuts that it compares to real-world environmental constraints—further highlighting a kind of scientific perspective evoked by words like habitats and simulations. The visitor is invited to explore the site, though (again unlike the previous two sims) no explicit paths or directions are given.

Figure 8: Densely Populated
Past the beach, the small island is crowded with plant life, making it something of a navigational challenge to move through because of the way the camera follows one's avatar around\footnote{It is possible to view Second Life through the avatar's eyes—a perspective called Mouselook because the direction of view is controlled by the user's pointing device. However, the default view is from a point about a dozen feet behind and above the avatar—as if a camera were following the avatar around. While this point of view compensates somewhat for the lack of bodily kinesthetic sensibility that in real life tells us where our hands and feet are at any given moment, the floating camera angle can cause complications in tight spaces.}. A series of discrete aquatic/marine environments (mangroves, rainforest, coldwater, reef, etc.) is arranged roughly in a circle around the tiny island (Figure 8), each habitat accompanied by an explanatory notecard that describes the ecosystem and threats to it. In addition, a somewhat incongruous airborne platform, floating above the water offshore from the arrival beach, serves as a meeting space and “lecture hall” of sorts – with the island as a dramatic backdrop.

\textit{Figure 9: Underwater}
The submerged area below and beyond the floating platform—larger than the CWS island itself—is also part of the Center and, unlike the underwater deserts of Las Arenas Rosadas, contains detailed representations of marine life and underwater formations (Figure 9). At one end of the marine habitat a “hazardous waste” sign indicates an area that is intended to represent the dumping of toxic wastes into the oceans. Visitors' avatars can swim, boat, or scuba dive out to see the underwater area, or the user can simply move his or her camera viewpoint to “tour” such an area remotely. This site is very dense with plants, animals, and information – almost as if there were no room for humans. Although the signs and notecards make it clear that one is expected to explore, there is nothing that favors the human visitor. Consciously or not, this lack of accommodation challenges anthropocentrism, saying, in effect, “The signs are for you, but the place is not.” The sounds of frogs, whales, surf, and gulls fill the ears, and the island is so small that most sounds are heard from any point, intensifying the effect of a densely populated space that might be gazing back at you, rather than simply being gazed upon. All kinds of animals are here: roseate spoonbills in the mangroves, leaping dolphins offshore, fish and ducks in the marsh—even a panther, hidden in the woods. The underwater environment teems with jellyfish, rays, whales, sharks, and other sea life. The animals range from simplistic and two-dimensional to highly detailed, lifelike models with realistic scripted behaviors, and they are arranged as if they were going about their usual business—which is clearly not to be cute or entertaining for visitors, but intended to simulate, roughly, actual biological behavior.

They are merely objects, though, and don't bite (though the panther truly startled me when I came upon it in the woods). It would be easy enough to script some of the larger animals

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1 By default, avatars that walk into the water simply continue walking across the sea floor unless the user activates a swimming animation. There are also simulated scuba systems—some highly complex—that approximate the way one might gain access to a marine environment in real life.
so that their behavior was menacing, for example. But these are the tamed beasts of the Peaceable Kingdom, an ark-like collection selected mostly as emblems of the various ecosystems that are compressed into this small island cheek-by-jowl, with the forested sea cliffs of the Pacific Northwest just a few yards away from a mangrove estuary.

CWS thus offers many readings, from a spiritual ecocentrism to a detached, Linnaean appreciation of diversity and ecosystem coherence. Relative to most sites in Second Life, it has very little for the visitor to do—and there is nothing to buy here. Ironically, its very lack of touristic accommodation may work against it, by offering visitors fewer inducements to linger or invite their friends. It also reinforces a human-nature dichotomy that depicts Nature as “other” and apart, valued as a condition or state of being that is outside everyday, normal human activity. While the site is clearly intended to foster an appreciation of the inherent value of aquatic environments and the threats they face from human behavior, it can only be experienced by humans as temporary visitors, like Crusoe on his island or Adam and Eve in their garden – or as disembodied and heavenly presences engaged in symbolic discourse while floating on an aerial platform, high above it all, subjecting nature to their gaze. It does not fully participate in the possibilities of virtual reality because it still pulls us back out of the world into a Cartesian objectivity that cannot participate directly in the Nature it seeks to understand.

**Flesh Merchants in Second Life**

The often very realistic and engaging animal creations in Second Life are produced by a number of vendors, several of whom have entire islands devoted to the sale of their virtual menageries. These vendors are the sources for the virtual creatures populating Las Arenas Rosadas and the Center for Water Studies.
In real life, the selling of animals is associated with complex and often conflicting emotions. On one hand, people who deal in pets and livestock often clearly love – or at least appreciate – the life forms that are also their commodities. Dog breeders and fish farmers may be conscientious, caring, and scrupulous toward their animals – or they may not, as anyone who reads the news is fully aware; puppy mills and cattle feedlots are just two of the most egregious and visible examples of the sordid side of the life-form business in the real world. Further complicating the picture, each decade brings new understanding about the intelligence and sensitivity of the non-human animal world. Of course, as many argue, all life is sovereign and valuable, no matter how it measures up to human standards of sentience or awareness.

A place like Second Life permits users to interact with “animals” without the slightest concern for the moral complexities of animal trafficking. This is good and bad; one can indulge in a pet and discard it when bored, with no resulting abandonment—but this can also engender a greater desire to be entertained by the real McCoy, thus perpetuating the idea of animals as entertainment commodities.

The depiction of animal life—a subset under the broad rubric of “Nature”—deserves continued scrutiny as virtual-world technologies evolve. Non-human animals, with their agency, unpredictability, and their alternatively endearing, inscrutable, and frightening behaviors, are in some ways the epitome of our idea of the Natural world. In the virtual world, animals reinforce the phenomenal sense of literal presence and give force and meaning to its rhetoric. The popularity of stores like Animania (described below) attests to the widespread desire for animal presence and companionship—a virtual-world manifestation of Wilson's biophilia.

However, in these virtual sites there is also what appears to be a fundamental discomfort operating around the notion of virtual animals. Ironically, this discomfort opens up possibilities
for a more ecocentric rearticulation of ideas about technology, mediation, and industrial
civilization. It does so because it highlights the inability to recreate animals that are *virtually*
animals (that is, more like avatars than objects).

For example, many of the better detailed and scripted animals encountered in the present
study were more likely to be found underwater (in those areas that weren't “stark abyssal plains”) or flying in the air, or below a floating observation platform—in each case, removed from direct human interaction. And in many sims, there just aren't as many animals as one might expect when someone is modeling a naturalistic environment.

This isn't really surprising. As discussed in Chapter Two, the realistic 3D virtual environments used for landscape modeling and simulation—in some senses the ancestors of *Second Life*—tended to ignore animals, except in highly anthropocentric contexts. The same appears to hold true in *SL*. In sims like *Calas* and *Etopia* (described later in this chapter), some animals—especially birds—are heard, but never seen. Where animals do exist, it's often out of context; more zoo than ecosystem—much like Opel and Smith (2004) found with *Zoo Tycoon*. Highly anthropocentric frames like pet ownership or fishing are common, reducing animals to objects like chairs and tables, bought and sold for their practical features and visual aesthetics. Elaborate virtual fishing systems in *SL* teach nothing about sustainable fish harvests but treat fish as treasures to be picked up by the hook in a coin-operated game.

It might just be that, for many human visitors, plants, landscapes, and aquascapes are more welcoming without animals. That is, users value a tamed, sanitized, and bug-free Nature, without the messy inconvenience of wild animals. If so, it's easy to see how this follows from an already denaturalized real life, where for many urban and suburban dwellers, animals are pests and “weed wildlife,” and only desirable and charismatic at a safe remove, like Coca-Cola's
cartoon polar bears. As members of a real-life industrial society, SL users simply have little reference frame for coexisting with animals.

But the reason these virtual animals can provoke a resistant reading is that they may create a kind of uncanny-valley effect like that Mori (1970, described in Chapter Two) found with humanoid robots. That is, users' awareness of the intensely mediated form of the virtual world, when combined with the convincingly scripted behaviors of virtual animals, creates a discomforting awareness of falseness—not unlike one might feel when interacting with avatar-like “bots” (artificial intelligence programs) or other non-player characters. If this unsettling effect is at play, it may open up more rhetorical space for conversation about the inherent value of real-life animals—consistent with Hehl-Lange's (2001) recommendation that landscape models always begin as natural habitats. As virtual environments become more complex analogs of real ones, the role of animals will be worth continued attention.

One possible direction is suggested by the phenomenon of “Furries” in Second Life: users whose avatars are fanciful anthropomorphic versions of totemic animals like foxes, rabbits, bears, and so on. Against a long cultural background of intelligent, talking animals in places like Saturday morning cartoons, folk tales, and Watership Down, these bipedal avatars are often adopted because their users feel they express an inner connection with a given animal.

When I have encountered Furries in SL, their behavior was predominantly human; that is, the users were not roleplaying animals in any kind of realistic way. However, one wonders if a more literal form of animal roleplaying would be a path towards an ecocentric empathy (though it could just as easily lead to the hubristic trap of thinking we can speak for animals, as O'Neill (2001), LaTour (1999), and others caution). Virtual presence enables a user to inhabit experiences inaccessible in real life, literally placing them in a first-person, embodied locale—
and thus resisting the Cartesian abstraction of the floating platform. Similarly, an experiment in “situated viewing” involving virtual gorillas described by Bolter and Grusin (2000, p. 246) made users feel like they had experienced the animal's perspective. As a result, they adapted more closely to the behavior patterns of real gorillas they encountered up close in a zoo environment. The extent to which virtual animals are inhabitable in this way may become more common, though it will most likely exist alongside anthropomorphic bipedal roleplay, uncanny animal-bots, virtual pets, and animals as décor.

**The Animania Store**

To explore in greater detail the framing of animals in *Second Life*, I chose the *Animania* store because its products are widely used and are some of the more realistically modeled,

*Figure 10: The Animania Store*
textured, and scripted ones I've seen in *Second Life*. The *Destination Guide* lists it under “Pets & Animals” and says: “See beautiful birds, fish and insects living in a wonderful natural environment. Feed the swans and ducks, watch the parrots and hummingbirds, ride the dolphins, or visit the underwater room to view the seahorses and clownfish.” The associated screenshot is an (apparently tongue-in-cheek) view of vultures perched on saguaro cactus, along a somewhat incongruously grassy lakeshore.

This incongruous mixture of frames suffuses *Animania*. The arrival zone is a kind of buzzing, tweeting confusion of circling insects and birds in an open grassy area. Displays, billboards, and directional signs point toward butterflies, dragonflies, emitters (objects that can create small clouds of birds or insects—for example, bees), and penguins. Another sign invites the visitor to join an announcements group; unlike the events-oriented group at *Calas*, joining this one is like signing up for sale flyers and product announcements.

The *Animania* store comprises an entire sim: an open, relatively flat, circular island with a central lake (Figure 10). The main structures are a kind of open-air pavilion: two-sided wooden billboards with translucent cheesecloth draped in such a manner as provide avatars with “shade” while browsing the displays. There are dozens and dozens of animals for sale¹, including some (e.g. a pileated woodpecker) that are very recognizable as endemic to particular habitats, and can thus be used to evoke a sense of place. In the grounds surrounding the pavilion, samples of these animals are deployed in small displays—rough sketches of various ecosystems—to demonstrate their actual size and behaviors. And the island is just as noisy as a real-world pet store, with a cacophony of animal cries and, here and there, the sound of waves on a beach or a trickling

¹ Just as was done with the waves sold on *Las Arenas Rosadas*, one clicks the sign, pays, and the animal is deposited in inventory, often in the form of a package containing instructions, accessories, and the animal itself. Packages are a bit like .zip data files: they must be “opened” by taking them out of inventory on one's own land where they can be unpacked into inventory as separate objects. Vendors will set some combination of limits on the buyer's ability to subsequently modify, make copies, or transfer the object to another user.
waterfall. There are woodpeckers, bees, whales, loons, ducks, turkeys – all pecking, buzzing, singing, and calling, typically via recorded real-world sounds.

Curiously, while the central lake is barren below the surface, there is a fairly detailed marine habitat off one side of the island. This inconsistency parallels a greater real-life fascination with colorful and exotic marine life in popular culture (after all, does anyone recall Jacques Cousteau touring a freshwater lake and waxing rhapsodic about bass and catfish?). In a rich demonstration of effaced remediation, simulacrum, and outright irony—but also delivered with a straight face—one corner of the island is devoted to virtual aquariums and aquarium fish that one can add to one's virtual home as pet or decoration.

While exploring the store/island, one can follow signage to teleport directly to one or another category of animal, or simply wander the paths from pavilion to pavilion. There's no attempt to mask the store as anything but a minimally decorated market and demonstration area. In that way, it's the inverse of Las Arenas Rosadas, though it's simply a different sales approach. Under the shade of the pavilions, the posters one clicks to purchase the animals provide context and background for the animal and in many cases describe special features. For example, some birds are programmed to fly around randomly within a user-defined volume of space and, at randomized intervals, return to land on a designated tree branch. Others respond to “food” or other user-placed objects. Most of the animals are clearly not pets, in the sense that their behavior is not keyed to avatar presence or behavior. Rather, the programming focuses on “natural” behavior, something obviously valued by those who purchase the animals for their own projects.

1 I purchased a brown bat programmed to flit about randomly in a defined area; when I added to a small stand of simulated longleaf pines on my own land in SL, the effect was strikingly lifelike to this North Florida resident, especially with the lighting set to “dusk.”
The scripting allows the animals to be both wild and tame: randomness evokes unpredictability, but only within a highly disciplined range of parameters. Users who purchase animals with scripting that is plausible for a particular species are signifying knowledge of and appreciation for specific real-world animals (rather than, say a generic flying bird or circling fish), while making certain the creatures cannot be truly actualized without some human control of their behavioral parameters. Visual appeal, verisimilitude, behavioral realism all come with a price clearly marked on the displays under the cheesecloth shades (Figure 11).

Figure 11: Leaping Dolphin
While this obviously reinforces the idea of animal as a catalogued commodity, it can also curiously valorize them, simply because they require investment of resources and are most meaningful to users who appreciate the attention to detailed depictions of animals they value in real life. The complex scripting is advertised as a selling point, celebrating technology, but it also creates a parallel depiction of real-world animals as complex organisms. Visitors can thus learn a little bit about real Nature while shopping for its virtual counterpart, though of course what they learn is limited by the salient features being modeled mostly for visual perception. In other words, this is not the same kind of environmental learning that can take place in the Center for Water Studies.

The pavilions throw together animals that do not coexist like this in real life, and in many cases their sale would itself be illegal. In Animania, food is important only as it can be used as a kind of game token to control the animal's behavior, and other habitat requirements – water, climate, population balances – are irrelevant and therefore backgrounded. At the same time, places like Animania would not exist without Wilson's biophilic drive that moves many builders to add animals to the natural spaces in Second Life – a drive that shows we know our world is incomplete without its inhabitants. Thus the “life” in “Second Life” is really of two kinds: an alternate existence and a living biosphere.

Resisting Commodification, Part 1: Etopia

A handful of sites in SL have directly addressed climate change, energy consumption, and general environmental awareness. This is usually done through educational exhibits of one kind or another, much like those found in real-world museums and exhibitions, designed with an eye toward changing real-world behavior. The Center for Water Studies is one of these, though it does not actually demonstrate a lived-in world where humans coexist with Nature in a respectful
and sustainable fashion. However, one exemplary site, *Etopia Island*, makes a valiant and in some ways successful effort to do so.

I first visited *Etopia* in 2007, looking for environmental-education sites mostly out of general curiosity. I was intrigued by its description as an “Eco-Village,” designed to model sustainable development concepts such as cohousing, alternative energy sources, and green building (Figure 12). I was also drawn to the community of users that existed there at the time,

![Figure 12: Etopia Village](image-url)
and made several friends and contacts there during my frequent visits, especially during 2007-2009. Remarkably, for a world as ephemeral as Second Life, with such a fluid community of mostly anonymous users, the island still exists and many of my acquaintances there still attend a weekly, informal meetup.

Etopia is listed under “Education & Nonprofits” and, beneath a screenshot of the island's futuristic public transportation system, the entry says “Learn more about how to participate in a socially and environmentally sustainable world at Etopia Island, a place to explore and learn. Take an interactive quiz, ride a gondola, hop on a train or even ride a bike through this futuristic vision of a sustainable world.” This is nothing like the Nature frame we've seen elsewhere on this tour: not escape, not exoticism, not even valuable other. Nature is almost invisible in the description, and yet the words environmentally and sustainable position the island as a place where humans and nature are inseparable. The technophilic futurism is itself presented as a path towards a broad ecocentrism that incorporates humans and acknowledges both their needs and their impact.

The island is probably the most explicit model of sustainable practices in Second Life. The arrival point is the usual sign-filled clearing: in this case a brick plaza and light-railway station next to a small village square. The buildings have a traditional American small-town storefront look, and during SL's busier days they were filled with demonstrations, kiosks, and environmental-group offices. Over time and with the changing fortunes of SL—and with different visions motivating a series of owners—Etopia has grown to two sims, and its original, tightly controlled sustainability narrative has been somewhat watered down by extensive modifications that introduced more commercial elements and reduced green space. But these
modifications also added crops and water reclamation structures, and the overall sustainable-community theme has always been strong\footnote{The evolution of Etopia deserves its own separate narrative, in part demonstrating how the owners of SL islands adapt to continue attracting users. It also demonstrates the power of place in the virtual world: I've had several nostalgic conversations with other longtime “Etopians” that mirror real-world reminiscing about “the way things used to look here.” I do miss the Etopia that existed in 2007-08, and the loss is a different kind than one feels when a sim just completely disappears.}.

\textbf{Figure 13: Futuristic Transport}
Beyond the few short streets downtown, one encounters a forested area that leads to a steep, craggy hill overlooking the village. Atop the hill is a campfire ring with seating for avatar confabs. A waterfall cascades down the hillside into the forest, beyond which is a small bay that has held items as diverse as an animated whale and a sunken ship—though for the most part, *Etopia* follows the common *SL* practice of leaving the underwater areas barren.

A notable feature of *Etopia* is its use of mass-transportation systems, including an island-circling light rail and an aerial tramway that takes visitors from the arrival point to the hilltop and then to a public square in the middle of the island (Figure 13). Bicycles are also freely available at various places. Through most of its existence, *Etopia* also forbade avatar flying\(^1\), which helps immersion by eliminating an obviously unnatural form of locomotion, and also controls the narrative flow by encouraging users to stay on the path, as it were—to experience the island from something resembling a real-world point of view. The no-fly rule also pushes users towards the railway and tramway as attractive and “realistic” transportation options (increasing their salience as real-world options). The two transportation systems each hold multiple avatars and, as they move about, text narration appears in the open chat window. They thus serve as both practical transportation and tour guides.

Between the bay and the downtown area, opposite the hill, there is a block of rectilinear, modernist, green-roofed two-story apartments that can be rented as “homes” for users’ avatars\(^2\). During *Etopia*'s busiest periods, most of the dozen apartments were rented and furnished, and

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1. This is a configuration setting that applies across an entire sim. One can still fly in a no-fly sim, but doing so requires a tool like a hot-air balloon or jetpack. On islands where flying is allowed, avatar flight looks like a cross between that of a comic-book superhero and what one does in dreams.

2. A rented house or apartment in *SL* is in effect a partly furnished small land parcel that allows renters a small degree of domestic customization and self-expression. These sites often become the user's preferred “start page,” as it were: on startup, the *SL* viewer software gives users a choice between their last location or their home point.
one often found them occupied—which socially reified the place and powerfully supported one's immersive suspension of disbelief.

With its commercial district, living spaces, recreational zones, and wild areas, Etopia strives to live up to its name and concept, and succeeds relatively well. That is, it appears a plausible place to live. A regular visitor finds many opportunities for learning about real-world sustainable practices, and sees them modeled to some degree. Rather surprisingly, given the amount of undeveloped “green space” on the island, there are few animals: a single, static heron in the bayside reeds, and two eagles—one perched, the other circling montonously—atop the “mountain” above the upper tramway station. There are a few insect sounds, and the cooing of pigeons, but otherwise the only sounds are of surf and running water. The forest, waterfall, and rocky hillside are modeled with care, but elsewhere the island is relatively flat and grassy, where it is not paved. Thus, while the island's designers seek to promote a greener society, as modeled here it is a highly anthropocentric one, where only spectacular nature survives in its “wild” state. The mode of living demonstrated here is intended to minimize carbon footprint, pollution, and resource use—but it implies a resulting domesticated and pastoral Nature that is in many ways much like the English garden of Calas Galadhon. Unlike that pastoral vision, however, this one tries to show how it could actually translate into the real world.

The technophilic futurism of the island's transportation systems is emblematic of the tension between technology as problem (here, as ubiquitous machinery) and technology as solution (energy-saving mass transit). Even though the rental stores in the central urban area have tended to feature green technologies and environmental organizations, clothing stores have crept
in over time, reinscribing the ubiquity of capitalism. And as mentioned, the evolution of the island's design in many ways reflects the inevitability of the need to sell a product to visitors.

On the other hand, *Etopia* has always stressed community through recurring events and residences. The sim's green theme is not a singleminded focus but is augmented by dance pavilions and coffeehouses. A “drum circle” in the forest and the hilltop campfire circle bring humans into the wild spaces. Taken as a whole, *Etopia Island* captures a complex, environmentally sustainable way of living, and presents it as an evolving, inviting, inhabited space for human beings.

**Resisting Commodification, Part 2: The Calleta Infohub**

Much of *Second Life* at best incidentally represents the natural world, of course. The old *Calleta Infohub*, set amid a dystopian landscape of industrial decay, seems at first glance an unlikely place to carry on a dialogue about Nature. In fact there is very little of what I've been calling “natural stuff” here at all.

And yet its spatial and visual text offers a resistive reading that implicitly questions ideas about progress and technology by reminding visitors about environmental pollution and its disproportionate impact on the margins of society. Because it does so indirectly, by framing itself as a kind of roleplay, it brings its message to users who might never seek out a place like *Etopia*, *Calas Galadhon*, or *Las Arenas Rosadas*.

I came across this location serendipitously one evening while riding the rails. A user-generated project called the *Great Second Life Railroad* spans multiple sims on the *Second Life* mainland, and as I followed its path through a wide variety of lands, I paused at a large

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1 In the early days of SL, it was not possible to teleport to just any set of coordinates. Instead, there were “Infohubs” strategically placed around the virtual world to encourage users to start at specific locations, where assistance was available and where other avatars were likely to be encountered. These locations are still marked on the *Second Life* maps, but they no longer play as important a role.

2 The Mainland is a multi-sim “continent” created by Linden Lab and then parcelled out to users.
freightyard to admire the detailed models of steam locomotives and boxcars. Nearby was a dilapidated encampment of cardboard-box shanties and makeshift tents, complete with tattered laundry waving from a clothesline. This, I learned, was a site run by a group of SL roleplayers and builders who call themselves the Hobos. The search entry for Calleta is written in a kind of dialect that is meant to mimic the speech of the uneducated migrant workers and freight-hoppers of the Depression, who entered America's cultural consciousness through the writing of Jack London and John Steinbeck.

Figure 14: The Calleta Camp
The site goes for humor and romanticism over gritty realism—more *Cannery Row* than *Grapes of Wrath*. Mixed in with the tents and cardboard shacks around the central clearing are rough structures that serve as vending units for freebies\(^1\) like canvas knapsacks, rusty bicycles, a patched tent, tattered clothing, and so on—distressed, secondhand, castoff items that echo the “hobo” theme and invite users to participate in roleplay (Figure 14). Although the items are free, they are well made and highly detailed, created and donated by members of the *SL* Hobo group. Whenever I've visited the sim, there have usually been a few avatars engaged in conversation, seated on castoff chairs and packing crates around a central bonfire.

Although the hobo theme glosses over the very real conditions of migrant workers by turning them into a kind of roleplay, there is a different kind of reading possible. *Calleta* rejects the shiny utopian futurism, idyllic forest fantasies, and the sex-and-shopping ethos that permeates much of *SL*. Users are being invited to participate in something less showy or aesthetically pleasing—more authentic, perhaps, and more communitarian than competitive. In some ways *Calleta* might even be called anti-Second Life. Jones' (2006) critique of *SL*’s commercialism (“You can't walk down the virtual street without being barraged”) may be valid, but *Calleta*’s “hobo” culture demonstrates that it is not universal. The freebie economy and the antimaterialist ethos contained in the romantic vision of wandering hobos offers a counterargument to the pervasive consumerism in *Second Life* and its economistic treadmill (Schnaiberg, 1993). It also challenges the invisibility of marginalized individuals by inviting users to enact and perform a life that is not often seen in television programs and magazine articles.

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\(^1\) Infohubs and other “newbie” areas in *SL* commonly offer a wide variety of free merchandise for the new user.
The central encampment lies on the edge of an industrial harbor. A rusty freighter lies at a derelict wharf; both are littered with more crates of hobo-themed freebies. An ironic tire swing hangs from a loading crane; while you might wonder what's fun about this setting, the swing is also a reminder that children in poor communities often play in dangerous and toxic environments.

I can't resist riding the swing for a while, and as I do so, I notice that the harbor is full of trash. In a tableau on another dock nearby, a forklift is spilling stained and rusty metal drums into the water, and there is a garbage dump right at the water's edge. In fact, there are oil drums and a
rusting locomotive at the bottom of the harbor, and a large open pipe spills some kind of foul-looking liquid into the harbor (Figure 15).

This is a blighted landscape. Little remains of the natural world but dirt and polluted water. But what makes Calleta so full of promise is that there is no ekphrasis here. There are no signs or notecards explaining the impact of toxic wastes, leachate from garbage dumps, the plight of migrant workers—it is all for the visitor to realize him or herself. And it goes beyond picturesque squalor to represent human beings living amid it all the trash and pollution. Thus it creates an opening for dialogue about class and environmental justice – as will become more evident in the conversations with users described in the next chapter.

At Tour's End

Through the tension between economistic and ecocentric narratives, these virtual islands and spaces bring us closer to Nature and, often simultaneously, further alienate us from it. This tension operates alongside a similar dynamic among the processes of mediation, remediation, and hypermediation described by Bolter and Grusin (2000). That is, while they filter our experience of real Nature through the computer screen and underlying simulation software, in most cases they explicitly strive for a "transparent presentation of the real" (p. 19). Second Life's virtual natural systems thus demonstrate a kind of immersive, second-order immediacy whereby the “logic of transparent immediacy” (p. 22) exists simultaneously with a state of hypermediation that "renders the media visible and multiple" (p. 33).

It's tempting to map the two onto each other: tying aggressive remediation to an economistic perspective and transparent remediation to a more environmentalist paradigm, but the dimensions are not entirely equivalent. For example, the deeply immersive, effaced technology of a pastoral landscape can reproduce a superficial, romanticized, and sanitized view
of the natural world that can be packaged and sold as escape. Romanticized nature is to be expected in SL, with its overall framing of escape and romance, and Calas Galadhon is perhaps the epitome of this. It is a virtual extension of the English Garden, with its sense of the disordered sublime replicated in a controlled, “improved,” and accessible way. This creates an interesting dynamic, wherein a highly techno-rational product like Second Life is being used for very romantic (in both senses) purposes. A playfully aggressive remediation is common in the way things are designed and built, even when there are no overt “otherworldly qualities” to remind the user that it's not real (Book, 2003).

In fact, by articulating the natural world with the technological, commodified, anthropological one—making the two appear compatible because industry can virtually reproduce nature—Second Life participates in maintaining the “consent of the dominated,” as Jhally (1989) describes the perpetuation of commodification that happens in other media. But as we have seen—especially with the Calleta “hobo” site—it also opens up participation and alternatives.

The sites that demonstrate the deepest forms of naturalistic immersion, effacing mediation and following Bolter and Grusin's “logic of transparent immediacy,” are those like the pastoral Calas Galadhon and the Caribbean archipelago of Las Arenas Rosadas (though Calas can also be seen as remediated homage to the English garden). The prominence of natural features like forests and seashores there, the sounds of birds and other animals, and the de-emphasis of the built environment create an organic whole that seeks to conceal its artifice. The presence of the builder is minimized, suggesting a kind of scientific/photographic replication that effaces mediation and offers itself as a transparent view of reality. Technologies like the introduction of atmospheric haze in more recent SL software operate to introduce authenticity by
taking the edges off the uncanny perfection of computer-generated images. Even a feeling of randomness or “wildness” in a virtual construction causes a similar effacement, and something like the industrial decay in a sim like *Calleta* can convey a sense of unmediated, imperfect reality simply because it does not try to look nice.

However, the immersive technologies of *Second Life* are, from a sensory standpoint, still primarily visual. It is a place of gazing and viewing, from the postcard images of the *Destination Guide* to the planned landscapes in the sites surveyed in this chapter. The ways that builders attempt to frame views and guide paths are at least in part to maximize the visual component and compensate for *SL*’s lack of complete photorealism. This is consistent with Lange's (2001) point about simulated landscapes being more convincing at middle and higher distances.

Some sites, like the displays in *Etopia* and the *Center for Water Studies* are, arguably, intended to be taken almost as Barthesian (1977) press photos—literal light/space pictures. Elsewhere, iconic imagery like that described by Harriman and Lucaites (2007) evokes the real world because we have let things like the palm trees on *Las Arenas Rosadas* stand in for the rest of Nature in the real world (for example, with real palm trees in pots inside shopping malls). Virtual lands can exploit that relationship to evoke an entire phenomenally real place with a few well-placed virtual trees and crashing waves. This evocation operates at a level that is as much sensual as it is semiotic. These three-dimensional objects wrap us within a place. In such situations, it is as if we are inside and participating in the press photo.

The spatial element is also part of the user experience when moving about, touring and reading these sites. Even when builders attempt to guide the user's view, *SL* is a random-access space that allows users to easily defy and challenge any preferred reading or path. Thus, in contrast to what Gallagher (1999) found when touring the Birmingham Civil Rights Institute, or
Ottesen (2008) observed about park trails, \textit{SL} makes it more difficult to impose a literal narrative path on the user, once he or she has left the designated entry point. The ability to leap out of mouselook and vary the viewing angle and distance gives the visitor more room to contest the story than a museum might. Thus it's not surprising that trails and pathways on the islands in this tour are more about drawing the user in, rather than presenting a structured spatial narrative—even an incidental one. Flying and teleporting are for the most part readily available: functional travel need not be accommodated by the design of a site. Few of the locations toured in this chapter seem to approach the sense of a powerful “epistemological and ontological machine” that Aoki, Dickinson, and Ott (2010) found in the real-life Draper Museum.

Thus places in \textit{Second Life} may operate more like the rhetorical “dollhouses” that Jenkins (2004) refers to when speaking of embedded narratives—where the narrative is not so much the path, but the choices made in what to represent, presenting an argument to the user through what is available to be experienced rather than a structured set of experiences. But because \textit{SL} is not a game, the user lacks motivation for solving any kind of narrative puzzle, and, without a literal or figurative path or goal, a purposive message can be difficult to create in such a random-access dollhouse. Ekphrasis, which can help structure a spatial narrative by facilitating the perception of connections between spaces, is used in some of these sites. But it is usually quite explicit, leaving little for the user to decipher (see Chapter Six for discussion of one possible solution to this problem).

In terms of compelling narrative, the simulated flood mentioned in \textit{National Geographic} in the introduction to this study is the closest analogue of the televised “mind bombs” or image events described by DeLuca and Delicath (2003) and can serve as a template for activists operating within the highly commercialised and commodified “enemy territory” of \textit{Second Life}. 
The flood is an image event in that it turns an “error” in sea level into a message about climate change by disrupting the orderliness of the virtual world without actually affecting anything materially. Sea-level change is inescapable even in the technological perfection of Second Life, it seems to say; at the same time, nothing is soaked or swept away—ironically, a jarring reminder of what might happen if the event occurred in the real world.

As Juris (2008) notes, the intentions behind events like this can be lost on audiences without some kind of framing or ekphrasis. Lacking this, users might simply attribute the water level to human error or a software glitch. In fact, the real “image event” in this case might not exist apart from the National Geographic article itself, meaning that it's a kind of meta-event that can't be fully read within Second Life. If so, the industrial clutter of Calleta's hobo trainyard might be a better example of a virtual-world mind bomb, with its overt, jarring rearticulation of ideas about technological progress and utopianism that stands out even in a whimsy-filled world like Second Life. It's more display than event, but it's the virtual-reality analogue: a virtual instantiation or frozen depiction that challenges – again – articulations of technology and progress by showing the impact of industrialization. That it provides no ekphrasis may make its meaning debatable—though the interviews in the next chapter suggest that its meaning is not lost.

Even though the narrative possibilities are not fully exploited, these sites do invite participation, not just observation, and can thus help reduce the rationalist and anthropocentric distance that a “simulation” might seem to have. Nature is not frozen in time (as in the Draper Museum), even if the components vary in how convincingly they are animated. But cyclical change is built into Second Life: wind and diurnal cycles exist. And it avoids Mitman's (1996) critique of parks' and museums' effacement of human presence, because avatars are nearly
always present, and their participation in the landscape depicted is obviously planned for, even if
dance poseballs seem occasionally trivializing.

_Etopia Island_ seems to have hit upon a promising method for fostering further
engagement through its “cohousing” rental spaces, which not only foster community but
reinforce the apparent reality of the virtual space. Authentic engagement in such a heavily
environmentally-themed space can reinforce learning and caring about the real world more
effectively than the touristic role of a visiting flaneur or shopper, which tends to be the dominant
mode in islands like _Calas_ and _Las Arenas Rosadas_. The ugliness designed into _Calleta_ is also
intriguing, because of its embedded but implicit depictions of human-caused pollution and
ecological injustice.

Sites in _Second Life_ are polysemic, offering opportunities for a variety of readings by
users. These readings may simply accept dominant economistic or anthropological narratives,
rearticulate them, or even oppose them. To learn more about what readings take place among
people who visit the virtual world, the next chapter turns from reading to a kind of oral history,
as _Second Life_’s designers, builders, and users describe what the virtual world means to them.
CHAPTER FIVE

PRODUCERS AND CONSUMERS OF VIRTUAL NATURE

“Nature”—as defined by a range of systems from physics to animal behavior—is frequently in the minds of Second Life designers, builders, and users when they are determining an alignment between the virtual world and the real one. Not surprisingly, their decisions about representing and reproducing Nature are influenced by material considerations; while the cost of duplicating digital objects approaches zero, the cost of keeping them alive, so to speak, is not trivial. A persistent virtual world like Second Life runs 24/7 on computer servers that require material hardware, energy supplies, and labor. Accordingly, designers and builders make shortcuts in their constructions that are not unlike those practiced by 3D terrain builders in landscape planning and military simulations, as described in Chapter Two.

But these interviews show that material cost is not the only way that the virtual world is influenced by the cultural and economic systems that surround it. A variety of commodified and otherwise anthropocentric views of Nature—primarily the Edenic or pastoral meanings identified by Cronon (1995) and described in the previous chapter—are also reproduced here. These perspectives are realized through what is “said”—by what has been selected and presented in virtual sites—and by what is left unsaid. Nearly everyone interviewed here said it was important to represent the natural world in Second Life, but they weren't always talking about the same Nature. For them, it comprises not just static representations of plants, animals, and landforms, but dynamic processes like moving water, wind, and day/night cycles. Not only do visual representations matter: sound is also important. In some cases, “Nature” even includes human society and the technologies it produces—even the pollution and trash it produces. The interviewees also value Nature for different reasons. For some, it is mere decoration: a scenic
attractant, adding to the aesthetic experience. Others see it as a reflection of a fundamental human urge to experience the natural world. Some find it necessary at a fundamental level, to give users something familiar: an anchor for engagement in this unreal space.

Much of what I learned from these interviews confirms the prior literature and the close readings described in Chapter Four. But there were a few surprises, as well—two of which may be unique to the medium of multiuser virtual environments. Perhaps most interesting of these is the revelation that user-built content—a critical component that sets SL apart from most other virtual worlds—was stumbled upon by accident, during early demonstrations of the software. As a result, once the desirability of this core capability was established, resulting changes in the design of SL greatly reduced its capacity to represent the natural world. In other words, not only do hardware limitations and cultural definitions of Nature constrain what happens in Second Life, but the very fact of user participation as producers—described in detail below—resulted in dramatic changes in what might be presented there. Considering just how realistic and engaging these simulations still are for users, it’s difficult to imagine how much more powerful this visual and spatial rhetoric might have been—and likely will be, as computing power grows in the future.

Thus, even though user participation as co-creators diversifies the voices and messages in SL, it limits what can be created and tends toward reinscription of problematic capitalism, visualism, and anthropocentrism. But co-creation also seems to be driving a second unexpected finding. What emerges from these interviews is that SL becomes for its users a real place, or collection of places, with features and depth. It is a container for human interaction, taking place through the medium of avatars that users subjectively inhabit. That is, it is not simply a “transparent presentation of the real,” to echo Bolter and Grusin (2000, p. 19), but is seen and
described using the same terms we use to describe places our bodies inhabit in the real world. As such, the sites in Second Life become valued sites of memory and human relationship. They are not just viewed from without, but lived in. As such, the computer screen phenomenally disappears for users as they stroll the beaches and forests. While SL is recognized as artificial and constructed, an unreality made of pixels and code, this simply increases its social realism because it creates opportunities for builders to apply their technical and artistic skills and share the results with others. User contributions are thus a path for participation in the production of culture (though as will be seen, economic costs and technical sophistication still limit access to this virtual podium). The resulting virtual creations are perceived by their community as instructive, entertaining, and emotionally satisfying, and, “real enough.”

The resulting complexities of user participation and immersion in the virtual world complicate the seemingly inevitable colonization of new media by troublesome ideologies and definitions of Nature. This is revealed in detail through this chapter's discussion of interviews with four categories of producers and consumers:

- **Lindens** (4): Current/former Linden Lab employees involved in the design of the Second Life software.
- **Builders** (4): Owners/builders of a specific location; where possible, I interviewed people who built the sites described in the previous chapter.
- **Visitors** (8): Visitors encountered at specific locations, again, focusing on the sites in Chapter Four.
- **Users** (6): An additional set of SL users with experience or interest in the kinds of locations selected for this study.
Most of these conversations took place via typed messages: in-world chat, notecard exchange, or regular email.\(^1\) The people whose activities I interrupted with my interview questions—most of them complete strangers—were on the whole approachable, favorable towards the study, and generous with their time. Some responses were surprisingly expansive, even without much prompting.\(^2\)

Nearly everyone interviewed has played multiple roles over time. That is, Lindens are also users, builders are also visitors, longtime users have dabbled in construction and scripting, and so forth. So the distinctions among the four user categories are fluid and artificial. At the same time, they represent fundamentally distinct activities: designing the underlying software, creating virtual places using the code, and then using and consuming the results—and at all levels imbuing the things they experience with meaning.

**The Gods of Second Life: The Lindens**

The avatars one encounters in-world with the surname *Linden* are employees of Linden Lab, and they're referred to by users as “Lindens.” So I'll refer to the four individuals here by the pseudonyms “Linden 1” through “Linden 4.”\(^3\) According to Linden 4, “When I joined, way back in 2004, everyone knew Lindens, because the ratio of Lindens was higher, and because they spent more time inworld.” There was thus initially a high degree of interactivity between the designers and users of this new environment. As the user base grew and *SL* became more

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1. Only one subject expressed a preference for voice chat (spoken conversation)—and that for only part of the exchange. This is consistent with my experiences with the prevalence of and preference for text chat in *Second Life*, even many years after the introduction of voice capabilities—mainly emerging from *SL* traditions of user anonymity and roleplay.
2. The typical in-world interview began when I introduced myself and asked if I could explain my study of nature in *SL*. If the person was agreeable, I offered two notecards: the consent form (see Appendix) and a list of questions (see Chapter Three). After the informant read the notecard and agreed to participate, the rest of the interview usually occurred immediately via open or private chat. Other times, the interviewee might return the notecard later with the responses filled in, and I would also follow up asynchronously as needed.
3. The meaning of “pseudonym” is complicated in a virtual world where everyone has an avatar name that may not be explicitly connected with a real-life identity. However, since even avatar names become stable public identities in this context, I refer to all interviewees via a pseudonym to maintain confidentiality.
popular, Lindens became minor celebrities, with many demands on their time. Some gained almost mythic status within the SL user community, as new-media gods and superstars, and Linden sightings were less common for most users. More recently, many of those original developers and programmers have moved on to other activities and employment, with little continuing connection to SL.

For these reasons, I was initially worried that I might have trouble finding Linden informants. However, through in-world connections, postings to a listserv for SL educators, and email contacts with SL bloggers, I found three key former Linden employees to participate in the study (Linden 1 through Linden 3). I was also approached via email, after my listserv post, by the author of a detailed guide to Second Life. This person had interviewed many Linden Lab employees and offered to share information about the initial design of the “physics” and nature of SL. I refer to this respondent as Linden 4 because of her inside connection.

The Genesis of Nature in SL

I began by asking the Lindens to explain why naturalistic elements were added to SL—that is, why not create a completely fantastic world? As it turns out, this was an early decision by the developers, who considered everything from highly abstract, geometric worlds to detailed artificial ecosystems full of growing plants and animal life, as explained by Linden 2:

[Linden 1] pointed out that since the virtual world was digital it was not restricted to emulate a natural world, but could be an abstract digital space with floating human heads for avatars and geometric constructs (or something like that—I remember a description of a digital space unrestricted by gravity or perspective).

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1 Lindens 1 and 3 responded very briefly, but the other two used the prompts as jumping-off points for much longer responses of several hundred words. Conversations with this group took place entirely via email.
However, it was quickly decided that at least a superficial resemblance to the real world was necessary, primarily because it provided familiarity. Linden 1 said that representing Nature was important “because we have the most powerful attachment to those things that we have actually seen/experienced, and we have all seen Earth's natural beauty” (note the aesthetic frame). As Linden 3 explains, realism makes immersion possible:

> We wanted to make the environment (and thus, the experience) as realistic as possible. In building a world where users could create their own environments, the hardest one to mimic is the real...the known...the every-day. So, if we could provide a canvas that enabled users to create their own, real environment- or simply an environment they've dreamed about, the rest is virtual cake.

Linden 2 explains the specific components that make the world familiar, prompting immersion as well as connection:

> [Linden 1 said] it *should* look as much like a real physical world as possible because the human brain is hardwired to live on a relatively flat world with downward gravity. In particular he proposed that the virtual world have: (1) A horizon between the ground and the sky (2) Trees and vegetation (3) Water and wind. [Linden 1] also said “a virtual world that mimicked the real world” would be less stressful for visitors and would give it “more sense of a 'place'”—people would be more likely to identify it as a real place and hence find it more interesting and emotionally compelling.

Thus the fundamental world-making characteristics of *Second Life* are organized around anthropocentric cognitive and emotional needs, as perceived by the designers. Planet-bound, bodily existence within a very Earthlike landscape of vegetation and water was the baseline,
though not a bounding condition of what was possible within SL. Rather than an open-ended space of online interaction, a real-world analogue allowed SL to become a series of places, from workaday to sublime – to which users might become attached.

It's important to keep in mind that place-making was a marketing decision to draw in users/customers. But it's also a recognition of the centrality of embodied physicality in a daily life that, for many, is lived increasingly online and alienated from Nature. At the same time, it confirms the human bias that gives places meaning through human activity; part of the value of the remotest “wilderness” for us is the fact that we have surveilled, mapped, and named it as such.

As Linden 2 says above, there were three basic components to model: gravity/horizon, vegetation, and dynamic processes like wind and liquid water. In fact, a fundamentally dynamic landscape was considered essential, partly for realism and partly for visual effect, as explained by Linden 1:

We wanted the sun and moon and weather and wind because it is so delightful to see the world you build in a number of different lighting conditions, etc. The real world adds infinite complexity by layering different complex phenomena like wind, rain, UV, etc - so too should the virtual world.

Linden 2 reiterates and extends this point:

A daily sun cycle was added to enhance the resemblance with the natural world.

We knew that the world was easier to navigate with more light, but we speculated that a period of darkness would make it more compelling. The system was tuned to create about 1 hour of darkness for every three hours of sun. The sun position was given a seasonal variation (which still exists)....Dynamic water was one of
earliest features added. In fact, it was one of the first technical proof-of-concepts

[...] Similarly we developed a weather system with cloud generation, wind to move the clouds around, and rain where the cloud density became high.

The natural cycles of daytime and nighttime, as well as weather, can thus be seen as a fundamental operational definition of “natural” in this context. In early versions, Linden 2 continued, this extended to the organic domain of plants and animals—partly because the medium was still new:

When we started making the world we didn't really know what people would do there, but we thought what might be interesting was a virtual natural landscape that evolved. That is, imagine a big natural landscape with plants that grew, animals that wandered and reproduced, and terrain that eroded with the weather and became fertile or not depending on whether it got enough rain. In such a place you might not know what it looks like on the other side of the mountain visiting it, nor would you know what it would look like a month later. [...] To this end we made a few basic animals that would wander the world. We started with some “birds” that would hop around the ground and sometimes fly in ballistic jumps. The birds ate “rocks” [and] would reproduce if they were able to collect enough rocks, or would starve if they couldn't. Thus the rock supply would keep the bird population in check. To eat the birds we made some snake-like carnivores that we called “atars.” There were trees (rendered as simple sprites in the very beginning) which I think were spawned randomly when the world started up.

So an organically evolving world was created not just because of a desire for scientifically valid realism, but because this would continue to provide novelty for users, and thus keep them
coming back for more. To further engage users, the avatar was designed to be physically connected to and interactive with the environment:

[Linden 1] stated that the avatar should either be completely abstract (a floating eye with a hand, for example) or else should be a very realistic humanoid. We all felt that the humanoid was the way to go. […] We also wanted the world to be interactive. When you flew around in the air your avatar would influence the wind. If you moved underwater your motion would disturb the fluid. Animals could “see” nearby avatars and would tend to flee.

Again, it's important to remember that these decisions are those of savvy programmers creating an appealing product. But they also reflect human biophilia, that urge to be with and among Nature.

Once the designers of Second Life had identified the virtual world's basic parameters, many subsequent decisions about details were related less to biophilia than to practical concerns about the capabilities of the servers and home computers on which Second Life would run. This, combined with their initial observations of user behaviors (described below) led to compromises in the dynamism of the virtual-natural environment. As Linden 3 explains, using the technical terminology of three-dimensional rendering:

Decisions about realistic elements were heavily rooted in overhead [data processing requirements], as you might imagine. In the beginning, the foliage system supported large textures (1024 sq.), and by 2004 it was determined that those should be reduced by 3/4 (to 512 sq.). This dramatically affected fill rates for rendering, but was a harsh change visually. At the same time, harsher limits were put on terrain texturing, and this all resulted in improved performance.
It wasn't just hardware that led to a reduction in realism, says Linden 2:

Many of the old prototypes were removed to free up CPU cycles and bandwidth as computing budgets got tight: weather was the first to go, then dynamic water and animals. Eventually we removed the cloud sprites for a cheaper visual effect ([the] Windlight project) and abandoned our ideas for growing trees. We stopped allowing objects to break. In their place we added: more control over object shapes, avatar customization, scripted objects, attachments, and user inventories. The goal became to add features that allowed people to make interesting things and many of the “natural world” features were sacrificed.

This is an observation of critical importance here because of its connection to the user-built foundation of Second Life. Without this customizability, Second Life's islands and builds would become the products of a single voice (or company) rather than a virtual public sphere containing many voices. This may also mean that user-built virtual worlds will always be less immersively real than their “hard coded” counterparts (such as computer games\(^1\)), though it's difficult to predict how apparent this difference will remain as technology evolves.\(^2\)

Even with these reductions and compromises, SL remained strikingly realistic for Linden 4, an early user who had spent time in other MUVEs. Note the enthusiasm with which she describes the way SL compares with her previous virtual habitats (There.com and Habbo Hotel), as well as her powerful biophilic urge to represent Nature there:

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\(^1\) User-created worlds must render quickly because they can't be simply stored in cache memory for repeat visits. A given site may have been changed by its owner since one's last visit, so it must be downloaded and rendered afresh each time.

\(^2\) Consider the degree to which homemade desktop publishing and video production have approached “professional quality” as consumer tools have improved over the years.
One of the reasons I came to SL from a competing virtual world was the ability to terraform [i.e., change the shape of the land] and create more complex landscapes. *There.com* had outdoor spaces, but you couldn't terraform, and while I worked with friends to create water features and plants, what an end user—even a content creator—could do was very limited. […] My friends and I pioneered innovations [in SL]—we had the first user-built permanent village, surrounded by landscaping, with gardens, water features, and ancient ruins […] We spent our time in the virtual outdoors, usually in the ruins, or up on a roof so we could admire the garden. Before *There*, I spent a lot of time (with some of the same friends) in *Habbo Hotel*, where we didn't have any outdoor areas to work with at all, so we would have blue walls and carpet that looked like grass, with potted plants! There was such a focus on rooms, houses, furniture, and until I came to SL I really hungered for the opportunity to create landscapes.

Linden 4 also offers insight into the ways SL's designers accommodated biophilia by providing a default store of plant life:

I think I remember it was [Linden 1] who decided that despite their actual cost Library\(^1\) trees should only cost one prim, to encourage people to use them. […] One of the things that most thrilled me about SL when I first joined was all of the free plants in the Library, available to anyone. I also roamed Linden-built spaces, looking for free-to-copy plants to grab. There weren't many plants available from Resident shops back then—there weren't even a lot of shops at all. My first parcel was small, and I made a forest clearing with a campfire. I was so excited to learn

\(^1\) “Library trees” are supplied for free in the default Library file in every user's inventory.
that my avatar could sit right on the ground, though pretty quickly I made rocks and benches for seats, and figured out how to use multiple Library trees to make bigger trees. I had lived in a forest in real life up until recently, and missed it, so I wanted that virtual forest. Pretty soon I went on to building water features. I'd had a waterfall in my back yard [in real life], and missed it. My first professional custom builds in SL were waterfalls and other water features.

What unifies many of these comments is the importance of having something that at least gave the appearance of being “natural” – not made or controlled by human artifice. Designers felt (and Linden 4's enthusiasm confirms) that evidence of systems and cycles and life forms created a lifelike familiarity and variety, mimicking the untamed natural forces of the real world. These included diurnal and lunar cycles, a dynamic hydrosphere of weather and moving water, and plants and animals with some degree of naturalistic movement and behavior – not simply pets or ornamental landscaping. This impulse of course has a significant component of visual spectacle and aesthetics to it, though it also clearly reflects a desire to be in and among Nature. Though eventually sacrificed for computing (and marketing) reasons, the ecological complexity of the early designs – erosion, population dynamics, etc. – is also noteworthy because it suggests some of the directions that more advanced technologies may lead us.

Second Thoughts

Given the fact that early design decisions, based on rapidly obsolescent technologies, would yet constrain future options, I asked Lindens if they might approach this kind of project in a different fashion if starting today. In other words, did they learn anything about representing Nature that would have changed the way they went about it, had they known it earlier? Linden 1
confirms that computing limitations are obviously a moving target in the graphics and game industry:

Mostly I would/will\(^1\) just go deeper - the computers of 2003 were much less powerful than today. For example, we couldn't have real liquid water in SL (it was in originally but was just too demanding to transmit). Now we can do more.

Linden 3 said he would replace the foliage coding with something much more current and felt it would have as much impact as the more realistic water and sky systems that have emerged in SL in the past few years. Linden 2 also felt that plants and animals could be improved:

Over the years [SL] has picked up a lot of features that make it easier to create “natural” content, such as animals that move around, eat, sleep, and die. However it has not picked up any fundamental nature subsystems, such as tree growth/mutation or objects that are classed as “animals.”\(^2\)

However, Linden 2 argues that increased naturalism alone is not enough to create a compelling world. User-built and -owned content is the key:

I don't think that a virtual world focused on natural phenomena could compete with SL unless it had almost everything that SL has. In particular it would need:

(1) In-world tools for user generated content; (2) Users receive copyright for what they create; [and] (3) One big world—no matter where UserA is in the world, UserB could (in theory) travel to the same location. Support for virtual nature could be added to this base set of features, and would make the world more

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\(^1\) “Will” alludes to the fact that this designer is working on a new virtual world as of early 2014.

\(^2\) That is, it does not have animal behavior built into the operating system, which would greatly enhance the ability for users to create and deploy virtual animals. See the discussion of SL animals in the previous chapter.
interesting, but living animals, growing plants, and interactive weather would not
generate enough distinct “content” by itself to keep a large population of users
interested for long. If I were to do it again I’d build support for user generated
content first and foremost. The world should resemble the real world at the very
basic level (ground plus sky). If nature was viewed as a priority feature for this
hypothetical world it should be added as a user generation tool—plants and
animals would be special case objects, but their parameters would be controllable
by the users. Creating custom animals and plants would just be another exercise in
user created content. Non-user generated nature, such as interactive water or
variable weather, would make the world feel more interactive but it would
essentially be surface decoration—not fundamentally necessary but it would be a
nice touch.

It's important to note that Linden 2 is greatly downplaying the biophilic urge, reducing it to an
interest-generating and decorative aspect of the virtual world. Instead, he sees user content as of
paramount importance. Early user Linden 4 echoes this:

While early on I developed a reputation as a waterfall builder, back then a lot of
us were very do-it-yourself about SL content. [...] If you wanted something, you
had to build it, or get it from a friend. So I ended up building all sorts of things. I
think, if I had it to do over, I would have spent more time early on developing
plants and trees and rocks and other prefab landscape elements. I did sell prefab
waterfalls, gadgets to play nature sounds, snow machines, particle butterflies, etc.,
but for the longest time the world's landscape was mostly covered in Library trees
and plants and the few free plants available. I wish I had made plants for sale back
then. I thought about it, but only Linden Library trees could blow in the wind (this was before flexible prims), and a landscape without movement felt downright creepy and unnatural, even in a virtual space.

In these comments we can see both the need for commercial appeal and the remixer's contemporary desire to participate in the production process—the joy of remediation, as it were. When combined with the biophilic urge, this creates a powerful impetus towards recreating (some vision of) the Natural world, which means that future multiuser virtual environments will likely continue to contain a sophisticated “nature library” to engage users.

**Surprises in the Virtual World**

Given the wealth of prior experience among the designers as well as their knowledge of prior efforts and research in virtual world design, I wanted to get a sense of how this technology surprised them, because emergent and synergistic effects of new media can be difficult to predict, and *SL* is something of a pioneer in this regard. The central importance of user-generated content is one of *Second Life*’s key distinguishing features and, as noted previously, one that recommends it for study as an important site of environmental rhetoric. So it was a surprise to learn that this feature came about largely by accident, according to Linden 2:

One day we discovered that it wasn't the natural evolution that was the most interesting aspect of the world—it was “user generated content”! This happened during a demo that we were giving to our board of directors in the late 2001 or very early 2002. … everybody in the upstairs meeting got distracted talking about one thing or another and stopped watching. Meanwhile us devs [developers] were busy building a “town.” After a few houses and streets some of us got more creative: someone built a giant snowman. Later another dev came along and built
an army of small snowmen at the big snowman's feet, all bowing in reverence to their giant leader. I don't remember what all was in the town but there were a variety of fanciful buildings and a few pieces of art. After about 45 minutes of building the board remembered to look at the screen and were surprised by the amount of content that had been created while they were talking. [...] One of the conclusions of that meeting and demo was that the stuff that the devs had created was far more interesting than the few virtual animals that wandered the world, or growing plants. We switched our focus from providing a virtual ecosystem to making the UI [user interface] that would allow custom objects to be created. [...] Clearly the user generated content idea was the “killer app” for a virtual world. We had speculated earlier that a natural environment might evolve faster than any one person could fully explore, but the user generated content space met this condition even better.

User-generated content—the “killer app” of Second Life—appeals not just because of this opportunity for user participation but because this leads to its open-endedness. It creates an infinite world, where anything might be possible, limited only by the imaginations of its users (thus the tagline: Your World. Your Imagination.). A universe of discursive possibilities therefore opens up; that is, not just many voices, but any and all possible voices may be heard. A nearly limitless range of 3D Nature discourse becomes possible, and while this makes the world attractive to users (even if they don't participate in production, the scope of things to see and do is vast), this very openness ironically limits what can be said about the natural world by

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1 In other words, the ad-hoc components that were being added on the fly were more compelling than the “background” aspects that were developed in advance of the demo.
constraining how well it can be represented. The medium still constrains the message; SL is not a complete blank canvas.

Even so, it seems to have met its creators' expectations by fostering a wide range of user content. So it is “unsurprisingly surprising” to all three of the initial developers I interviewed:

• Most everything [that users do surprises me]. I wanted it to be that way. If I/we hadn't been surprised by most everything, Second Life would have failed. (Linden 1)

• Really, nothing [that users do surprises me]. Second Life is merely a canvas, and art is entirely subjective. There are places I still believe are quite interesting and immersive, but I don't visit much any more. (Linden 3)

• Today it should not surprise anyone that people make “nature” simulations in Second Life. The feature space is broad enough in SL that people can make almost anything and with that kind of freedom it is inevitable that people will explore modeling natural things that they know from the real natural world. (Linden 2)

When nearly anything is possible, of course, there will be differing judgments about the quality of what is built. The following observation from Linden 4 echoes Lastowka's (2008) concern about “amateur” content of lower quality, and is consistent with earlier critiques of exoticism and anthropocentrism in virtual worlds:

The fascination with palm trees just goes on and on. I don't like palm trees, and after seeing so many of them, all standing there straight up and not resized or tilted or anything, I'm very tired of them. But my pet peeve is when someone doesn't terraform [modify topography] at all, and they place their house so that parts of it are not in contact with the ground, part of it maybe hanging in the air. [...] I don't know how anyone can stand to spend time in a mess that looks like
the hydraulic miners have just been through there. I'm also surprised by how many people buy snowy land\(^1\) and then put in things like palm trees and tropical plants. Also, the landscapes are usually built to suit structures. I usually create the terrain and then build to suit (so sometimes we end up creating a building on the edge of a cliff that has to have supports on one side, etc.). I think this gives more natural look to things, and is a much more interesting challenge as a developer.

Despite this criticism, it's worth noting that even among its designers and programmers—that is, those most conscious of the fact that \(SL\) is, materially, nothing but code and data—it is still being talked about as if it were indeed a place one can inhabit, a place where there can be things that feel “natural” and things that feel “unnatural.”

To summarize, the Linden designers were motivated to create a software product that would attract paying customers. The open-endedness of the virtual world they created, as well as its biophilic components and the possibility of user-built content, were important primarily as a means of attracting and keeping these users. Their decisions were anthropocentric, based on what would make people “feel at home”: physics, weather, water, and biological components. Hardware and user-customization limited what could be built but also resulted in the possibility of greater participation in the cultural production process, and all these factors resulted in the generation of something that felt like a real place, even to its coders.

**Architects and Landscapers: Builders**

The people who sponsor and construct sites using the tools created by the Linden designers are also frequently motivated by an economic drive to attract visitors. Visitors can help offset the cost of maintaining sites through donations or by supporting the merchants who rent

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\(^1\) Land is covered by a graphical “skin” that can represent snow, grass, sand, or some mixture of ground cover. This skin is set by the sim owner, so those who are customizing parcels can't always change it to suit.
space for stores from the site's owner. However, some of these sites are not commercial, so the motivation there can be more like that of an activist promoting change, or an artist seeking an outlet for self-expression. There is also a strong biophilic urge at work among these people, oftentimes limited to visual spectacle but also rooted in specific real-world spaces and charged with a love of nature. Builders invest themselves emotionally and immerse themselves in their creations, inhabiting them from within.

As with real-world sites, some builders work for hire and others are do-it-yourselfers. They may modify land, build props and structures from scratch, or buy and deploy ready-made objects. I sought out owners and/or builders of the locations toured in Chapter Four and was able to secure interviews with individuals closely involved with four of them\(^1\). I identify these builders below by the name of their associated Second Life creations (shortened to Calas, Calleta, Arenas, and Etopia here). I also include some responses from “Linden 4” because, as mentioned, her experience is pertinent here as well.

**Defining Virtual Nature**

I asked builders to identify the “natural” components they deployed on their sites. Their responses show that they operate from a variety of perspectives regarding the meaning of Nature, the relative importance of different aspects of the natural world, and the corresponding virtual components needed to evoke that world—demonstrating Second Life’s operation as an arena for multiple voices.

For instance, when I asked the Arenas builder to identify the natural components of his sim, his response was sweeping: “All you can see: rocks, waves, wet sand effect, waterfalls,

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\(^{1}\) These individuals were identified by looking at the owner identification listed for the land itself, ownership tags on objects there, or member lists from groups associated with the sites. Interviews were conducted in-world (synchronously and on-site, or asynchronously via text message) as well as via email.
trees, etc. And funitures [sic] – notice i leave the R out on purpose.” Even though he winks at the implicit purpose of the space as a romantic getaway for humans (the “funitures” pun refers to furniture with embedded poseballs for romantic cuddling, etc.), and is essentially offering a catalog of the elements in a South Pacific travel poster, he is also claiming the entire space as “natural.” This is the nature-as-escape concept in a nutshell.

The Calas builder reflects a bit more philosophically, mentioning beauty, place, immersion, and the importance of sound:

My main goal in creating the environments I do has always been to do my best to bring in the beauty of our ‘natural’ areas into Second Life. This includes not only what I can reproduce visually ... but natural sounds as well ... birds, insects and other animals as well the sound of wind, thunder, etc. I’m careful to have the placement of these sounds match, at closely as possible, their placement in our real world … in the habitat we would find them. I’m doing my best to create a ‘sense of place’ when I work with my environments in Second Life … making the environments as immersive as I can for the ‘guest’ who visits.

That this builder describes the sonic component in such detail is interesting and parallels my own experiences with evoking specific places (in my case, North Florida) through the judicious application of the environmental and animal-produced sonic features associated with specific habitats and geographic locations: distinctive bird or insect calls, crashing surf, the wind through trees, and so on.

While the Calas builder intends to evoke a sense of place, it is not so much a particular real-world analogue as simply a series of plausible (but decontextualized) habitats. Arenas, on the other hand, describes his tropical sim as a pastiche of Italy, Costa Rica, Cuba, and Thailand—
which, ironically, makes it difficult to fully evoke any one of these locations, because their real-life ecosystems are at best only superficially similar. The animal cries that might evoke Thailand, for example, are unlikely to be found in coastal Italy.

The builder from Etopia, on the other hand, is less concerned about place or realistic habitat. In fact, her definition of “natural components” includes human technologies:

The original builds took into consideration key concepts of environmental sustainability in real life. Examples are the water reclamation plant [and] the maglev (tram) […]. I pay attention to a balance of wood and stone builds as that is part of the original vision. The pathways around Etopia are natural paths, stone paths, and paths made with porous pavers. I work with environmentalists, food producers, and nature enthusiasts to keep information current and that adds to the experience of visitors. Etopia has a wide variety of vegetation such as water lilies, trees, and beach grass that would be found in RL as part of natural landscapes. […] I’ve spent a lot of time researching environments. […] I want the items on [this sim] to reflect (as much as possible) what can be enjoyed as a sustainable way of living in real life.

In this view, Nature is a sustainable system that includes humans and their technological solutions. It is not the outside Other or retreat described by Arenas or Calas, but a place for “living in real life” based on meticulous research and consultation with experts. This is not necessarily an ecocentric perspective: note how natural elements are seen as raw material for products, or components of a landscape. But the builder's perspective seems entirely consistent with Etopia's use of cohousing apartments to invite users to inhabit this sustainable system.
Not unexpectedly, the builder at Calleta’s “hobo” camp doesn't mention plants, trees, or animals:

Well, when I started [this sim] I wanted it to seem like a natural place that Hobos lived. I got to do what I love most, welcome new people to second life! […] I felt so very honored. […] They were all so confused, especially winding up there with me where there are burning tires and cardboard homes. […] It was a place for teaching people [about SL].

Here, natural refers to something more like consistent or expected. Calleta is designed to look like the builder's conception of a “natural habitat” for migrants and the homeless. As discussed below, this builder creates salience by violating SL's usual aesthetic of shiny perfection. Trash and toxic spills also help foreground the mediated form of the virtual world because they immediately call into question the desirability of being there. Yet as part of a location intended for new users, they help capture the visitor's attention at a meta level, to focus on “learning about” rather than “being in” SL. Water pollution is simply a convenient choice because the land is located on waterfront. Floating barrels of toxic pollutants bob side by side with rideable inner tubes with no other goal than thematic consistency and entertainment.

**Building and Shopping**

Builders speak of the objects they use to construct their sites as if they were material, lovingly crafted items. The Arenas builder focuses on the technical perfection of his waves:

The waves we made, I think we have the very best waves in SL. If you look at some of the beaches it even makes the sand wet as the waves wash up and back.

*Etopia's* builder speaks of the “passion” and “beauty” expressed by items bought from established Second Life vendors:
I either purchase items that are close to what I want or I build it myself. I've been fortunate that many of the builds are available from SL Botanical Gardens and builders with a passion for creating real life replicas of beautiful environments.

Some of the creators I purchase from are Lilith Heart, Real Waves, and Crazy Garden.

The owner of Calas refers to real-life trades that are involved in “improving” Nature, again consistent with the English-garden approach of that sim:

While I’m working to create more of my own textures, 3D sculpties and builds, the majority I use are the creations of others. I see myself more as a gardener or landscaper in Second Life, bringing in my love of both in “real life.”

Second Life invites the user to become a builder. The technical skills required to build convincing virtual objects need not be highly complex. In my own experience, with almost no prior experience in 3D modeling, I was able to construct reasonable facsimiles of North Florida's pine uplands and karst plains that were surprisingly poignant and evocative to me and to friends and acquaintances who visited them. In-world tutorials, as well as YouTube videos, wikis, and other sources provide simple, step-by-step procedures for novice virtual builders, and the basic primitives of SL are just advanced forms of the blocks that children play with.

Of course, there are many adjustable parameters, and the creativity involved in building convincing forms is not accessible to everyone (I quickly ran up against my own frustrating limits). And while SL's designers created simple modeling tools, more sophisticated technologies such as “sculpties” (irregular objects that appear sculpted rather than geometric) have emerged that may place the ability to “speak” with three-dimensional objects beyond the reach of some users. When one adds the graphics skillset needed to create realistic textures, or the coding
required to generate convincing behaviors, it can seem a daunting task to join in this conversation. However, there is a strong communal spirit in SL that counters this limitation with such things as the vast libraries of free objects, textures, and scripts on many sims. Creative and technical skill is not really the barrier to entry into this public sphere; it's a matter of having the resources to purchase adequate computing power and rent or buy virtual land. Even here, though, Moore's law and the advent of open-source virtual worlds in the Opensim movement continue to drive down costs, just as those forces have driven down the cost of hosting websites over the past decade.

**Tying Second Life to First Life**

I wanted to learn what motivated builders to create their sites, and so asked them about the impact of the virtual trees and other objects bought or built for their sites. Their most commonly cited reason was to make the place feel real. For the owner of Etopia, a kind of scientific realism was important because it made simulations and demonstrations convincing:

I, like the creators of Etopia, believe we can live quality lives in RL if we understand how to do that. Etopia is, in a way, a demo project of that belief. Many visitors ... fall in love with what has been created. It's unique in Second Life. Teachers bring students, architects have built eco-friendly designs here for their clients, and artists have been inspired here.

This builder feels that experiencing *Etopia* results in more than just cognitive learning. It also causes an emotional response in users, who “fall in love” and are “inspired.” And the key to bringing the experience of *Etopia* back to real life is behavioral engagement:

There are many displays [here] that require the user to interact...; apple picking, drying seaweed, picking grapes, raking the garden, etc. I believe it makes a
difference. There's something about engaging in the interactive builds around Etopia that gives visitors and residents ideas about how they can create sustainable lives for themselves. Having natural elements and builds that feel “real” helps bridge what we have in SL to what can be created in RL.

This is consistent with what has been discussed (mainly in Chapter Two) about the way immersion boosts the impact of MUVEs. Avatars interact directly with natural objects like apples and seaweed, or operate the controls of sustainable technologies, and these experiences are real ones for their users—facilitating the transfer of these behaviors to real life. The Arenas builder characterizes this succinctly: “Nature systems make the virtual 'reality' more of a reality.”

For the builder of Calas, virtual nature is important for a different reason: it offers a virtual substitute for direct experience when the latter is not possible:

For me [why it matters] is twofold. 1. It is a creative goal of mine. 2. I believe it gives many of those who visit my Second Life park and farmlands, the peace and serenity they might experience if visiting such places in our natural world, remembering that many who sit at their computers, or one reason or another, are not able to get out and experience such environments in real life. Its not a substitution for the “real thing” but I believe it serves a purpose.

This substitution could easily promote further alienation from Nature if it supplanted the appetite or opportunity for real encounters. But for those with limited access to the outdoors, for example, it's a kind of phone call from a distant loved one: certainly a poor substitute, but also signifying the importance of the relationship during periods of separation.

For the builder of dystopian Calleta, the aspects of the natural world represented there are important “because they're fun. Nobody is going to stay if they don't find something fun or
unless it intrigues them.” This helps explain things like the tire swing above the polluted harbor, or the tongue-in-cheek tone of the build. While none of the other builders describe their purpose as “fun,” the unifying purpose here is engagement: through direct manipulation, evocation of feelings of peace and serenity, stimulation of curiosity, and entertainment.

“Naturescaping” a site in Second Life is intended to bring it to life for its users and help them connect with it as actual space and place.

Conversely, as several builders explain, a lack of these natural elements would remove much of the appeal of Second Life. For one of them, “SL would be much less interesting.” For another, “everything would be flat and uninteresting.” Etopia's builder explains why she thinks Second Life would fail without its virtual Nature, echoing the original Linden considerations about appeal and marketing:

I think that without the natural elements and experiences such as Etopia offers SL would be a superficial experience. Even gamers want natural elements in their RPGs. I doubt people, like myself, would spend the money LL [Linden Lab] charges to own and maintain simulations. I think there would be a lot of free subscriptions and eventually SL would shut down.

Although speaking more generally of his Second Life experience, another builder responded at length about the profound personal impact of his activities there. He was quite candid in describing a troubled past that included family and school problems, and said the people he'd met in Second Life helped him establish an outlet that changed his life:

Through them, and the opportunities that gave me from my artistic endeavors and my group building, they made me human for the first time in my life.
This striking response reminds me of something I frequently hear SL users saying, in blogs, forums, at conference, and in in-world conversations: what happens in *Second Life* is not always “mere game” but provides a real space of real interactions, in the sense that real lives are impacted. The builders here confirm this: *Etopia's* attempt to export sustainable living, builders trying to bring the virtual world to life for users, or even discovering that they've brought themselves alive through their experiences there. The virtual is a place where real things happen.

**Messages in the Medium**

On the presumption that creating and running a location in *Second Life* is an expressive act, I asked builders to reflect on their intentions, especially with regard to messages about the role or importance of natural systems. While their intentions are implicit in some of the responses discussed above, I was also curious about intentional ecological messages.

Interestingly, while explicit message of the sim was not always environmental, these builders expressed a need for the unbuilt, more-than-human, imperfect natural world. *Etopia* 's builder was quite clear on her message:

Without [Nature] our real lives would be barren and we would die. Global warming, pollution, and institutional food production demonstrate the cost to our well-being when we don't care for our environment. It's clear how much we need our natural systems to sustain life.

As was *Calas* ' owner:

I've always found our natural systems and environments in RL extremely important to my well-being. Not only would we not exist without them, but life would be ‘empty’ .... wanting .... without them.
On the other hand, Calleta's owner was simply interested in challenging the utopian perfection he found too commonplace in SL:

I have nothing to prove on the importance of natural systems. [However,] I started building rusted and banged up objects because when I joined Second Life, I looked around and everything was “perfect.” I got sick of seeing nothing but “perfect” items. Everything was so cookie cutter.

This can be construed as a kind of anti-technological, ecocentric message to the extent that it directly challenges the Cartesian abstraction represented by SL’s rectilinear shopping malls and futurist architecture. It's reminiscent of the culture jamming projects discussed in Chapter Two, like Schriver and Nudd's (2002) parade float or the chainsaw-wielding Victoria's Secret models described by Farinelli (2006).

Finally, Linden Four also has “nothing to prove” but is nevertheless compelled to attend to the natural landscape in her sites:

I'm not usually consciously making a statement about natural systems when I build. However, I usually terraform and get the land right first, before doing structures, which then have to conform to the land. I think that reflects my own values in general. Also, I don't think I have ever done a build of any size without sneaking in some sort of plants or scripted creatures or weather or something more natural than buildings and cars.

Thus she is aware that her personal values are reflected in what she creates. All four of these builders are consciously sending some kind of message—though whether it is received or not will become more evident below, when we turn to the users' responses.
Balancing Competing Values

Builders are keenly aware of the tradeoff that allows them to participate in production yet limits verisimilitude. The high cost of rendering is expressed in the business model of *Second Life*, where land costs money and server limits constrain how much can be built on any parcel. A builder at *Las Arenas Rosadas* was blunt:

Well, if the Lindens would stop raising the price so often it would help. We are five sims but only one is a full sim, four are homesteads¹ […] it would be nice to have enough prim [allowance] to use all of the good stuff, we could be so real….

[I dislike] having to be frugal with prims and scripts.

His colleague, also a builder on the same sim, said “I would like to add a few chickens to be running about the grasses, but we are prim shy and realistic chickens are heavy.”² *Calas*’ builder echoes the same frustration with Linden Lab:

I work with the tools I have available, which can be very frustrating at times. It can be very difficult finding creations that are ‘realistic’ … and as difficult to create them in a way that the Linden Labs software and server hardware currently accept and render. The instability of server (and viewer) performance adds to the limitation. My own hardware is sufficient to handle much more than Linden Labs offers.

These builders feel limited by both the economic model within *Second Life* and the technological proficiency of the software that creates the virtual world. *Etopia*’s builder is more optimistic, describing some of her adaption strategies:

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¹ A “homestead” is a special kind of *SL* island that rents for a lower cost but also has a much lower prim allowance. *Las Arenas Rosadas* uses these to create its expansive feeling of small, isolated islets surrounded by water, as described in the previous chapter.

² “Heavy” in this context meaning comprised of a lot of prims. “Low-prim” is a widely used marketing term among *SL* vendors who are aware of the prim-count constraints that builders must work under.
I try to use builds and textures that allow the widest range of users the opportunity to enjoy [this sim]. I tend to implement new viewer tech like Mesh later than most. Fortunately, many of the items we use fit the need for an enjoyable experience for most users.

Linden Four also provided detailed insight into the strategies used by SL builders to adapt to the constraints they're working under:

In a virtual world, particularly in one like SL where the user's hardware is often a real limitation, not to mention prim limits and etc., I budget my resources carefully, aiming for the feel of a real space more than total visual realism. A completely realistic art style that isn't entirely successful is more distracting than something a bit more stylized that doesn't lag or look great and awful until it can render. Usually, I will decide on the key features of a build, spend the most resources on those, sketch in the rest, and attempt to leave enough resources free so that visitors' hair or scripted attachments, or content my client adds after I hand off the build, won't make the place lag.

Thus the technical and economic real environment constrains and shapes the virtually-natural one, showing how material economies (and the cultures that articulate with them) cannot easily be transcended in virtual worlds. The constraints result in omissions that can, in some cases, be cleverly concealed or circumscribed by expert builders—though as Linden Four observes, this results in aiming for the “feel” rather than the real.

But that is not necessarily itself a problem. While they may at times lead to a limited, anthropocentric and visualist bias in the construction of Nature in Second Life, the constraints also force builders to consider what is essential to the human experience of the natural world—
which is not always visual consumption. From the standpoint of these builders, that essential thing might be a feeling of peace and serenity, or an awareness of solutions to environmental problems, or even a sense that visual beauty is a poor standard for judging what matters. These rearticulations complicate the resultant perspective through which one views the real world, opening up opportunities to question dominant cultural paradigms of commodification and spectacle.

The builders interviewed here grounded their comments in the specific location they were operating in, further demonstrating the way virtual worlds become real places for the people who operate within them. Within this subset of sites and builders, there is clearly a strong drive to include the organic, extra-human, natural world in Second Life. As the primary speakers in this visual and spatial rhetorical domain, they believe their voices matter. They are striving for something meaningful and significant: a better real world, or at least a more creative virtual one. They speak lovingly of their land and its features, as if it were just as real as a favorite countryside or a family farm.

Virtual Tourists: Site Visitors

As I explored the sites described in Chapter Four and sought out their builders and owners, I also approached avatars who were present1, in order to learn more about the meanings they derived from what they were experiencing. I was interested in finding how these meanings interacted with the builders' ideas and motivations, my own readings, and the original ideas and decisions of the creators of Second Life with regard to the natural world. As with the builders, I identify the visitors below by the sites where I encountered them.

1 This was a convenience sample that consisted of whoever happened to be in the general vicinity of the arrival location and was willing to participate. Most of the people interviewed in this category were encountered on one of the five builds described in Chapter Four, with the exception of the Center for Water Studies, where I did not encounter another user during the study period. One interviewee was encountered on Tempura, an island in the Pastoral Idyll tradition that might best be described as a Japanese analogue to Calas Galadhon.
It quickly emerged that social connections within SL are a critical means by which people find out about places of interest—a reminder that this virtual world is not simply a simulation for visual consumption, but a space of social interaction and relationships, and as such, it becomes further reified for its participants. Put simply, it's a place to meet and interact with others. Like the builders, this group also finds that representations of the natural world are important here and can lead to cognitive and behavioral changes in their real lives, even when “environmental education” is not necessarily what brings them to these sites.

**Finding Virtual Nature**

While visitors had many reasons for being at the sites where I encountered them, word of mouth was the most common way they had learned of the sites' existence. This visitor came to *Las Arenas Rosadas* to satisfy her curiosity:

> I came to this sim... by way of a friend's recommendation. :laughs: She told me that King Kong lurked behind the falls and would, on occasion, come out to ape-handle pretty avis.

Others learned through similar means, saying things like “a friend told me about this place,” “someone suggested this location,” and “I found it via a close friend who brought me here.”

Other visitors found the sites through more formal means. A visitor to *Etopia* said “I first saw postings of the events page for free rides on the tram and monorail for *Etopia,*” while two others reported finding the location through search tools. One of the visitors to *Calas* found it through an in-world *Best of Second Life* magazine.

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1 In SL chat, nonverbals such as shrugging or laughing are usually set off with some marker like a colon or asterisk.
2 “Avis” is shorthand for avatars. As far as I can tell, there is no hidden King Kong on *Las Arenas Rosadas,* so perhaps this visitor laughed because her friend had played a trick on her.
However they had reached the site initially, one reason for returning was that the site gave them a feeling of comfort. The visitor to Tempura said:

[It's] a nice break from some of the...more...hustle and bustle. [...] *laughs* I come here to have a bit of a rest as it were from the rest of the virtual world.

One of Calas Galadhon's visitors had a similar purpose: “It's become my favorite spot in SL because of the pond, greenery and overall tranquil atmosphere.” These responses are consistent with biophilia, yet they also posit the natural world as an “other” place, in some senses an unreal one.

Social factors attracted others. A visitor to Etopia enjoyed the community she found there:

I came and explored the sim. Then later I rented a room in the cohousing and then later on the beach. I came to meet like minded residents of Second Life, that is, residents interested in living out the principles of sustainability.

A Calleta visitor felt rootless in the virtual world but found company amid the hobo camp:

I was looking for a place to tag home [...] I thought it would be cool to be a hobo as I felt as though I had nothing but a few things on my back at the time...very few clothes to carry in my inventory [and] the people were very nice. … I just log [in and out of SL] here....here I just lay my hat...whenever I am homeless I come here.

Comfort and community were not the only draws. A different Calleta visitor simply used the site as a home base, strictly for practical reasons: “I am here because I sought out a
spot to set at 'Home' where i could rez a package.” The visitor I spoke to at the Animania store was there to look for a virtual parrot.

The social networking and multiplicity of reasons for visiting these “nature sites” are important because they suggest possibilities for circulation beyond a small community of environmentalists or touristic nature lovers. This means the ideologies and rhetorics of Nature found on these islands can circulate widely among SL users. That seems especially promising in the case of islands like Etopia and Calleta.

What Matters

Whatever their method or reason for being there, the sites' natural features were important to these visitors—often for aesthetic and even spiritual benefits. For example, one of the visitors to Calas said it was “imperative” that the natural world be represented in SL, both for its aesthetic value as well as “the intrinsic reminder of First Life.” At Las Arenas Rosadas, when I asked a visitor if the natural representations there were important, she replied:

Surprisingly, yes [it is important]. I like to come here for a little time alone, to meditate, to think. One of my favorite places here is a thin sand bar just to the north. (Arenas visitor)

The user I encountered in the Tempura sim was expansive:

I guess to me...with the name...and the feel of the place...it lends itself back in time [...]...when things were less...civilized [built-up]. Something that I think would have been stunning to see. Obviously we can't [go back and see it]...but this is a wonderful interpretation. *laughs* A more natural state. [...] I'm glad that there are creators that make sims like this and make them accessible to the public. I know they are only a virtual representation. But...I think....they are visually
soothing. One may not be able to visit such a place in real life, but it's a vicarious experience that still can have an impact on real life...on your mood...many things. I come to sims like this...when I want peace and calm. The visuals paired with the music...almost meditative. So yes..I'm very glad of sims like these. *smiles*

For that Tempura visitor, the site was a nostalgic reminder of a simpler, perhaps pastoral time. Another Calas visitor found natural scenery to be a good frame for social interaction: “I think it's one if not the perfect scenery for hang outs with friends (like at a park having a virtual 'picnic,' etc).” At Etopia, the visitor I spoke to found its natural features an important contrast “because a lot of Second Life is just shopping malls and dance clubs.”

On the other hand, some users downplayed the importance of natural components, at least within the local context. For example, one of Calleta’s visitors was mostly oblivious to the decay there, saying the theme was “not bothersome” to her as she went about meeting people and finding useful freebies there. Similarly, the visitor at the Animania store said it was important that nature be represented there, but in the case of the store it was not a “top priority” other than as a display.

Not surprisingly, then, the relative importance of the “natural” aspects of the sim to visitors seems closely related to the way the sim is framed and presented, which in turn operates as a kind of visitor filter—and may work against the kind of circulation I've just suggested above. Despite multiple pathways to these sites, space and proximity do matter in Second Life because they can impact the likelihood of new experiences, and thus exposure to new information and new perspectives.
Still, it appears that to most of these visitors that the representation of the natural world in these sites helps establish meaningful places, such as the one who describes a favorite sand bar. As the Linden designers predicted, the presence of virtual Nature brings the place to life.

Echoing Real Life

In contrast to their felt immersion in these virtual places, I also prompted these visitors to explicitly reflect on mediation and remediation (Bolter and Grusin, 2000). Their responses predictably celebrate the mediation at work while simultaneously marveling at its realism. The visitor to Arenas, for example, said it was “very realistic” and commented on the amount of work that the builder had put into “every detail.” Craftsmanship was also mentioned by the visitor at the Animania store. Calleta's visitor said how important the realism of “Linden water” was to her, saying “I think all of Second Life is created to be as realistic as possible […] Everything is nicely done in SL. I feel a thrill here every single day, since 2007.”

Two visitors at Calas Galadhon demonstrate this awareness of mediation and simultaneous excitement over its realism:

I think it is very realistic. I love the way you can hear sounds of birds and waves in different areas. Like right now the time is set to “midnight” and I hear crickets and other animal sounds you'd only hear at night. I think it adds a very realistic touch to the sim. (Calas #1)

Calas Galadon is one of the more realistic, natural sims I have come across. I enjoy being surrounded by the simulated reality of nature here and in other sims. (Calas #2)

Visitors at Etopia and Tempura were more conscious of limitations in the medium:
It has a lot of different habitats, from beach to river to ocean to mountain top. It is not a recreation of just one location in real life. It is not realistic in the sense that palm trees don't grow next to fir trees in real life. (Etopia)

Well...we're obviously limited by what can be created in this world, but I do find parts very realistic. I particularly enjoy the grove of cherry trees. … It reminds me of the cherry trees in D.C. (Tempura)

It's not clear whether the Tempura user was aware of the origin of Washington, D.C.'s cherry trees. A friendship gift from the Japanese people to the United States in the early 20th Century, the trees are not native and thus, in a sense, a kind of “virtual Japan” themselves.

Of course, simply by asking people how realistic something is, their conscious awareness of mediation becomes more salient. But their appreciation is not just of the technology and skill involved. They also use words like thrill, enjoy, and love that express emotions in ways that seem equally resonant with their appreciation for the natural systems that are being represented —whether it's the visual prospect of a cherry grove or the sounds of moving water and crickets. Thus, despite the near-constant awareness of mediation, the medium itself can (mostly through familiarity) become so effaced that the evocation of the signified, unmediated natural world, is the paramount experience. The place-making and technical verisimilitude of Second Life, amplified by the social reification provided by community, evokes in users the same kind of responses they have to real-world natural systems. In such cases, transparent remediation occurs — making the experience more immediate than semiotic, and masking the rhetorical choices at work behind these virtual displays.
Impacting Real Life

These SL users easily made connections between their virtual surroundings and their real lives. Some saw SL as a utopian vision of how real life ought to be, while others were reminded of real-world problems. And they were able to draw connections very specifically—to their own day-to-day existence and to particular real places (i.e., not just a generic notion of “saving the planet”). For the visitor to the tropical escape of Arenas, it was a wry observation that “This location tells me that I seriously need to move somewhere warm and sunny and quiet.” The person I interviewed in Tempura's forest was more wistful; it reminded her that she “didn't have enough Nature” around her: “I enjoy taking walks in the woods, or a flowering field. Sadly, I don't have much opportunity where I live.” Calas Galadhon's parklike forest—tame as it might be—reminded one visitor “that we should have plenty more free parks like these where I live. I live in a city so finding a beautiful natural spot like this is very rare.”

Thus even when SL’s natural areas might provide serenity or escape, they easily evoked a feeling of dissonance; an evocation of unsatisfied biophilia. Real life might seem unsatisfactory because the idealized depictions in SL are viewed as unattained possibilities, as Lange (2001) found. Sheppard's (2001) “ethics of of virtual representation” are certainly violated to some degree (in terms of their accuracy, representativeness, etc. – see Chapter Two). But these sites are neither offered nor read as landscape-planning visualizations. They bring forth a greater appreciation for encounters with Nature, much as Stewart and Nicholls argued (see extensive discussion in Chapter Two): that virtual experiences can “facilitate an improvement in the way one actually experiences the world” (2002, p. 85) and result in positive change.

One sees this potential at work in the comments made by one Calleta visitor with regard to the dystopian landscape there. He saw the site as “perhaps a bit exaggerated” but said that
“Water pollution [...] and refuse and etc. is an issue. [...] Gosh the Charles River here in Boston needs a better cleanup, too.... I am not a treehugger lol [but] pollution is a problem.” A visitor to the Animania store said it made her “want to plant more butterfly attracting plants,” while Etopia showed another “how we could use mass transit to travel around rather than our own personal fossil fuel burning vehicles.”

Whether these users translate these statements into actions is not within the scope of this study. Certainly there is a rich literature on the attitude-behavior problem, and that is of particular concern to environmental activism. But certainly the real-world analogues of these virtual places can be brought into salience for visitors in an environmentally positive way. It also seems reasonable to speculate that negative portrayals (such as Calleta) or concrete examples (like Etopia's monorail) help ground user responses in specifics. On the other hand, sites that operate mainly as escapism or romantic idyll might be less effective if all they do is stimulate a poignant sense of loss. If that's the case, designers with environmentalist agendas would do wise to avoid Second Life's tendency towards dreamy fantasy or travel-industry escapism, and focus their virtual building on both positive, workable examples as well as culture-jamming dystopias.

These visitors are the primary audiences for the embedded rhetorics in these sites. If the builders exemplify the new voices in this medium, these site visitors show how their messages are given meaning by their recipients. The biophilic motivation may be expressed as an appreciation of aesthetic beauty or by a recognition of the critical importance of Nature for its own sake, but whatever the interpretation, the natural world is important for these users and their virtual experiences become mapped onto real life, suggesting possibilities for environmental educators and activists. Furthermore, these users find themselves engaged and immersed even when they are simultaneously aware of the technical mediation that makes the virtual world
possible. What is less clear is the extent to which these sites might be discovered by the average *SL* user.

**Virtually At Large: Other *SL* Users**

Finally, I sought to round out my user interviews by talking to regular *SL* users who I knew to be interested in the relationship between the natural environment and the virtual one. These “at-large” users provide a more general reflection on their experiences across *Second Life*, and show sophistication in the methods used to locate sites of interest to them. Their responses (attributed to “User 1” through “User 6” below) supplement both the builder and visitor groups described earlier. In particular, they provide insight into the potentially problematic role of virtual animals, and show how even advanced users can still suspend disbelief and immerse themselves in the virtual environments they find their avatars inhabiting—thus illustrating the way an aggressive remediation can over time become effaced and transparent, obscuring its unreality.

**Finding Virtual Nature, Redux**

For the most part, these users find locations the same way that the visitor group did. Most of these sources are social, like word of mouth (3 mentions), browsing through the profile picks\(^1\) of other users (2 mentions), or being taken there by a friend. They also used the *Destination Guide* (2 mentions) or other, less formal guides and blogs, or read about locations in group messages. One mentioned searching for terms like “forest,” while another reported finding these sites serendipitously, just wandering around *SL* and following whims.

The results for both visitors and users not only provide a picture of the various ways people are exposed to virtual-world rhetorics, but also validate the methods used to find locations

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\(^1\) Each *SL* user has a public profile and can list favorite locations there to share them with others.
for analysis in the previous chapter; that is, I located sims for analysis in pretty much the same way the respondents find them for other purposes. I take this as a partial confirmation of the validity and generalizability of those methods and their outcomes.

**What Matters**

Echoing the Lindens and builders, these users said natural components “make us feel comfy” and the lifelike movement of waves and plants “lend a bit of realism and beauty.” User 1 called these things “natural stuff”:

Natural stuff like plants, animals, water and sunlight bring our second life in a rhythm that we know from RL. We are used to natural stuff and need these components to feel home and comfortable with virtual and [...] really non-existing stuff that SL shows us.

Note that User 1 even seems to distinguish levels of reality within SL: some of the “stuff” there is “really non-existing” – that is, very obviously artificial and a product of the technology – whereas the “natural stuff” more easily effaces the fact of its own mediation.

User 3 explains how this “natural stuff” is important in both worlds, just as others have noted the way SL points to the natural world:

To me at least plants, animals, sunlight and water [are] very important. I am not a game player nor a role player [so] when I am here I have the same wants in an environment as I do in my so-called everyday life. Those things are quite important to me in both lives.

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1 This loose phrase strikes me as a good characterization of the broad and elastic definition of “Nature” and “the natural environment” that I have been using in this work.
User 5 even helps explain how a dystopian site like *Calleta* could be appealing to a naturalist:

I find Eco and Natural Builds the most interesting, I love the builds that depict cities in various stated of urban-decay with building looking like RL (window busted out etc.).

And as User 6 explains, natural elements “impact the energy” of the site:

They can add softness and/or a sense of serenity, and of course add to the realism. To me the water and light are most important in this regard; there is a soothing quality in the way the sunlight (and moonlight) “interact” with the water, and the way the shadows are “cast” by the trees. Light “filtered” through the trees is especially pleasing in dense forests. The animals, not so much. They can be charming sometimes and add a sense of fun, but otherwise are not important for me, nor do they add to the quality to the build.

Both User 6 and User 4 had the same reaction to animals:

I don't think much about animals, but water and sky are essential elements of my SL. I nearly always locate my self with a view of water.

These users are confirming the Lindens' assumption that natural components add a level of comfort to the virtual world by mimicking the real world. They also confirm that that cycles and change – wind, moving water, light and shadow—evoke that feeling as much as literal visual or spatial representation. And they confirm the apparent discomfort with virtual animals described in the previous chapter.
Mirroring Nature

Again, this question elicits information about users' awareness of mediation as they engage in SL activities. Perhaps because this group tended to be more experienced SL users, or were more reflective in general regarding the character of virtual worlds, mediation was even more apparent to them than it was to the visitors. This may also be a result of their witnessing the evolution of Second Life's technology. For example, User 3 said, “Considering the limits [of SL] I find them [sites] beautiful when well done and enjoyable places to visit.” User 4 also situates realism in relation to technological capability: “Over the years, there have been big advances in the sounds and looks of moving water and botanicals.” User 3 contrasted Second Life's Mainland continent with private sims:

Some are quite well done others are a bit primitive, It also depends on the type of land they have to work with I find. Mainland can be less natural than the freedom you have with private regions. The reasoning behind this sense of less naturalism in the Mainland likely has to do with the previously mentioned “zoning” issues encountered there, where contiguous parcels often have wildly contrasting designs and themes. Private estates and islands are visually separated from other islands and their theme and design carefully controlled.

User 5 praises realism while reminding us of the barriers to entry discussed earlier in this chapter; as the sophistication of virtual worlds increases, construction skills may become more specialized and expensive, limiting the range of voices available to audiences there.

Some [sites] are incredible, Unfortunately only the best creators using Blender/MAYA/3Ds can make this happen. I would wish that soon an in-world
software product would be released to make it easier for the average person to build.

Finally, User 6 provides an interesting elaboration on the specific ways realism is evoked (and also explains her “animal problem” in further detail):

[Theses sites are] Often very [realistic], and improving all the time. […] Techniques that create a sense of perspective, such as those used in fields of grasses and flowers as well as the technique of building inside a hollow prim and texturing that prim with a photo, add huge value to realism. Conversely, waterfalls are not as realistic as some of the other ways water is created. But the least realistic creations are the animals. For me, they often detract from the sense of realism. There is something about the textural quality that just can't seem to be created in a way that appears natural, and the ones that move don't move in a natural-looking way.

Even though this group is very conscious of the mediated nature of this virtual world and can analyze the way it effaces itself in great detail, these users can also quite easily suspend disbelief and allow immersion to reduce the sense of mediation. Perhaps this isn't much of a surprise; after all, they are for the most part regular, long-term SL users—and not the augmentationist kind who focus on SL as a tool for communication and education, but immersionists who “live” within SL, create personas, and engage in communities there. User 2 evokes her own Buddhism to explain how realism stimulates engagement:

But for a virtual world to stimulate the kind of deep engagement the lama was talking about, we have to have some degree of “realism” - a Popeye cartoon will not do the trick. […] Some are incredibly realistic in terms of sight and sound.
The technology really does advance rapidly. I tend not to stay in or return to sims that come off as sloppy. There are too many others where the designers have clearly made the effort.

User 1 explains how SL technology creates the feeling of “being in a realistic situation”:

Virtual nature can never replace RL nature. [There is] so much that cannot be done with pixels: the touch of nature, the smell, to be really surrounded by nature and to get the feeling to be in nature. But the realistic builds that use structures, sounds, light effects like sunshine or other light situations or also wind effects cause a quite proper feeling of being in a natural-looking situation that makes us feel being in a realistic situation close to RL.

User 4 explained that even “clearly fantasy” sites have a realism to them because “people have gotten very good at creating nature based builds.”

Once again, these users demonstrate what Bolter and Grusin (2000) mean when they say that we simultaneously celebrate the fact of mediation, while believing that increasing technological sophistication somehow takes us even closer to an immediate apperception of the unmediated, natural world.

**Indexing and Influencing Real Life**

Like the visitors, the “at-large” group also found that Second Life pointed towards real life, rather than simply being an alternative or escape. User 1 said that Second Life reminds me the virtual world cannot neglect [the] real world... [that the] virtual world is a mirror of the real world. [...] probably people who are not so much in nature could be impressed by natural looking stuff so their interest could grow for natural environments.
In other words, *SL* stimulates interest in the natural environment. User 5 agreed: “Being able to cruise sims that depict so many different environs is extremely helpful in seeing the differences.”

As did User 4, who provided one explanation of the kinesthetic value of immersion:

Yes of course [it can help]. Good models are good models. 3D is better than 2D.

Immersion is more powerful than observation at a remove. Also, think “mirror neurons.”

By “mirror neurons,” she is referring to a kind of sympathetic kinesthesia whereby the body of an observer physically responds when watching others act—like watching sports on television. Her argument is that, when the virtual world is realistic enough, our bodies respond on a physical level. She even reported that she had caused herself a vitamin D deficiency because her time in virtual nature fooled her body into thinking she was getting the full benefit of the real experience, and noted that areas without open, natural views made her feel claustrophobic.

User 3 addressed environmental education specifically:

I think the potential for [teaching about the environment] is under utilized. I think we could teach and show the benefit of a natural environment here so much better than what is currently being done. If done right it can be so many things from a learning tool to teaching respect for the world around us in a natural state.

User 6 did as well, saying “I find the educational builds when provided with text and temporal elements beneficial in that regard.” On the other hand, User 2 was less interested in captioning and framing, but found direct interaction most useful in terms of transference to the real world. Interestingly, this was the only interviewee who also seemed to find virtual animals (in the form of a virtual pet) a positive thing:
I have my nose in written material all day, so when I come on SL I tend not to read complex signs, notecards, etc. I need more immediate experience in this world. Fortunately, I believe we tend to connect with SL natural features in a profound and sympathetic manner. For instance, as a VKC [virtual] dog owner, I experience my dog—and myself and my friends for that matter—as very real. I think I experience places, and feel empathy for them in the same way.

This notion of empathy with virtual places, people, and especially animals is promising, because it provides a possible mechanism whereby virtual animals can foster a more empathetic engagement with real-world animals. However, if this empathy only happens with anthropocentric pets that exist in relation to an owner or master, it may not be particularly effective from an environmental education perspective. “Wild” virtual animals might still have create that uncanny feeling that foregrounds their artificiality.

**Ephemeral Places of Interest**

Partly to expand the scope of potential sites for Chapter Four, but also to extend my understanding of what was considered important, I asked Builders, Visitors, and Users to recommend other “natural” locations in SL. Their responses highlight the ephemeral nature of SL sites (and thus their economic cost) because, as one said, “many of the places I enjoyed no longer exist”—such as the Virtual Mine, which is discussed in the next chapter. She also mentioned enjoying the Costa Rica sims and sailing on waterways—an interesting kind of virtual vacation, since this was the owner of the relatively serious Etopia sim. Calas' owner regretted that maintaining eleven sims (!) gave him no time to explore, and none of the other builders interviewed had any recommendations at all. Building and maintaining a sim takes a lot of time
and effort, so it's not particularly surprising that these builders were not nearly the SL tourists that other users appeared to be.

The sites recommended by the Visitor and User groups suggest that avoiding a wistful disconnect from lost Nature will be a challenge, because once again, Calas Galadhon was popular among this group as well, mentioned by half those interviewed (one of whom described it as “beautiful and lush in detail”). The forest sim Tempura and another pastoral idyll, the Garden of Dreams, as well as a kind of museum called the SL Botanical Gardens—all of which were considered for inclusion in the previous chapter—were also mentioned. Users also mentioned familiar locations like Las Arenas Rosadas and Etopia, as well as the names of a few vendors and individual sites whose names are evocative, like Penelope, Midsomer, The Forest, and Daydream Island. Recommendations also tended to focus on the “loveliness” of sites and their entertaining features.

**Conclusion**

As stated at the outset of this chapter, my conversations with Second Life's producers and consumers largely confirms the close readings described in Chapter Four and suggest that for the most part, new media are rapidly colonized by existing views of Nature. In other words, despite the promise of a revolutionary new way of representing our world, the old ways have inertia. The natural world is important to these people—one might even argue that this group is more environmentally conscious than the average Second Life user—but in many cases the reasons it is considered important have to do more with making the virtual world profitable or attractive than with any biophilic or ecocentric purpose. Anthropocentrism abounds, and the meaning of “Nature” – and thus the elements of the real world that may be evoked by what users experience here – ranges from entertaining vistas to technological marvels. Technology itself, in the form of
the *Second Life* medium, is never far from users' minds even when they are celebrating the immersive realism they encounter there, confirming Bolter and Grusin's (2000) remediation theory – an important finding when one considers that the inherent promise of virtual reality is its total effacement as medium. At least as it is manifest in *Second Life*, virtual reality is not quite there yet.

Nevertheless, virtual nature seems a strong path toward convincing users that they are really “in” a virtual world, because it seems to be the component that most easily effaces itself. As others have argued, this can become problematic if such “persuasively real virtual Nature” is depicted in an unrealistic fashion. Chapter Two describes in detail the concerns of Levi and Kocher (1999) that experiences with virtual reality will increase the perceived value of spectacular scenery over local and mundane real-world environments, and as Bell (2001), Daniel (2001), Lange (2001) and others warn, naturalistic (but partial) virtual representations can overwhelm our own direct experience with the real world.

The accidental discovery of the power of user-built content has led to a medium that, with some limitations, democratizes access to the machineries of cultural production, which is critical if an open public forum is to be maintained in this new medium. Thus the rhetorical colonists are diverse and, perhaps, provide a kind of buffer against a completely monolithic advance of commodity culture. The range of voices evidenced by the builders interviewed here shows some of the polysemic and even conflicting points of view that can contend for attention in *Second Life*. This counterbalances the limitations that user-built content places on the verisimilitude of the medium, in part because these limitations are temporary and will evolve as the technologies of virtual worlds advance. If multiple users continue to be able to participate in the production
and reproduction of culture here, such a space can remain an open forum for contesting ideas about our relationship with natural systems.

However, even the process of reification that occurs here, whereby the flat screen becomes three-dimensional, inhabited space, is not necessarily going to generate greater caring for the environment. For one thing, one need not look far in the real world to find people behaving in environmentally destructive ways even when their embodiment is very real and the consequences almost immediate. If I can “live” in a virtual world where consequences are distorted or even nonexistent, I may be even less likely to care what happens in the real world. Yet as many of these users attest, the opposite is often the case: they are reminded of the way they value the real world, and environmental damage that might be obscured or simply avoided can be brought into greater salience when it invades even the Cartesian perfection of virtual reality. In the following chapter, I widen the circle of analysis to see how these visual and spatial narratives extend beyond immediate users and circulate to other audiences, potentially extending the reach of this medium.
CHAPTER SIX

METAVIRTUAL: CIRCULATION BEYOND SECOND LIFE

The virtual realm of Second Life and its producers and consumers do not operate in isolation from the real world. For one thing, as seen in Chapter Five, users report Second Life's impact on their own real-world thinking and behavior. But SL and its sites and events become topics that circulate through the culture in other ways. In this chapter I look beyond the designers and users to the circulation of stories about SL's “virtual Natures” on the public Worldwide Web to learn more about whether SL—and MUVEs in general—can serve as vehicles of environmental awareness, rather than simply a distraction that looks “green” while actually reinforcing the view that Nature is a commodity to be valued only for its ability to supply resources and entertain us.

As with the interviews in the previous chapter, the commodification narrative is not absolute. In fact, the voices in this chapter seem almost to have filtered commodification out in the way they present stories about and descriptions of Second Life. This metanarrative is especially surprising against the usual background of lurid sensationalism and sexual shenanigans that characterized much of the reportage about SL during its heyday. While the stories that circulate may be attracting the attention of readers just because of the technical novelty of MUVEs, the fact that Second Life can “contain” a subset of Nature means this novelty can serve as a foot in the door for environmental messaging.

These web articles, blog posts, and videos range in tone from immersionist to augmentationist: some treat specific sites as more or less “real places” that one might experience as a resident, while others present SL as simply a medium for environmental education or activism. A few are “outsider” perspectives written with little or no direct Second Life experience
at all. Just as perceptions and perspectives of Nature (real and virtual) varied across the individuals in Chapter Five, these Web conversations show patterns of reframing and rearticulation taking place as the conversation extends through other online media.

It's important to look at this discourse circulating outward from the *Second Life* community because it helps to situate it within a larger media space and public sphere where the (real) natural environment is itself an object of discourse—even, one might say, virtualized itself as a concept that is contested, subdivided, and articulated with cultural practices and public policy. As the point of view moves from immersed-within *Second Life* to an outsider perspective addressing other audiences, the frames and tonalities shift in ways that illustrate the influence of commodification, remediation, and spectacle. They suggest a bifurcation in audience consciousness with respect to immersion—at least, immersion in *Second Life*—that helps explain its potential for environmental education and advocacy, as well as limits to this potential.

At least in some sources, there is a kind of filtering effect of successive remediation that pushes a technocentric frame to the foreground. This may be an instance of older media resisting erasure because there is political-economic power at work, as discussed in Chapter 2 in the section on Remediation Theory. In other words, just as TV and the Web compete to remediate each other, as Bolter and Grusin argue is happening when traditional news outlets disparage "the blogosphere" or web sources like Wikipedia, when *SL*'s technological capabilities to "replace" reality are minimized in reportage, it may be a “battle for remediation” (Bolter & Grusin, 2000, p. 48). Traditional media may thus focus more on the new representational paradigm that inhabitable 3D spaces offer than on any messages it contains. Or it may be simply that these pieces tend to be written for virtual-worlds enthusiasts who naturally celebrate the medium.
Despite the minimization of the commodity narrative, there is still a valorization of the visual and aesthetic, showing how these problematic frames of “Nature” can be reinforced by a medium like SL that celebrates individualistic vision in a user-created world. On the other hand, there is a more promising thread in these materials that demonstrates the power of virtual Nature to influence educational and ecocentric messaging in a more sustainable and just way. When virtual Nature makes an appearance beyond the boundaries of Second Life, it creates attention, knowledge, and even action. Ironically, it seems that this meta-virtual-narrative holds more potential for change than the (virtually) direct experience of Second Life—though without virtual nature, there would be no story to circulate.

The materials described here were collected during a public Web search in summer and early fall 2013, using keywords much like those used to locate sites in Chapter Four, e.g., climate change, nature, park, wilderness, gardens, wildlife, museum, and pollution; the phrase “Second Life;” and the names of the locations visited in previous chapters. Initial results were culled to approximately twenty sites, from four genres of Web content, providing a corpus of materials large and diverse enough for meaningful analysis. These include:

- Four YouTube videos
- Seven articles, announcements, and press releases on the regular websites of Nature Publishing Group, National Geographic, PBS, CNN, nonprofits like EDUCAUSE and The Public Agenda, and PRWeb.

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1 Bookmarks, annotations, and web snapshots were collected for each item. I also created automated Google™ search alerts for the italicized keywords so that new matches might be easily located as they emerged, but none of these automated results were of use to the present study.
• Eight relatively formal, ongoing blogs, sponsored by organizations like PBS, NASA, or Nature Publishing Group, or simply well established blog outlets like *New World Notes*

• Four less formal and in some cases very short-lived blogs operated by individuals, usually under the name of their *Second Life* avatar, with no real-life information provided about the author.

The sites were originally published between 2006 and 2013 (Figure 16):

![Figure 16: Not Dead Yet: SL Circulation Continues](image)

A few of the selections provide direct evidence of further circulation. These include common indicators and features used on websites and social media, such as information about the number
of followers/subscribers, view counts\(^1\), “likes” (on *YouTube*), lists of trackbacks\(^2\), and reader comments. User comments and trackbacks provide insight into the way the article is received by its audience and, in the case of trackbacks, tell something about further circulation contexts. Audience comments can reinforce and extend frames in the original article, or they can directly contest them. They can also turn into flamewars\(^3\) or “hijack” the topic into unexpected and irrelevant directions—assuming subsequent readers attend to all the comments.

Within these materials I describe the kinds of “SL Nature” selected for discussion; whether scientific simulations, aesthetic landscapes, or immersive escapes are presented most often, for example. Similarly, I examine which natural features (landscapes, plants, animals) are described, as well as the purposes or activities that are associated with them, which reflect choices that comport with or resist cultural practices relating to the natural world in real life. The tone or style of the remediation (serious, dismissive, technophobic, etc.) also reflects source biases and provides a frame for audiences who may have no other experience with *Second Life*.

The materials are arranged below in what might be considered orbits of circulation; that is, from sources aimed primarily at *SL* users, to those more likely to circulate more widely among the general population and subgroups such as educators, environmentalists, scientists, and others.

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1 These ranged from several hundred to over six thousand.
2 A blog post can be configured to display a list of other blogs that have cited it (by URL); this list is automatically generated and updated by the blogging software. The items on the list are called “trackbacks” and provide the URL of the citing blog.
3 A “flamewar” is what happens when Internet users argue and insult each other back and forth in comments and posts. The term derives from the practice of posting lengthy verbal diatribes called “flames”—in the sense that one might say that someone has been “burned” by a “blistering” verbal attack. A flamewar is not just an argument, but one characterized by personal attacks and sarcasm.
Blogging About SL

Bloggers are in some sense the vanguard of participatory culture creation in the Internet age, and when describing Second Life they present a wide spectrum of possibilities for circulation. While they are at times a kind of re-mediating choke or filter, limiting SL to a techno-fetishist realm of pretty pictures, some bloggers also demonstrate the way the virtual world can direct attention back to the real one.

The rapid development of online media in the past twenty years means that blogs are—when compared to virtual worlds, at any rate—a relatively traditional medium, with a large general audience, and thus a useful conduit for the circulation of information about Nature in Second Life. Some of the blogs described in this chapter are small-audience vanity or hobby projects with short lives, while others are long-term, formal outlets sponsored by established media organizations, augmenting or even replacing still more traditional outlets like print or TV.

For example, New World Notes (NWN), founded in 2003 by freelance journalist and game designer Wagner James Au, originated as a semi-official outlet for an “embedded” Second Life journalist (Au, December 2003). Since then it has expanded to include other virtual worlds and related developments, with posts written by Au and guest authors. It remains a popular and prolific blog.

In a relatively early post titled “The God Game,” Au writes about a visit to the now-defunct island of Svarga (Au, 2006). He describes the detailed simulated ecosystem that existed there, framing the story in the language of creation mythology (“In the beginning, Linden Lab created the heavens and the earth....”). The Genesis-like narrative of the opening paragraph closes with a reframe when the creator's computer crashes; although this is done humorously, it reinforces the anthropocentric notion of Nature as human object and entertainment, even while
valorizing the creativity and biocentrism of the site, and puts technology in the foreground as an enabler of (virtual) ecosystems. The site's builder jokingly refers to herself as a “god” of the sim, consistent with the Genesis frame. The overall tone is slightly whimsical (there is a screenshot showing Au's avatar sitting on a virtual cloud), but is mainly a technological/scientific description that focuses on the sim as a product of the builder's intentions and designs. The site itself is recommended to visitors for its detail and complexity, and these descriptions implicitly conflate technical sophistication with the complexities of ecosystems, e.g.:

Scripted clouds roam the sim and occasionally rain onto the ground below. The plant-life underneath soaks up water from the cloud, the amount is determined by angle and distance (Au, 2006).

Comments left by readers (29 at the time of this study) reinforce the valuation of technology and technical proficiency with phrases like “nice and clever use of SL,” while also praising the site's aesthetic beauty—repeatedly using the word “amazing,” with its connotations of technical wizardry and “gorgeous,” “beautiful,” and other descriptors that emphasize visual design. A few of the commenters say that seeing Svarga inspired them to pursue their own virtual constructions.

The remarks are notably absent of what might be called ecocentric content; Svarga's ecosystem is valued as a technical accomplishment of great beauty, rather than, say, a way of understanding biological systems or a reminder of real-world places (as with the impact on interviewees in the previous chapter). The resulting narrative is completely divorced from Nature, suggesting that circulation beyond Second Life becomes a story about the medium—much as Remediation Theory might predict. The audience's interest in virtual-worlds technologies influences the resulting interpretation; this is meta-virtual reality.
This is not always the case, though. There are over a dozen “trackbacks” to other blogs that link to “God Game.” Many of these are dead links, and most of those that still exist add little framing to the story beyond a reiteration of technocentrism. One, however, refers to Svarga as “the prettiest biology class you'll ever visit” and focuses on the site's ability to educate about natural systems:

While global warming might be an inconvenient truth that people don't want to face, creating more interactive, fun ways for people to learn about how the Earth operates might help convince new audiences of the importance of sound environmental policies (Panganiban, 2006).

Despite this solitary example, the primary narratives in “God Game” are about remediation and technology, as well as human creative artistry and aesthetic appreciation.

A different approach appears five years later, when a New World Notes guest blogger invited readers to “Stroll the Lovely Second Life Sim of Peaceful Forest” (Minx, 2011). This short post (the screenshots take up more space than the text) ignores technology completely and instead emphasizes aesthetic pleasure, referring to “sims that are filled with magic and nature” and urging readers to “visit this peaceful and serene natural sim.” The frame of reference here is more that of an immersed tourist than wry journalist.

The comments on the blog tell a different story, pulling the conversation into a flamewar that illustrates a tension between anthropocentric entertainment (one reader complains about the lack of things to do, preferring “romantic” nature sims with plenty of poseballs) and technovisual sophistication—bringing the subject around to technology and mediation once again. As one reader puts it:
I really find it depressing that the first comment someone leaves is about how you want to do something more than "stare". It's saddening that going to admire the beauty of someone's mind made pixel is boring. I'm personally always amazed when someone can take little bits and pieces and create a whole picture as stunning as this is. I personally find "romance" gardens creepifying and disturbingly unoriginal (Minx, 2011).

Notably, neither the “creepifying” romantic gardens nor the “stunning” pictures bring us back to the natural world. As with “God Game,” this post suggests that metanarratives about SL sites tend to revert towards a celebration of mediation and, at best, a view of Nature as a source of aesthetic pleasure for human consumption. Nevertheless, the author does present the sites in the language of real places one might visit, suggesting that representations of the natural world bring sites alive for visitors and confirming the biophilic.

Uccello Poultry's “Poultry Report” blog post from 2010 about the Misty Mountains sim also highlights the aesthetic (Poultry, 2010). The blog—taglined “Real Me. Digital Life. Virtual Spaces”—has published several posts a month beginning in April 2008, and has 46 followers, according to the site host. The post of interest here contains scenic screenshots of "one of several gorgeous regions" in the Calas Galadhon set, where the author says she likes to appear "in a fantasy form that I feel suits the environment."

My reaction when I first visited was "I'm Home!" The ambiance is lush and natural. I was in my beloved White Mountains of New Hampshire. But then I turned the corner and felt like I was in the Pacific Northwest. Another section reminded me of the Allegheny foothills of Western Pennsylvania....You really need to see this place.
She also offers insight into the way natural systems may be presented:

Let's call it *Enhanced Reality*, as when a nature photographer grooms a scene by bending aside a stray branch or setting some hidden food to attract wildlife, creating a best possible "reality" that better communicates the intended message than the previously extant scene.

According to Poultry, the result is "ideal forest environment." Again, this is Nature as source of aesthetic pleasure, wherein designers “groom a scene” in a manner reminiscent of English Gardens in order to create a message that plain reality itself cannot.

However, note also that this writer finds that virtual sites bring real ones to mind (“beloved” mountains) and create a sense of being at home. This not only expresses the perception of the virtual as real place but also provides another example of the virtual world indexing and leading back to the natural one. Instead of hypermediation, whereby technology's ability to re-present the natural world naturalizes the technology itself, this is instead a kind of “de-mediation,” whereby the aggressively artificial virtual island brings attention back around to the real world. Even if such attention is largely aesthetic and sentimental in this case, it offers a point of departure for environmental education.

Visual and aesthetic bias continues to predominate, however. Another small blog, “Honour's Post Menopausal View (of Second Life),” has 402 followers and has been published since 2008 under the avatar byline Honour Macmillan, who describes herself as “an explorer and blogger who writes primarily about the virtual world of Second Life.” She reports on “Las Islas de Second Life,” part of the collection of tropic-themed sims described in Chapter Four. The post begins with a large screenshot of a spiny seashell on a sandy beach – a macro composition that almost looks like a photograph, but which was actually taken in *Second Life*. Macmillan says that
while she isn't usually drawn to tropical destinations in SL, she's impressed by the island's “shack full of great tropical waves and shells and more for creating and decorating your own paradise” (Macmillan, 2012). She injects a bit of whimsy with a brief anecdote about a malfunctioning hammock (referencing bodily immersion), but the overall tone, once again, focuses on “pretty objects,” “pleasing vignettes,” and technical skills:

The builders have used great textures and have a good eye for landscaping and layout. .... You can find small, detailed, and pleasing vignettes everywhere....These islands are relaxed and gorgeous and there were enough pretty objects and images to keep me busy for a long time with my camera (Macmillan, 2012).

The only reader comment on this post—from Uccello Poultry, the blogger described above—is a note of agreement about the visual appeal of the islands.

Yet not all of these enthusiast blogs are dominated by a focus on technical achievement or visual beauty. A short-lived blog, The Pixelated Naturalist by Breandan Turas (SL avatar name), comprises five posts from 2009, presented as “a naturalist's notebook containing sketches of rambles in the wild spaces of a virtual world” by a “writer and amateur naturalist writing about the wild spaces and wild life in virtual worlds and the potential for digital media and virtual technologies in natural science/ environmental education” (Turas, 2009a). The multiple references to wildness and the mention of environmental education offer a significantly different perspective.

The first post in Turas' blog is a short essay on the concept of “digital wilderness” in the virtual world, followed by four posts that describe specific sites. Although he selects sites that are educational or scientific, his focus is on the spiritual and enlightening aspects of Nature. The
tone is speculative and transcendental: Nature (real and virtual) is a place that “gives rise to revelations.” He sees the “nature builds” and virtual wildlife in SL as analogs of the “wild places” we need in real life, and is drawn to them by an “inexplicable urge” to revisit sites where the mundane world may be transcended. In contrast to the admirers of “pleasing vignettes” described earlier, Turas sounds more like Thoreau or Walt Whitman encountering the Sublime in Nature.

As noted in the last two chapters, virtual animals seem problematic for many users—but not so for Turas. Animals—goats, lizards, and especially turtles—are prominently featured in his posts. For example, he visits a virtual seacoast, where he encounters sea turtles that are “emissaries of a deep, wild place I do not know, speaking a language of a time beyond our conception” (Turas, 2009b). Other than the general references to the ecosystem of Svarga noted earlier, Turas is almost the only writer in this chapter who pays close attention to virtual animals; “Nature” is almost always landforms, water features, and flora for other writers.

Turas also sees educational potential in these virtual lands, but it's closely connected with his sense of wonder, as when he shifts his point of view to “see the islands from the sky as birds might. It is a remarkable way to learn” (Turas, 2009c). In the context of education, these birds and turtles are just another part of the medium:

The possibility of shared, communal learning in the virtual world with colleagues and strangers from across continents and time zones intrigues me. More, in this world where pigs might literally fly and night becomes day by the click of a menu button, there is also the wonderful sense of whimsy (Turas, 2009c).
Elsewhere, he suggests that a very model-oriented, scientific sim might also help us better understand “that we are indeed seeing the world through models and metaphors and their potential limits may allow us wider capacity for alternate perspectives” (Turas, 2009d).

It's a shame *The Pixellated Naturalist* had such a short life, given the unique emphasis on the virtual animal kingdom as a kind of pathway towards identifying with and learning about the natural world, as well as his unusual blend of scientism and transcendental philosophy. This sort of frame seems most likely to yield more environmentally-friendly outcomes than a frame of entertainment or visual beauty (though these frames are not completely absent from his posts). More than a new-media evangelist or committed immersionist, Turas unpacks the ability of the virtual world to make us question our own understanding of the Real, in very concrete and practical ways that problematize existing attitudes and mental models. Much like the Romantics, Turas is anti-Cartesian: for him, wildness and transcendence—perhaps his animals are standing in for these things—become pathways to ecological enlightenment.

These virtual-worlds bloggers range from those who wish to be read as reportage, as in Au's “God Game” post, to more personal and expressive journals of experiences and impressions. Technical skill and the impressive capabilities of the medium are the most common themes here, though as has been shown, the posts also vary widely in the extent to which they reference the real natural world and what is considered to be valuable about it. Commodification is, perhaps surprisingly, mostly absent from this general tendency towards technophilia and spectacular nature; however, both technology and spectacle are often available in the form of commodities to be purchased, whether as scenic tourism or computer upgrades. The focus on technology also creates a perspective that points away from the unbuilt, natural world. But as
several bloggers demonstrated, it can also “de-mediate” through what appears to be (for these writers) a powerful indexing of the real world, even when aesthetic or sentimental.

**Conversations with Builders**

While “God Game” includes a brief interview with the Svarga builder, other sources provide interviews in which SL builders talk about their motivations, influences, and goals. Like the blogs above, the audiences for these interviews seem to be virtual worlds enthusiasts. They can be read as a kind of ekphrasis for the builders' creations—but also as hagiography for new-media wizards.

Two SL vendors, who build and sell virtual plants, animals, and other “nature stuff” (in the words of an interviewee in Chapter Five) are featured in a couple of recent online sources. One of these is builders is Kaikou Splash (avatar name), well known for his virtual animals, particularly marine life. In an interview published by “enhanced realist” Uccello Poultry in February 2012, it's striking to see how explicitly and playfully the anthropocentric frame emerges. This is especially apparent in the screenshots that accompany the blog post:

- A female avatar in bikini being towed through the water by an orca as she holds onto its dorsal fin as if it were a trained dolphin, with the caption:
  
  Swimming with the new Splash orca! Like the new mesh dolphin in the background, avatars can ride the critter in various modes, or by themselves the critters will explore the waters in an area you define. They even have special, optional behaviors for when avatars are in the water.

- A large crocodilian wearing a collar, next to a sign advertising a treasure hunt.

- A female avatar seated on a dock, fishing, in what is described as “a delightfully scenic area.”

- A female avatar (“That's me,” Poultry says) in the large aquarium area:
One can dive into the huge aquarium and swim with the fishes! Landlubbers can access via the shop a tunnel that lets them stay dry as they enjoy the multitude of creatures in a very realistic setting. Like many parts of *Splash Aquatics*, the aquarium is informational as well as beautiful.

- An overview shot of the outdoor store: “Walking through Splash Aquatics, you often forget that you are in a shop. Everything is so beautiful; it's like a tourist attraction” (all quoted captions from Poultry, 2012).

The post itself begins with Poultry describing her friendship with Keikou Splash and giving an overview of the builder's latest projects. Splash says he tries to balance prim count with detail, while giving his animals distinctive character, echoing the competing demands described by Lindens and builders in the previous chapter. Technical improvements in the *SL* software have enhanced his ability to create lifelike animals, he says, which allows him to express his appreciation for real marine life:

*Kaikou types:* aaah Deep Sea is very much a labour of love! *immediately sits up* this is a subject very close to my heart, being a diver and aquatic conservationist in my part time in rl. When I first started Splash Aquatics I simply wanted to set up an aquarium shop, but as my land and product range grew the natural progression was into sea creatures.. Those sea-life centres are my favourite places to visit in the whole world. I must've heard "wow this is just like my local sea-life centre" a million times! it's ace! :]

Splash's enthusiasm is obvious, as is the fact that his work is strongly tied to his own love of real Nature. But the reference to his “local sea-life centre” and the screenshots present something more like a remediated Marineland, perhaps one that improves on its real-life counterparts by
effacing its own presence even further—and thereby causing users to “forget they are in a shop” (and note the reference to visitors being able to “stay dry” in the tunnel through the aquarium—as noted, SL water doesn’t “wet” anything). As framed by the blogger, the animals become part of a virtual amusement park, depicted as human playthings. This completely contradicts the apparent purpose of the builder—and demonstrates the ease with which successive mediations can completely shift the frame.

Machinima filmmaker Bernhard Drax (SL name Draxtor Despres) has published a YouTube video series chronicling events and locations in Second Life since 2007. In March 2013 he interviewed Kriss Lehmann, the avatar name of a popular builder of virtual plants and trees, in for the first in a new series of profiles Drax calls “World Makers.” The video had received over 6500 views by late 2013 (Drax, 2013). In the YouTube description, Drax refers to Lehmann as “a successful landscaping artist” in SL whose avatar (“a wise old Japanese gardener”) resides in a “serene” shop on a floating island. Lehmann and his partner—who met through Second Life—“turned their passion into a viable interest.” The tone of the description emphasizes the personality of the real-world individual behind the avatar and how that comes across through the virtual building tools that are a key feature of SL.

In the video interview, which includes footage in real life and Second Life, Lehmann says he likens his work to bonsai: the artistic organization of a natural thing, calling to mind Uccello Poultry's notion of “enhanced reality.” For Lehmann, nature in SL recalls the trees and natural sounds of the national forest he grew up on the outskirts of; it can even mitigate homesickness. Like Kaikou Splash, Lehmann uses SL in part to recreate something he values in the real world.

There are nearly 150 comments, many of which are from Lehmann's customers, praising the quality of his products: “best trees I’ve seen in SL,” “a true digital craftsman,” and so on.
There are also many comments that focus on Drax's video work and express appreciation for the builder profiles he has been publishing. Only a very small number obliquely refer to real nature, as when one reader says Lehmann's products put “the 'life' in Second Life” or another says, “Making a tree. Yes, usually it's 'planting' a tree, but not in Virtual Worlds.”

Perhaps it's not surprising that interviews with SL builders would foreground the technology, but it's striking how the reader comments and even the interview context itself can almost completely background any biophilic, conservationist perspective on the part of the builder. User-customizability—which the reader will recall trumped natural systems in SL's development—is the cause celebre here. And even a well-intentioned blogger like Ucello Poultry shows how the use of prominent screen captures with an anthropocentric theme can reposition Nature as a kind of silly plaything.

**Educators and Scientists**

The blogs described above circulate mainly among those who are already aware of the way virtual worlds work. They are of value as environmental communication tools primarily because they can help turn the focus of conversation away from the technology (albeit briefly) to external considerations—like environmental sustainability, for example.

For another group of writers, circulation extends beyond this narrow group. Educational and science bloggers bring the conversation out among a different set of audiences: teachers and students. Here we can catch a glimpse of the medium's utility as an educational and consciousness-raising tool, going beyond the common perception that worlds like SL are merely shallow and salacious, or simply toys.

For example, the youth leadership development nonprofit Global Kids has run its Online Leadership Development Program since 2000 to integrate “international and public policy issues
into digital media programs to encourage digital literacy and technical competency, foster global awareness, promote civic participation and develop 21st Century skills” (Global Kids, no date a). This program has conducted a number of activities in Second Life, one of which included producing a live virtual talk show, “Let's Talk Sustainability,” during 2011-2012 (Global Kids, no date b). Recordings of the two final episodes were published to YouTube in February 2012, and achieved several hundred views. The longer of these (at http://youtu.be/oa-5dXpVvBw) runs over thirty minutes and features Linda Morse Kelley (Delia Lake in SL), the developer of the Center for Water Studies described in Chapter Four, speaking about the dangers of toxic materials in everyday electronics. The other episode (at http://youtu.be/h4ni-GpgAbk) includes a guest speaker explaining climate change concepts and solutions for about fifteen minutes.

The show is hosted by two eleventh graders and includes activities that take advantage of the virtual environment, such as a “Participants Play” audience-participation quiz game, and another activity in which the “studio” audience (around a dozen avatars) indicates their responses to poll questions by moving to one or another part of the auditorium. The featured guest's avatar is animated as if speaking aloud as the guest's real-world voice is heard; an on-stage device displays conventional lecture slides. Although not recorded in the videos, there are backchannel conversations in open chat and moderator questions sent via private message – not unlike a web-based seminar. While the teen hosts' delivery is at times halting and uneven, the shows seem carefully scripted and the camera work and editing look professional.

Although both videos show SL being used as an educational tool, virtual nature is not itself the subject—though the embodied presence of avatars is a central theme. They simply bring a relatively straightforward, technical and informative news/documentary story to an audience outside of Second Life via YouTube and by being embedded in the Global Kids website.
In one sense, *SL* is just there to capture the reader's attention with something unusual; nothing wrong there, but as has we have seen, technocentrism (and technology-as-cure-all) is already a dominant theme in discourse about *Second Life*.

Matt Rogers, a climate researcher at Colorado State University, reports on his own experience as a virtual presenter in a similar context, though at another mediated remove, since he includes no video of the in-world presentation but rather talks about its implications. Writing on the NASA Climate Change website in a blog called “My Big Fat Planet” (Rogers, 2010), he describes a virtual presentation given to a group of students whose level of engagement impressed him. Joking about the unusual amount of attention he paid to his avatar's appearance (“In this virtual world, appearance is everything”) he is nonetheless enthusiastic about the potential of *Second Life*, calling the virtual world “a fitting environment to present my data.” He repeats a common presumption that online communication can obscure social and physical differences among people:

> In the virtual world, without our real-world insecurities, the transfer of knowledge is unimpeded by social convention, and students and scientists can converse as equals, or even as friends....[This is a] winning formula that will foster real science education across socioeconomic boundaries.

Here, Rogers' blog placement suggests an audience that is both lay and scientific, though—as with the Global Kids interviews, there is not much at all about nature-in-SL. Both of them serve to reify the space as a place of interaction; even Rogers' jokes about being concerned about his avatar's hair speak to the immersive realism of *SL*, but the ability to replicate some (presumably scientific) vision of Nature is at best implicit. The few comments¹ on the blog simply reinforce

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¹ Blogs can be as ephemeral as *Second Life* islands. Several of those cited herein only exist in archival form now, sometimes with different visual formatting and without the user comments that accompanied them when they
the augmentationist's vision of SL-as-medium, though the “world” metaphor is infectious: “I am excited to see yet another scientist has stepped into the virtual world.” Another praises NASA's use of SL to convey its “educational mission to the public,” while a third educator thanks Rogers for visiting her class.

In both the Rogers' NASA blog and the Global Kids programs, SL is presented as a medium for educational and scientific simulation. The primary focus is on the real-world systems that SL can inform students about, with very little description of specific virtual sites. Rogers' NASA blog does mention SL's suitability for presenting data (and this is reflected too in the reader comment about SL and NASA's educational mission), but it's unclear whether this refers to the ability to easily port slideshows into SL or to more complex, three-dimensional simulations of the kind toured in Chapter Four.

In contrast to these somewhat generic SL-as-educational-tool pieces, an article in the September 2008 issue of the higher-education IT publication Educause Review (Collins & Millard, 2008) presents a specific application of virtual nature as educational tool: the Virtual Galapagos project run at the time by the University of Cincinnati. The article's focus and tone are primarily scientific, using the story of Charles Darwin as a narrative device. Technology and mediation are foregrounded when the island is described as a “virtual experiential learning modality” and the primary purpose is one of education and outreach that will appeal to “digital natives.” But the writers also depict the island as a place of adventure that is “more exciting” (than traditional educational media) to explore and discover, invoking the wilderness and

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1 Once again, a Second Life location no longer in existence at the time this study was undertaken. Through personal communication with author Chris Collins, I learned that it was a victim of discontinued funding before systematic research on its uses was possible.
adventure. And the space is reified as a real place where one can “see indigenous species in their natural habitats.”

A teacher is quoted praising the island’s ability to bring “evidence-based information” to a broader audience, in part by conveying a sense of place and scale through the iconic Galapagos landscape, which is “a central part of the Galapagos experience.” Referring to Galapagos as landscape and experience injects a note of the spectacular, perhaps recalling its emblematic tortoises and marine iguanas, which have become popular nature imagery in a wide variety of contexts. As scenic Other, the real Galapagos is virtual, for some, and invoking this view simply repeats the cycle of virtualization. And yet even this virtual island is a real space of participation and action, where students will find the build an exciting place of discovery and exploration, the article says, “much like Darwin did during the voyage of the Beagle.” As evidence of additional circulation into the educational community, the article has been viewed over 2800 times and was referenced by a short piece in the online Chronicle of Higher Education's Wired Campus blog (Debolt, 2008).

A different island—and a different audience of educators—is the focus of a web page in Space Today, a K12 educators' website (Curtis, 2008). Begun in 1986 as a print publication, moved to web format in 1994 and still retains a very simple, text-centric design evocative of the early Web today. It is an exhaustive compendium of information about launches, missions, astronauts, and vehicles, and includes lesson plans and other resources for teachers. Its author, Anthony Curtis, is a North Carolina mass communications professor with an interest in virtual worlds who is also described as a “space analyst” and historian.

The page in this site addressing SL provides a very straightforward general explanation of the basic feature of SL for K12 students. It also describes the natural processes depicted on
NOAA’s Meteora Island: hurricanes, tidal waves, glaciers, and weather systems. Educational and scientific uses such as online collaboration and visualization are the main focus, but as with the Galapagos, Meteora is valued for its immersion and even entertainment value: the author describes “soaring through a hurricane” or “rising gently through the atmosphere” as adventures that can “excite a new audience” for NOAA and its mission. For Curtis, entertainment is a path or lure to bring students to greater awareness of the NOAA mission with regard to natural components of the real world, like weather systems and ocean currents.

Notably, these last two articles go beyond praising SL for its ability to depict natural processes and describe the emotional responses elicited by being subjectively and phenomenally present within the virtual world. Even the Global Kids videos present as if SL were a real space of interaction.

These messages address a range of education audiences. They speak directly to students, share experiences with colleagues, celebrate educational technology, and provide raw materials to classroom teachers. To the extent that virtual worlds then enter the classroom, the prospects for circulation grow to include not only teachers and students but administrators, parents, even legislatures and other policymaking bodies. If SL is promulgated this way, with an underlying frame of educational authority and scientific authenticity, it becomes even more important to attend to what kinds of messages about the natural world are presented there.

**Marketers and Activists**

Beyond science education, the use of SL as a marketing and public-awareness tool is also reported in several outlets. This further extends circulation to an even more general audience. Not simply circulation about SL (or even SL Nature), these stories frame the natural world by what they select, showing how, for example, nature-as-beauty circulates outward from the initial
sites described in Chapter Four. Furthermore, the fact that the real, natural world can be somehow realistically and engagingly “recreated” in a place like SL—as all these materials suggest—establishes Nature as commodity, idea, and media product. As always, however, counter readings are possible, and they provide opportunities to repeat the message in the SL source material for the general audience member in a surprising context that may help bring attention to real-world problems.

For example, Filmmaker Bernhard Drax conducted a tour of Delia Lake's Center for Water Studies in July 2007 that focuses on the smaller carbon footprint of virtual meetings and events (Drax, 2007). Published on YouTube (at http://www.youtube.com/watch?v=jNDYgU1DJDw) with 500 views at the time of this study (but only a single comment), the short segment contains clips from real-life events, as well as a voiceover from Delia Lake describing water rights issues as her avatar scuba dives at the Center.

Drax is impressed: "What a great teaching tool this sim is." Keying off the Live Earth events that took place in 2007, he describes his own experience playing music at a virtual event at the Center. He notes that even with the considerably smaller reach of an SL event, there is a minimal carbon footprint compared to the travel costs of Live Earth. He also expresses some concern about the sponsorship of Live Earth by corporations that he feels are simply trying to greenwash themselves, implying that lower cost of SL events reduces their dependence on funding by outside actors whose motives may not be clear.

Carbon mitigation via virtual worlds is also addressed in two closely related articles from mid 2007 that describe the Second Chance Trees project, whereby SL users could purchase virtual trees:
For the price of 300 lindens (roughly equivalent to US $1) one can purchase and plant one of 10 species of trees on Second Chance Trees island and it will trigger Plant-It 2020, a non-profit organization founded by the late singer John Denver, to plant the same species of tree in the endangered rainforest to which it is indigenous (Huyse, 2007).

This is literally the most direct pro-environmental impact addressed in these stories, though it also valorizes mucking about in virtual worlds as a possibly ecocentric act. The longer of the two pieces is published on the promotional site PRWeb and is written by Peter Himler of Converseon, “an award-winning, full service social media agency that helps brands harness the power of social media to meet business objectives” (Himler, 2007). Himler quotes another Converseon executive as saying “Our Second Chance Tree Project is an innovative way to allow individuals to immersively participate in a reforestation initiative by connecting their virtual world to a real world action.”

In the article, a Plant-It 2020 executive asserts that SL can be useful to “encourage this type of socially responsible collaboration in a more meaningful way.” He also points out the potential pushback against “blatant marketers...pushing a commercial agenda” (the kind of people that also seem to worry Drax above) and offers Second Chance Trees as providing “something of intrinsic value to the community”:

[Second Chance Trees is] an island designed to replicate real rainforest fauna and wildlife. Visitors to the island can learn about the planet's endangered rainforests while exploring hidden caves, riding along the river, and participating in multimedia educational information about the dangerous of deforestation.
Again, an entertainment frame is thus provided along with the educational and environmental. Nature is worth saving because it's a fun and beautiful place, these articles seem to be saying.

A more ecocentric version of the Second Chance Trees story is told in a blog established in 2005 by Kami Huyse, a social media and public-relations consultant (Huyse, 2007). The author reinforces the view of Second Life as an instrument to be used to promote the planting of real-life trees, and describes an upcoming talk being held on the island to discuss “engaging with virtual world communities” from an environmental perspective. This seems a far healthier perspective on the project, though perhaps not as entertaining as exploring caves.

One might argue that these articles are merely describing a way for SL users to engage in a falsely comforting, greenwashed “clicktivism” rather than directly engaging with real Nature—as suggested by prior research discussed in Chapter Two. The articles themselves are primarily concerned with telling a story about online promotion technologies, which inevitably borrow the rhetoric of advertising and marketing, two handmaids of commodification. And yet, the Second Chance Trees project does plant real, material trees, and helps remind SL users that virtual nature has a real-world referent and cost. The articles thus participate in and extend an ecocentric narrative tied to the meaning and noncommercial value of natural objects (like trees). In other words, the initiative could not exist if there were no parallel demand for virtual trees and the naturalistic spaces in which they are deployed.

A public-dialogue advocacy group, The Public Agenda1, sees other prosocial uses of Second Life, summarizing its point of view in a January 2010 post, “Second Life: A Virtual World Tool For Real-World Change” (Grace, 2010) that describes the organization's initial

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1 Founded by Daniel Yankelovich and Cyrus Vance in 1975 as “a nonprofit, nonpartisan organization that helps diverse leaders and citizens navigate complex, divisive issues and work together to find solutions” (The Public Agenda, no date).
experimentation with SL for discussions about urban planning, public engagement, and climate change. Its author describes SL as “somewhat like a cross between a video game, a chat room and a web site with a myriad of capabilities: messages, music, video, you name it” – evoking successive waves of mediation and remediation, but also connecting SL with other familiar new-media tools for communication and education.

The post includes an immersionist perspective as well. He describes SL as “real enough”; a place to conduct “serious business...and while you and others sit around the table, the surf rolls in, accompanied by a pleasant ocean breeze” – in other words, enabling “real-time deliberation between people in different parts of the world while giving them a feeling of closeness that you don't get in forums or chat rooms.” This evokes notions of embodied presence, tropical escape, and media technologies within an overall frame of public policymaking, positioning SL as a kind of retreat whose naturalistic components create a sense of comfort—once again, congruent with the Lindens' original decision to provide a certain level of earthly familiarity to their pixel fantasy world. The phrases “serious business” and “real-time deliberation” anchor use of SL in pragmatism for an audience of policymakers, yet uses its virtual Nature as a component that generates group cohesion. This is a rather interesting kind of biophilia that articulates with the social presence and social reification that bring SL alive for users.

Drax's machinima, the Second Chance Trees project, and experiments by groups like The Public Agenda demonstrate ways that the construction of Nature in SL becomes part of larger discourses that bear directly on the real natural environment. Of course, environmental discourse must use some medium, but what SL brings to the table for these writers is its ability to create subjectively and phenomenologically real “natural places.” When combined with potential carbon reductions as compared to other media, the result is a package that appeals to
environmental communicators. It's not a perfect one, given the propensity towards commercialism and voyeuristic tourism that creeps into even these nominally environmentalist sources.

**Events**

Most of the materials covered thus far in this chapter are either descriptions of specific sites, general observations about *SL*, visitor anecdotes, or some combination thereof. While the specific sites described may be ephemeral, they are described in a way that suggests they're seen as more or less permanent sites (and thus a tone of regret tinges conversation about vanished sites like *Svarga*).

But some discussions about *Second Life* on the web describe events and exhibits operating within a defined time frame, and this can help illuminate some of the dynamic process involved in what one might call the re-enactment of Nature. The National Geographic article about a virtual flood described in Chapter One (Roach, 2007) is one of these. It begins by framing the flood as real; though this is clearly a journalistic lede, it participates in the narrative about *SL* as a real space-of-places, where people drink and have discussions in bars, or climb onto rooftops to escape floodwaters. That realness is mitigated by the story's emphasis on the surprise element and technical details about the way water works in *SL*, again bringing the mediated frame to the foreground, but its user interviews and descriptions of what went on during the flood clearly position the virtual world as an inhabitable place. And it once again shows how the virtual points its users right back to their real environment by manipulating the presentation of Nature in *SL*. 
SL has also been used to extend the circulation of real-world climate conferences through a connection with a group of SL islands managed between 2007 and 2010 by Nature Publishing Group (NPG)\footnote{Publishers of the periodicals Nature and Scientific American, among other titles.}—mostly appearing in blogs and discussion forums on the nature.com website.

For example, a Nature editor's blog (Scott, 2007) describes a series of events to be held on the island in conjunction with the 2007 U.N. Climate Change Conference in Bali. These events included opportunities for users' avatars to attend a “lecture hall” where they would hear talks on things like climate change policy, ocean acidification, and carbon capture. The following month, the Nautilus blog\footnote{Described as a place “for authors and aspiring authors of Nature Publishing Group journals.} mentions in an announcement that the island is “covered in exhibits from scientists who have borrowed land on Second Nature to trial virtual collaboration” (Clarke, 2007). (This sounds like an operationalization of the ideas discussed on The Public Agenda's website—see previous section.)

A year later, a subsite devoted specifically to the NPG's Second Life islands describes another in-world conference on climate change and CO2 storage (Nature Publishing Group, 2008). According to the article, this event included virtual poster sessions and was broadcast live beyond SL at several universities in the UK and US, in addition to attracting virtual attendees from fifteen other institutions. The same event is described independently in a CNN “iReport”\footnote{An “iReport” is a story filed by a “citizen reporter” that may be eventually picked up, vetted, and formally reported by CNN's own professional news staff.} in November 2008 (Baynes, 2008). Viewed over 200 times and shared to twenty other sites, the report includes large screenshots of avatars in an open-air lecture hall. Repeating earlier themes of cost savings and reduced environmental impact, it describes SL as a valuable tool in the face of “economic uncertainty and concern about carbon emissions.” Notably, while SL's eco-
friendliness as a medium is a common theme in the NPG and CNN materials, these sources don't make much explicit reference to virtual Nature itself.

Others in the NPG corpus do, however. Forums on NPG websites in the first half of 2010 show that their SL island(s) were still in existence then (Scott & Woodley, 2010). Forum membership at that time included thirty people whose real-life interests ranged from sustainable healthcare initiatives in rural Brazil to research and education in Management and Biology. These participants created announcements, posted self-introductions, discussed administrivia. Some of the posts announce topics posted in now-unavailable nature.com blogs. "Where is your gall bladder: teaching 3D stuff in a 3D world," "Multi-sculpted protein structures," and "New frontiers in biology education" are just some of the titles given that indicate this user group was well aware that SL's ability to represent natural processes was critical to its applicability.

The posts suggest that, at least for a while, there was a strong environmental-science education community using SL—though primarily augmentationist in nature. Like the Global Kids materials, these depict SL primarily as a medium for virtual conferencing, in which real-world lectures and group sessions are recreated somewhat faithfully, and the environment's ability to create realistic depictions of the natural world is an afterthought – though this may simply be that the readers were assumed to be already familiar with SL's potential from a scientific simulation and modeling perspective.

As noted earlier with regard to Svarga and Virtual Galapagos, the islands and builds in Second Life are ephemeral. More than one island initially considered for inclusion in Chapter Four had disappeared by the time data collection began; one of these was the highly regarded Virtual Mine project, reported in New World Notes, YouTube videos, and the Public Broadcasting System (PBS) website. However, it does not appear to have ever been intended as anything more
than a temporary spinoff from a 2011 PBS documentary on the impact of coal mining in Appalachia. Reports describe the site as a highly realistic depiction of an Appalachian mining town and its surrounding environment. A built-in game demonstrated the complex process of balancing energy needs against concomitant environmental degradation. PBS's website framed the Virtual Mine as a lived adventure:

In the Virtual Mine, a complete 3D environment and game in Second Life, you clear land and blow up mountains; go through the town to turn off as many electric items as possible and reduce the demand; build a sustainable grid with solar and wind power terminals; and try to solve the power crisis in Maytown. The story unfolds in three chapters. If you are successful in solving all three problems, you will receive a ticket to the Community Jam, celebrating the culture and music of Appalachia with an old time music and square-dance party (PBS, 2011).

Visitors are thus invited to “just grab your hardhat and dive in” to the excitement of altering Nature with earthmoving equipment and (or?) creatively deploying sustainable technologies, with entertainment as the reward. Development and environmental degradation seem to be givens. Links on the web page point to the site in Second Life, to a teacher's resource, and to the documentary's own website.

The PBS Independent Lens YouTube channel also includes a clip (with over 400 views) that features two developers of the mine game in a split-screen conversation—that is, as if they were conversing via Skype, a further remediation that, as a by-product, naturalizes the mediated interaction among users in SL (Independent Lens, 2010). The developers say that using SL came
along as “a wacky idea”\(^1\) that would allow people to become participants in the story and see the consequences of choices more directly; the builders hoped it would encourage people to be playful and to “think outside the box.” In addition to the two narrators, the in-world clips include panoramic shots of the build, animated avatars of musicians and dancers at a country hoedown, and virtual heavy equipment in operation—all to the accompaniment of bird sounds. The tone of the video is whimsical and optimistic, and clearly presents the SL construction as a realistic depiction of mining in Appalachia. It's a down-home and gritty depiction, anchored in the style of television documentaries.

The story reappears in a blog post in New World Notes from July 2011 (Au, 2011) that highlights the fact that the mine game was nominated for an Emmy. Au also tells readers that many players were from Appalachia themselves and were emotionally engaged by the documentary and the game, while others visited as part of closed sessions held for educational institutions and organizations. So despite its “wackiness” it appears the Virtual Mine evoked very particular feelings about a very specific real place. Whether it reached policymakers who could influence the real-world Appalachia is less clear, but it does show the impact of engaging users not just with place but with interactivity. Despite the birdcalls in the YouTube video's soundtrack, however, the Virtual Mine appears to have been more effective as an ecojustice frame than an ecocentric one. In this regard it recalls the dystopian Calleta sim described in Chapters Four and Five.

**Conclusion**

Stories about the Virtual Mine Project present most of the definitions of Nature found in this chapter's sampling of circulation outside of Second Life. The natural world is variously seen

\(^1\) It's not clear whether the idea was “wacky” because SL is a wacky place, or because using a MUVE for the project was unorthodox. Probably the latter, given what they say they expected to happen.
as visual beauty, source of spiritual recharge, place of adventure and fun, economic resource, and object of scientific study. The Virtual Mine is, like many sites in SL, both a real place for real experiences, and a playful simulation designed to educate and inform. Overall, what's especially promising in this sample is the relative lack of commodifying frames, though this is in part because such frames are unlikely in stories that are explicitly about the environment (even a virtual one) and closely related subjects like mountaintop removal and environmental conferences.

The circulation of these narratives beyond Second Life indicates that the potential and power of SL as a medium of environmental communication is not limited to those who experience it directly, but travels beyond to the Web's personal and corporate media outlets. These external media take Second Life seriously: most of the humor is self-conscious or ironic; there is almost none of the dismissive or derisive rhetoric often directed towards “games” and Second Life in particular. They range widely back and forth between an intense and explicit consciousness of remediation and an almost reflexive immersivity that completely effaces the fact of mediation. When the “transparent and immediate” Nature thus experienced is coupled with the real-world environment in meaningful and productive ways, the virtual world becomes a tool for positive change.

Across these blogs and websites, the permutations and rearticulations of Nature-in-SL are in part dependent on the target audience. Insiders tend to focus on the power of remediation. Sometimes this is an object in and of itself, as when builders are praised for their technical or artistic skill. Other times, the “logic of transparent immediacy” prevails, as writers speak of finding in SL a place of aesthetic beauty and spiritual recharge.
But even this immersionist, visualist group sees a connection to the real, lived environment—primarily because SL makes users feel like they are embodied in a “real enough” place. And what makes the places “real enough” is, to a large degree, its reproduction of familiar natural features from the real world, like trees, breezes, and seaspray. While there is a tendency towards Spectacular Nature, there is also a strong interest in SL as a means of science education and environmental activism. Users with these kinds of interests can do more than just treat SL as an interesting, novel medium. They can exploit SL Nature more specifically when using the medium, either as a direct component of the message (as in the Virtual Mine) or as a naturalistic background that raises the salience of the natural world for participants, no matter the topic of their interaction (as hinted at by The Public Agenda)—which may only last as long as MUVEs are novel and attention-getting.

And that may be the most important conclusion to be drawn from this chapter: that Second Life and other MUVEs may not themselves fulfill their promise of a brave new world, but stories about them can frame and reframe the primary messages of virtual rhetorics for a larger audience in ways that actually enhance their power as environmental message systems. As long as Second Life remains a niche market for a relatively miniscule population, it's not what is said there that matters within the larger scope of climate change, environmental degradation, and environmental justice. What matters most is how it is reported back out in blogs and websites. And its power to hold public attention may be a fleeting artifact of technological novelty.

That novelty might mean we should be less concerned with circulation than with the construction of meaning among the smaller audience of users—but that assumes SL and its imitators have reached the limit of their potential and will eventually lose their broader impact. As discussed in the next, final chapter, there is much to suggest that continuing developments in
user-constructed worlds and the related phenomenon of “augmented reality” may lead to more people becoming directly exposed to them. If that is indeed the case, the relationship between virtual narratives and external meta-narratives might be upended.
CHAPTER SEVEN

THE REALITY OF VIRTUAL NATURE

I began this study by asking the following research questions:

1. Do the representations of natural environments and non-human nature in Second Life reproduce a kind of hegemonic industrial/consumerist orientation?

2. Do these representations suggest resistances, alternatives, and possibilities for environmental awareness and social change?

3. To what extent do these embedded meanings reflect the conscious intents of their builders (including Linden Lab, designers of the underlying “natural systems,” and Second Life users who sponsor and create simulations of the natural world)?

4. How do these meanings circulate among users and secondary audiences outside Second Life?

The guiding purpose was to explore the reproduction of commodity culture and other problematic narratives in “virtual Nature” sites within Second Life, and to describe the possibilities there for resistance in the form of environmental awareness and social change. To do so, I also explored the meanings these sites hold for the designers, builders, and users of Second Life as well as external writers and audiences. I deliberately used a broad and elastic definition of “Nature” that would accommodate the ways this term is operationalized in the islands of the virtual world.

The Commodification Imperative—and Resistance

Knowing that commodification, a fetishization of the visual over other senses, and anthropocentric narratives are ongoing challenges to ecological sustainability and environmental justice, I sought to discover whether Second Life could provide something new. In large part, it
does not; the answer to Research Question 1 is a resounding Yes. Second Life is marketed as an escape, so it's not surprising that touristic, escapist narratives like pastoral idylls and tropical getaways are common. The readiness with which even relatively novice users can create in three dimensions here is also a part of its brand identity; it is always and everywhere an environment that is continually being built and rebuilt by a wide variety of people. Both users and outside commentators reported in the previous two chapters mention this frequently.

The fact that users can sell what they build—again, part of the brand, the hype, and the frame—easily entwines commodification and commercialism into the experience. Thus it is no surprise that both commodity narratives and a foregrounding of mediation remain evident even when the effacement of both these forces is being sought by the builder of a naturalistic site like Calas Galadhon. One is always being jerked out of the immersive frame and back to a real life that is contextualized in contemporary economics and the technologies of the computer industry. This much was certainly to be expected from previous scholarship on three-dimensional virtual worlds. This fundamental influence of commodity culture in Second Life operates with respect to both the external, material conditions from which the virtual world arises, and the rules and behaviors found within it. Virtual land costs real money. Prims cost money. Realistic plants and animals cost money: both the labor used to produce them and the electrical and computing power that brings them into virtual existence.

What is perhaps most surprising, then, is that alternative readings and significations abound—thus an affirmative response to Research Question Two, as well. Jones' (2006) critique of SL's commercialism (“You can't walk down the virtual street without being barraged”) is valid, but not universally so—though it may depend on how one defines “barraged.” For example, consider the activity of buying virtual animals, whether as pets, decorations, or
museum exhibits. The user who purchases a highly detailed, realistically scripted blue heron or alligator is, in one sense, a consumer reproducing the idea that animals are commodities, and they are certainly marketed as such on islands like Animania. Their appearance and programming tend to be stylized, focusing on the aesthetic or the spectacular. They are often highly anthropocentric, as when virtual pets respond to the presence of avatars, reinforcing the idea of animals as human playthings. In other words, Grimes' (2006) critique holds: even content built by non-commercial users reinscribes capitalism when the range of available activities focuses on finding the best stores and vendors from which to buy the trees we value.

But therein also lies one of the paths for a different reading. These consumers often report that their motive for such purchases originates in a more ecocentric drive, or at least a preservationist/conservationist one. The market for virtual plants and animals exists because of the human biophilic motive. The economistic and ecological perspectives therefore exist in dynamic tension as they co-opt and resist each other in a rearticulatory process (Gramsci, 2009) that opens up possibilities for reorientation away from commercialism. Virtual animals are infinitely replicable at near zero cost, and therefore have none of the aura of authenticity that Benjamin (1969) ascribes to originals. Their connection to the natural world is broken, reinforcing their role as manufactured commodities. Yet this inescapably unreal replicability may reinforce awareness that the real-world natural environment is also not so infinitely replaceable. Real nature cannot be bought and sold as digital artifacts. And as we have seen earlier, the unreality of virtual animals—their lack of agency, mainly—does not sit well with many users and reminds them that this manufactured environment is insufficient when compared to the real animal world. Animals are in fact one of the more interesting rhetorical phenomena in Second
Life, and deserve further study in their own light as part of an extended research agenda, especially in the context of user-created content.

We can also see, repeatedly, that the user-built form of Second Life—the basic feature that helps keep its artificiality from ever complete effacing itself, and which strongly curtailed the medium's ability to represent complex natural processes—also allows resistance. As the interviews and welcome notecards indicate, many of these sims are in effect donated to the public, with no admission charge or even an indirect means of recouping costs. They are often described as labors of love, constructed to celebrate and remind users about some aspect of the natural world: the critical role of water, for example, or a way of living in sustainable harmony with nature. In a virtual world where so much is made of stores, dance clubs, and money-making ventures, these virtual museums and parks stand in sharp contrast as evidence of a different kind of value system.

Further, as Knobel and Lankshear (2008), Jenkins (2004), and others argue, and as has been discussed earlier (especially in Chapter Five), user-produced content in Second Life facilitates the insertion of more voices into the process of cultural production. Users can create monuments, museums, parks, and exhibits that carry some of the semantic weight of their real-world counterparts. Even though the average SL user is usually an economically privileged one, from a global perspective, SL democratizes the process of monument-making by enabling these constructions to be circulated for far less expense than they would entail in the real world, while yet retaining some of the rhetorical force of real parks, museums, and monuments. The virtual world can thus foster a culture and a collective intelligence that—like other user communities brought together online—can exist in relative freedom from corporate cultural colonization of
the medium, allowing users to create “real” places and non-commodity narratives in places like the *Etopia* eco-community.

This is not to say that commercial interests might not deputize user activities as free labor, as Castronova (2003) and Andrejevic (2005) warn. Perhaps this seems unlikely in the case of independent environmentally-themed constructions, but even the presence of Greenpeace kiosks or a *Center for Water Studies* island arguably enriches Linden Lab by making SL a more interesting place for paying users. Naturalistic constructions in SL do not, then, entirely move us off Schnaiberg’s (1993) economistic treadmill towards a more ecological synthesis. The virtual world often privileges the exchange (cultural) value over the use (biologic) one, and can make industrial technology seem entirely compatible with the natural world it is steadily destroying. But it also opens up participation and alternatives by offering a means of expressing ecological awareness and biophilic impulses, and does this through democratization of the message-production process.

In short, the answer to Research Question Three seems straightforward enough: the designers and builders in SL are keenly aware of what they are building into their virtual constructions when it comes to positive and even romanticized depictions of Nature, but they are not always conscious of the way commodity culture pushes back and finds expression even in the most “naturalistic” or even ecocentric setting. I discuss some possible ways to address this further below in the section called Looking Ahead.

That section also discusses some implications of the answer to Research Question Four. As discussed in Chapter Five, users have a wide variety of (mostly anthropocentric) definitions and uses for “Nature” and the natural world, for the most part consistent with the way I’ve read the sites they were visiting and in almost every case, indexing for them the real places they
value. Virtual Nature also helps make the virtual world more immersive, and the variety of voices creates a more contested, variable space of environmental ideologies, resisting the “commodification imperative” described above. The multiple and conflicting ideas of Nature circulate outward from Second Life, which is taken seriously as a place for human interaction and environmental education by external audiences. As noted, the commodity frame is weaker outside SL but most likely due to the kinds of stories sampled; on the other hand, the novelty of SL makes it a useful tool for drawing attention to real-world environmental issues.

**Remediation, Visuality, Space, and Narration**

As is repeatedly observed in these chapters, no one mistakes Second Life for real life. Technological mediation is a constant theme even when photorealistic immersion is celebrated. The ongoing tension between economic and ecological narratives, and between impressively transparent immediacy and ubiquitous hypermediation, brings us closer to Nature while at the same time pushing us away. Even the most lovingly reproduced forest, full of the sounds of birdsong and wind in the trees, can reinforce aesthetic and anthropocentric perspectives that ignore threats to underlying ecosystems; at the same time, highly abstract simulations and ugly trash dumps can heighten awareness of and concern for real environments. For many interviewees, a romantic and spectacular view of Nature depicted in Second Life evokes their appreciation for Nature in real life.

SL contains constant reminders of its virtuality, even ignoring the viewer software and its omnipresent GUI controls. Prior forms such as parklands, forests, gardens, and museums—themselves mediations of the natural world—are remediated in often explicit ways by builders and vendors, who celebrate the mediation—the realism achievable with scripts, textures, mesh—even while speaking in reverent terms of the real-life nature they are driven to evoke. And, again
because users construct the messages themselves, from avatar customization to island-building, the language and vocabulary of creating and making is foregrounded here. From an ecological perspective, this is a good thing because we are constantly reminded that this is not Nature.

SL is still primarily a place of gazing and viewing, where ordered views and pathways maximize realism by controlling the visual experience. Appearance is important, and the stories that circulate about SL places tend to emphasize scenic beauty with the enthusiastic prose of travel writers. And yet the ability to challenge the narrative—to explore the rhetorical dollhouse in multiple ways—helps users immerse themselves more deeply into the virtual world in ways that make it more than just a screen technology. Remediation's aggressive and transparent extremes operate not just in the visual realm here, but in auditory, spatial, at times almost tactile habitation of places that are significant and perceived as materially real. Users stress the fact that SL provides them with a point of contact something like Barthes' visual punctum, but which emerges as much from sound and movement and space as from visual representation. Presence and immersion, a phenomenal embodiment within the virtual space, are the point of contact with the real world it seeks to mimic. The presence of familiar components of the natural world (even iconic and exotic imagery like palm trees) facilitates this contact.

SL is thus inhabited rather than merely gazed upon, and it thus becomes a place, with value and meaning. As a participating user, I am there – my subjectivity really exists in this place. As the interview responses suggest, the immersion is bodily as well as sensory, reinforced and guided by things like seating and poseballs and the apparent presence of others. As Stewart and Nicholls (2002) observed, users are experiencing “one phenomenal body” when they report on the restorative experience of Nature in SL: being-in Nature, not just looking at it. Even the most aggressive remediators—augmentationists like science educators and environmental
activists—find this embodiment to be an essential component of the medium. Of course, many augmentationists see SL as a “fresh approach” or a “funny idea”—just another medium to convey an environmental (or any other) message, notable as much for its novelty or techno-fetishist appeal as much as any verisimilitude. Yet even these marketers, educators, and other augmentationists find it valuable for its ability to evoke physical co-presence.

A virtual place like Calas Galadhon or Etopia Island exists over time, generating history and significance, and thus becomes the kind of “memory place” described by Dickinson and Blair (2010). Multiple interviewees asked me if I had “been to Calas,” speaking of it like a real place that one could travel to. From an ecocentric perspective, one of the most powerful examples of a memory place in SL would likely be the now-vanished Svarga environmental simulation. Despite its spectacular presentation of a fantasy ecosystem, one was conscious that one was touring Svarga. It was thus actually the real Svarga.

Users who co-inhabit significant virtual spaces like Svarga can form a community that socially reifies and reproduces values and ideologies, as Dickinson and Blair (2010) say that memory places do. This fulfills Philip Rosedale’s original vision of creating both a medium of interaction and a space to dwell in. When users who have been drawn into these places reflect on the ways this virtual experience is both like and unlike what they live in real life—as many of the interviewees did—the experience stimulates processes of awareness, community formation, and rearticulation of ideas, opening potential for resisting the worst excesses of commodity culture.

**Implications**

Clearly, the SL users interviewed here agree with the idea that certain kinds of virtual experiences can improve real ones, and thus make the real world a better place, ecologically speaking. The presence of so many environmental organizations in SL argues for this possibility.
Although the ability of Second Life to democratize access to nature is balanced by the carbon footprint of its comparatively wealthy audience and their consumer behavior, it can virtually bring the real world to its audience with a much lighter carbon footprint than jet travel. Like the photographs of brutalized civil rights activists in Selma and Birmingham, SL may make the condition of some real places harder to ignore if one has “seen” them and “been there.”

As Opel and Smith (2004) observe regarding the study of computer games, inquiry like this examination of Second Life provides worthwhile insight into the way environmental discourse takes place in new platforms that are outside traditional media. It also helps remind us that no matter what the bright promise of exciting new media, they are always prone to rapid colonization by existing cultural patterns, and revolutionary change—especially in the environmental realm—may be unrealistic to expect from new communication technologies.

The study also shows that SL is still quite a small niche medium, and its overall cultural impact is unclear. The analysis of circulation in Chapter Six shows that, however democratic and groundbreaking something like Second Life might be, circulation is strongly influenced by the novelty value of virtual worlds. The hype cycle that brought so much attention to Second Life in 2007-2008 is at a considerably lower point today—though SL is by no means dead. It continues to be used for entertainment and education. And new, comparable worlds like Minecraft and Rust that have a central role for user-built content (including the natural world) continue to be popular. Thus the novelty value of these projects that makes them appealing to external storytellers—who thus circulate the environmental messages they contain—is likely to remain high. Thus, what makes a new medium most powerful might be our own fascination with mediation, as Bolter and Grusin (2000) might predict.
Need for a Virtual Environmental Ethics

This study also demonstrates how—with the limits just described—SL might best be used to resist commodification of Nature, adding a new tool to the media toolbox of environmental activists and educators. Jones observes that only a true understanding of our ability to reproduce some aspects of the natural world “will ensure that instead of being distracted by godhood and monstrosity, we can ever seek the human in whatever form it takes” (Jones, 2006, p. 28). In the context of this study, I interpret his “seeking the human” to mean that we strive to recognize the ramifications of our actions within a finite biosphere that contains other living things. With regard to multi-user virtual reality platforms like Second Life, that implies an ethic of nature representation, perhaps like the one Sheppard (2001) urged for 3D landscape simulations (see Chapter Two). Such an ethic would resist distortion and strive for completeness in its depiction of natural processes.

The drive toward such an ethic can already be seen among the designers and builders interviewed in Chapter Five. Even when the Linden Lab designers explain the process of technological and economic negotiation that led to what Stumpo (2008) refers to as a “broken ecology” in simulated landscapes, it is also clear that the designers struggled to incorporate and retain elements that would create a more lifelike and organic place.

Builders, too, seek to share ideas and values with a wider audience through the medium of Second Life, generating interest in the natural world through scientifically legitimate and accurate simulations, though there is a tendency to sacrifice accuracy and representativeness in the name of scenic appeal or spiritual engagement. Conscious and ethical use of these distortions and omissions may be excusable in the service of attracting and engaging participation in discourse about the natural world, as long as it does not become the only frame through which
the natural world is viewed. At the other extreme, as Winn, et al (2006) point out, the
abstractions and choices made when building virtual worlds can be like those made when
constructing scientific models: they can help convey a message that might not be as clear from a
literal representation. Again, an ethics of virtual nature would require that this be balanced
against the tendency to reduce the complex real world to cerebral Cartesian abstractions.

**Engaging Users and Disengaging Humans: Blurred Reality**

Depicting actual environmental harm may be a more difficult sell. As Davis (1997) found
with the Sea World theme park, real-world impacts of industrialization are hardly visible in *SL.*
Dystopian industrial grunge is generally only present for its entertaining cyberpunk impact, so it
can be difficult to make it clear that a depiction of environmental problems is more than just
decoration. The extreme ugliness of *Calleta* seems a good approach because the byproducts of
industrial consumerism are inescapable there, and are not prettied up for entertainment value.
However, the average *Second Life* user may be too focused on aesthetic pleasure and
entertainment to subject him or herself to unpleasant experiences like this, and one worries that
efforts to engage users in this way would quickly become a kind of “pollution porn” populated
by avatars who are completely unaffected by what they see. The gaming approach used by the
now-defunct Virtual Mine sim may be a more effective means of drawing users into an encounter
with the ecological dark side of capitalism.

The other side of the coin is that these environments will continue to challenge our
definitions of natural and artificial, wild and constructed, real and unreal. Sensory immersion
will grow even more convincing as developments in haptic and motion-sensing technologies
progress. As noted, *SL* today already evokes a perceptual and phenomenological immersion that
creates a feeling of space and bodily presence, despite the fact that it remains primarily visual.
But users value sound as well, even when voice communication among avatars remains a touchy subject for immersed roleplayers. While there is as yet neither virtual ocean breeze nor bracing salt air, haptic technologies that simulate real touch are advancing. The technology press continues its sensationalistic reporting of ongoing developments like suits that allow partners to “hug” each other—and much more—at a distance. The perceptual presence of living, breathing bodies in some ways calls to mind the far less mediated days of oral culture, and complicates (or even obviates) Barthes' notion of the punctum or point of contact that makes the representational feel transparently real; that is, there will likely be an overwhelming number of points of contact. Thus it takes little imagination to foresee ever more convincing physical immersion in virtual worlds, supporting Book's (2003) assertion that the visualistic bias in virtual worlds is a temporary phenomenon, and not an inherent limitation.

Other technologies of presentation and representation will play a part in blurring the distinctions between the physically real and the not-real. Augmented reality maps the virtual onto the real world, blending the two in our visual field when we look through the screens of our smartphones, telling us more about what we see. Even when the real/virtual divide is apparent, other kinds of technological advances can make it seem that the virtual is anchored to the real when the connection is more rhetorical and constructed than literal. Three-dimensional printing and scanning technologies allow objects to be “teleported” between virtual and real. Real trees can be scanned and replicated in exacting detail, presented as virtual copies of specific species—not just a virtual plant, but a scientifically vetted simulation of Quercus virginiana, with all the rhetorical force of Linnean classification. “Not possible in real life” may become meaningless as virtual creations are 3D printed from the virtual world and take real form. Real-world terrain

1 The neologism “teledildonics” has been coined to refer to physical sexual stimulation via Internet protocols.
maps (themselves mediated and virtual Cartesian abstractions that purport to show underlying truth) can be used to terraform virtual islands to give them more persuasive authenticity. A real landscape can be augmented by virtual captioning and framing via iPhone apps or Google Glass.

The transparency of these remediations of the natural world may thus become even more convincing if their anchor in the real world is thought to make them more literal, more real, less invented—echoing the problems found by scholars studying the models used by landscape planners, wherein the virtual becomes more persuasive than the real. And as Davis (1997) and others have pointed out, our real-life experiences will continue to be populated with hyperreal themed developments and amusement parks that are both materially real and unreal. The result is not so much a binary real/virtual dichotomy but what blogger Gabriel Sistare calls “tiered reality” (Sistare, 2013): multiple layers of hypermedia and hyperreality in which The Real is difficult to establish.

A related concern is that more advanced virtualization technologies will require an expertise and/or a material production base that once again excludes voices as the traditional publishing and broadcast industries tended to do, promoting centralization and monopoly that deliver us back to a culture industry that replicates its own industrial and consumerist conditions (Jhally, 1989). The democratization of media production and multiplication of voices that worlds like Second Life facilitate may just be temporary artifacts of its relative simplicity.

Looking Ahead

In the more immediate future, there is much more to be learned about even the current form of multiuser virtual environment as exemplified by Second Life. Despite the methodology used in Chapter Four to “read” the islands, and what appears to be a validation of that method in the interviews and circulated messages, we need to better understand the flow of experience for
users, and their construction of meaning from these experiences, by expanding the inquiry to more users and settings. Further, more detailed and multiple readings of specific islands and sites will enrich our critical vocabulary and provide a more holistic picture of their operation as environmental messages. Quantitative research—Nick Yee's longterm “Daedalus Project” on the demographics of online gamers (see Yee, 2006, or Yee & Bailenson, 2007) might be one model for this—can support broader generalizations about virtual nature within a given game or subset of a world like SL, perhaps using existing, well-documented scales like the New Environmental Paradigm (Dunlap, 2008). The role of ekphrasis and other external framing that Barthes would argue “loads” meaning into the virtual environment before it is even visited also deserves closer examination, especially in light of the differences in perspective found between active SL users and those writing about SL for external audiences.

As these virtual worlds evolve, it will also be productive to compare Second Life's unique version of Nature with that of other multiuser environments (such as Minecraft and Rust, among others), illuminating the different ways these virtual worlds market themselves to the biophilic urges of users. For example, each world's fundamental physics and biology is rhetorical, a definition of what is important about nature for its target audience. What is selected, and the way this physics is incorporated into user “play,” brings different characteristics of natural systems to the foreground and activates more or less ecocentric value systems. A typology of virtual-world natures at this level would be a useful way of organizing this kind of research.

The evolution of relatively static worlds into ones that incorporate naturalistic change and entropy will also require attention. Barton (2008) recommends a greater role for dynamic weather systems in virtual worlds, and although the Linden designers had to abandon an evolving, eroding environment for Second Life, this limitation will always change as technology
changes. As more dynamic, evolving virtual environments emerge, it will be worthwhile to examine the messages embedded in weather, storms, droughts, land use, and so on. “Unnatural change” like human impacts can also be modeled in some virtual worlds, but choices will make this modeling rhetorical as well. Could a game that models a tragedy of the commons engage users with sustainability, or would it be designed to allow players to simply shift to another seat at the tea party, as it were? The growing appeal of games that incorporate “permadeath” (Nagy, 2014)—that is, where a player can lose everything they have accumulated during game play—may signal that users are ready for online worlds that have more serious consequences for players and that make gameplay more realistic from the standpoint of biology and bodies.

Relatedly, it's also worth taking a closer look at what happens when users “reside” in-world, as they do in Etopia and many other SL locations. McLaughlan and Kirkpatrick (2004) have observed the educational value of living in a space rather than observing it as a flaneur or tourist. But this assumes the space one lives in is authentic. What is the impact of virtually inhabiting an island that depicts nature as idyllic Other, versus living in a place like Etopia? Similarly, what is the role played by the mundane, rather than the spectacular, in virtual nature? That is, when the natural elements are not the primary objects of attention, how can we tease out the messages they send? Hermeneutic readings and interviews like those conducted here can be supplemented by survey research using something like the NEP to improve our understanding of these phenomenally lived-in places.

Finally, it's important to gain a more concrete understanding of the broader impact that virtual-world environmental messaging may have on our relationship with the real world. Recall that Hovardas and Stamou (2006) found that a realistic and convincing virtual environment actually changed local residents' perceptions about the real places with which they had regular,
direct experience. Will our ability to create ever-more-convincing clones of the natural world—perhaps complete with agentic animals and authentic change processes—supplant the biophilic urge that seems so fundamentally human? If I can call up a jungle or desert or coral reef at will, do I care less what happens to the real ones? Will I feel it essential to have a Google Glass heads-up display even when wandering in a real forest—not just to help me identify edible plants, but because the “desert of the real” is not enough for me?

Posthumanists might ask if we even need these messy and fragile real places. Is ecocentrism itself a romantic, anthropocentric conceit? From a radical, futurist, post-human perspective, at what point are natural systems and the value of nature simply temporary cultural notions that we can grow beyond? While such a perspective may seem outlandish and inhuman, it bears discussion with relation to virtual nature because the notion of “natural” is itself so entirely problematic.

Even if a post-human future devoid of natural limits were desirable (and I do not find it so), we are not there yet. Today, real humans tackle toxic waste, food shortages, and sea-level rise against a culture-industry background that continues to distract us from attending to the ecosystems that sustain us. At the same time, mediation is ubiquitous: even real-world wilderness and parks are mediated by our perceptions, expectations, culture and ideology. We do not stand naked before the atoms and charismatic megafauna. All “nature” is not merely mediated; we are always mediating nature. This mediation is partial and selective—thus rhetorical—and involves a process of constantly shifting hegemonic articulations of many perspectives. This process reproduces the very culture that it springs from. This is not to argue for solipsism; as Latour (1999) argues, even socially constructed realities constantly bump up against external events that
they cannot explain away. Our bodies are always in the world, subject to real material needs and
deprivations, no matter what myths and mediations we may conjure up.

But SL blurs the boundary between mediation and embodiment, allowing things to be
naturalized/reified even more powerfully, even when opening up possibilities for questioning and
problematicizing the seemingly real and inevitable around us. The current study contributes to a
wider critical project to help illuminate the ways our discourse might direct us away from
ignorance—specifically ecological ignorance—for those who share the view that such a course
correction is of vital importance. MUVEs like Second Life are an especially fascinating
phenomenon because they challenge previous conceptual boundaries between real and unreal,
symbol and referent, original and interpretation, and our daily subjective/phenomenological
experiences of place, embodiment, and presence. Thus, in addition to exploring SL as part of a
critical project, the current study contributes to a semiological theory of immersive virtual
reality.

For virtual reality will certainly become less and less distinguishable from the
phenomenal real world that surrounds us. If we thought TV and mass-media culture were capable
of creating a distorted worldview that was sometimes difficult to uncover and resist, we've not
seen anything yet.
APPENDIX A

IRB APPROVAL LETTER

Office of the Vice President for Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 • FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 10/04/2013
To: Joseph Clark
Address:

Dept.: COMMUNICATION
From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
The Construction of "Nature" in the Virtual World Second Life

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(b) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 01/02/2014 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed regarding research projects involving human subjects in the department, and should review protocols as often as needed to assure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Andrew Opel –aopel@fsu.edu, Advisor
HSC No. 2012.9856
APPENDIX B

IRB APPROVAL RENEWAL

Office of the Vice President For Research
Human Subjects Committee
P. O. Box 3062742
Tallahassee, Florida 32306-2742
(850) 644-8673 - FAX (850) 644-4392

RE-APPROVAL MEMORANDUM

Date: 10/30/2013
To: Joseph Clark

Address:

Dept.: COMMUNICATION
From: Thomas L. Jacobson, Chair

Re: Re-approval of Use of Human subjects in Research:
The Construction of “Nature” in the Virtual World Second Life

Your request to continue the research project listed above involving human subjects has been approved by the Human Subjects Committee. If your project has not been completed by 10/29/2014, you must request renewed approval by the Committee.

If you submitted a proposed consent form with your renewal request, the approved stamped consent form is attached to this re-approval notice. Only the stamped version of the consent form may be used in recruiting of research subjects. You are reminded that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chairman of your department and/or your major professor are reminded of their responsibility for being informed concerning research projects involving human subjects in their department. They are advised to review the protocols as often as necessary to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

Cc:

HSC No. 2013.11465
APPENDIX C

SAMPLE CONSENT FORM

Study Information Form

You are being asked to participate in my study of messages about Nature in Second Life.

I’m conducting interviews with SL users for my doctoral dissertation at Florida State University in the discipline of Environmental Communication. The study combines my own interpretations of selected areas in SL with the thoughts and ideas of other SL users. It’s an ethnographic study in the sense that I’m speaking from my own perspective as a participant observer (I’ve been in-world since 2007) and I am interested in the way users create meaning out of what they experience here. It matters because the way we “talk” about Nature (even when our messages are virtual worlds) has an impact on our relationship with the natural systems we depend on in RL.

For this interview I will not need your RL identity, and I will not use your Avatar name or any identifying details when quoting you in the study. The quotes will be taken from public chat logs only, unless you elect to elaborate via private message in-world or other electronic means (such as email). If you agree to participate, please just type “I agree to participate in your study” in open chat.

I welcome your questions as well. If you are interested in the background of this study, or the extensive literature in environmental communication, visual rhetorics, and other theory that underlies it, I welcome you to follow the study link on the website at http://jsclark.net for a copy of the dissertation prospectus and where a copy of the final dissertation will also be linked. You can also visit my SL “research headquarters” at [SL location address] for the same kind of information.

Joseph Clark, doctoral candidate in Communication (JS Saltwater in Second Life)
Florida State University
[contact information included in original]
REFERENCES


BIOGRAPHICAL SKETCH

Curriculum Vitae

Joseph S. Clark

Education


18 graduate hours in English (Writing, Literature), Florida State University, 1991-1993.


B.S., Communication, Florida State University, 1980.

Honors and Awards

Nominee, Excellence in Online Teaching Award, Florida State University Office of Distance Learning, July 2013.

Top Paper Award (Theatre, Film, and New Multimedia Division) for the paper, “Remediating the Stars: Rob Wright’s ‘Watch the World(s)’ Machinima.” National Communication Association annual conference, November 2012.

Promotion in rank from Associate (in Online Course Development) to full Research Associate, August 2012.

Excellence Award, 3D Animation and Motion Picture Category, for Virtual Florida (machinima project), Digitech 2012, Florida State University, March.

Matthew Grindy Prize, School of Communication, Florida State University, April 2011.

Invited keynote, "Faculty Development and Centers for Teaching and Learning: Case Study and Lessons Learned" at The Role of Learning and Teaching Centers in the Development of University Education, a conference sponsored by King Saud University, Riyadh, Saudi Arabia, January 2011.

Faculty Professional Development Leave, Florida State University, January-May 2010.

Invited participant, "Learning and Research in Second Life." Workshop held at the annual conference of the Association of Internet Researchers, Milwaukee, October 2009.

ACC Teaching Scholar, 2009-2010, "Teaching in a Virtual World."

Promotion in rank from Assistant to Associate (in Online Course Development), August 2009.

Davis Productivity Awards, accessibility consulting for FSU Personnel website and redesign committee for FSU main website, 1999.

Grand Prize, vanagon.com's anniversary short story contest, for the original story *Maintenance*, 1998.


First Place - Short Fiction (*The Riverboat*), Riverside ArtsFest, 1990.

**Teaching Experience**

New Communication Technology and Contemporary Society (COM3332), Florida State University, 2007 - present. Online course.

Argument and Persuasion (ENC 1102), Creative Writing (CRW 2000), Technical Communications (ENC 1210), Web Page Construction, and a variety of computer-applications short courses; Tallahassee Community College, 1998-2000.

English Composition, Bainbridge (Ga.) College, 1993-94.

Speechwriting, Florida State University, 1988-89.


Introduction to Speech, Public Speaking; Montgomery County Community College, Blue Bell, Pa., 1986-88.


Public Speaking, Temple University, Philadelphia, Pa., 1982-83.

Public Speaking, Pennsylvania State University, Abington, Pa., 1982-83.
Publications


Clark, J.S. "Mullet Protest Comes to the Capitol." (Fiction). DIS (Southeastern Culture Quarterly), Winter 1994.


Selected Tallahassee Democrat columns, 1992 (I did not write these headlines!):
"Explore the rituals, dark past of the Cult of the Volkswagen," November 20.
"Soon the St. Beaches will be on the auction block, too," October 1.
"Recovery Ridge, at Appalachians' end, is a monument to the natural world," August 18.
"Part-time single Dads relish the chance to erase 'socially acceptable behavior'," July 28.
"There's no addiction quite like the cool high of freon," June 16.
"White limestone, black tree-trunks: sinkhole diving's not in living color," May 5.
"Get lost on Leon's dirt roads," February 11.


Refereed Conference Papers


Clark, J.S. “Remediating the Stars: Rob Wright’s ‘Watch the World(s)’ Machinima.” Paper presented at the annual conference of the National Communication Association, Orlando, November 2012.


**Presentations**

Clark, J.S. “Classroom Civility.” Program in Instructional Excellence Annual Conference, Florida State University, August 2013.

Clark, J.S. "Virtual Environments and Real Environments." Environmental Education Alliance of Georgia, Athens, March 2013.

Clark, J.S. "Environmental Education in Virtual Worlds." Florida Distance Learning Association, Orlando, September 2012.


Clark, J.S. "Second Nature: Using Virtual Environments to Learn About Real Ones." Making Connections... Instructional Strategies and Online Technologies for Distance Learning, Columbus (Ga.) State University, September 2011.


Clark, J.S. "Template Toolkits as a Model for Bb Course Design." Blackboard Southeast Users Group Conference, Durham, September 2004.


Readings and Performances


Clark, J.S. "And certain stars shot madly from their spheres." Reading of original fiction at the Apalachee Review / Anhinga Press Reading Series, October 2002.

Clark, J.S. "Bodysurfing" (revised). Reading of original fiction at the Walkabout Cafe (Club Downunder), Florida State University, Tallahassee, October 1999.


Readings of original fiction in the FSU Creative Writing Program's reading series:

Readings of original fiction on WVFS 89 FM, Tallahassee:
Multimedia


"DSCN0621, Doomed Pine" selected as The Nature Conservancy's featured member photo on July 2, 2009. Published for one day only at http://my.nature.org/nature/; original at http://www.flickr.com/photos/jsclark/24374779.


"DSCN1444, Looking west from St. Andrews Pier" selected as the key photo in the Wikipedia entry for Panama City Beach, Florida (http://en.wikipedia.org/wiki/Panama_City_Beach,_Florida), and as one of only two photos in the entry for Bay County, Florida (http://en.wikipedia.org/wiki/Bay_County,_Florida) on 18 May 2009.


Travel photos selected for Schmap Guides (http://www.schmap.com/) during 2006-07:
- Palm Beach, Florida: Dubois Park
- Savannah, Georgia: Views from the DeSoto Hilton (2)
- Heidelberg, Germany: Schloss (6), Kornmarkt, and Hotel zum Ritter (2)
- Paris, France: St-Germain l'Auxerrois
- Boulder, Colorado: Pearl Street

Service

Founding Member, International Environmental Communication Association.

Member, National Communication Association and Florida Communication Association.

Publications Director, Environmental Communication Division, National Communication Association, November 2013 - present.

Faculty Sponsor, LIS4910 Information Technology capstone project, Florida State University, Fall 2013.

Faculty Chair, Student Conduct Hearings, Office of Student Rights and Responsibilities, Florida State University, 2012-2013 (ongoing).
Alternate Representative for Florida State University, Members Council on Distance Learning and Student Services, Florida Virtual Campus, 2013.

Member, Steering Committee, Annual Conference of the Florida Distance Learning Association, 2012-13.

Reviewer:
National Communication Association Conference 2012 (two tracks)
Association of Internet Researchers Conference 2011
National Communication Association Conference 2010
National Communication Association Conference 2009 (two tracks)
Conference on Communication and the Environment 2009

Academic Blogger, Ecomedia Studies (http://www.ecomediastudies.org/), an interdisciplinary forum for a critical community of scholars examining the ecological ramifications of modern media.


Facilitator/Performer, "Mentoring Graduate Students' Vignettes," Graduate Program Directors’ Workshop, Florida State University, April 9, 2009.


Member, Recruitment/Social Media Subcommittee, Graduate Enrollment Management Committee, Florida State University, 2008 - 2009.

Senator, United Faculty of Florida (FSU Chapter), 2007 - 2009.

Instructor, First Year Experience program, Florida State University, Summer 2006.

**Work Experience**

Assistant Director, Online Course Development (Instructional Specialist III, Specialized Faculty), Office of Distance Learning, Florida State University, April 2000 - present. Consultant in pedagogy, instructional design, instructional technology, and online learning. Duties include individualized consulting, departmental liaison, development and delivery of workshops, and research in related topics.

Web Designer, Administrative Information Systems, Florida State University, 11/97 - 03/00. Webmaster for several university departments as well as ad hoc consulting on a variety of web projects:
• Provide guidance in visual design and usability for web-enabled applications development.
• Develop logos and other graphics.
• Writing and editing.

Training Manager and Webmaster, Florida Department of Corrections, 10/94 - 11/97. Pioneered, established, and maintained an award-winning state-agency website; developed documentation/training and led statewide implementation of a mainframe-based training records & registration system for 26,000 employees (Quality Performance Award, 1997); primary support for 50 statewide computer-based staff training stations (Quality Performance Award, 1995).

Assistant in Research, Educational Services Program, Florida State University, 10/88 - 10/94. Managed instructional projects, including interactive multimedia; prepared and delivered training, workshops, and other instruction; developed, wrote, and edited instructional materials; conducted task analyses, pilot tests, and field trials.